

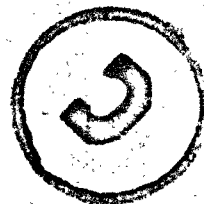
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1957

MAY 54-5

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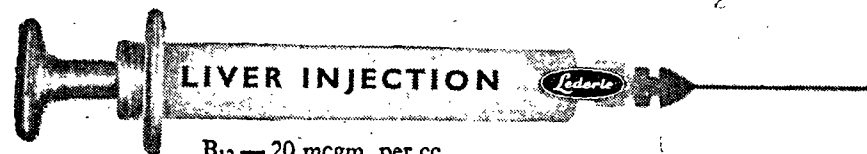
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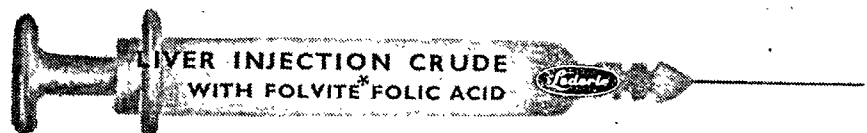
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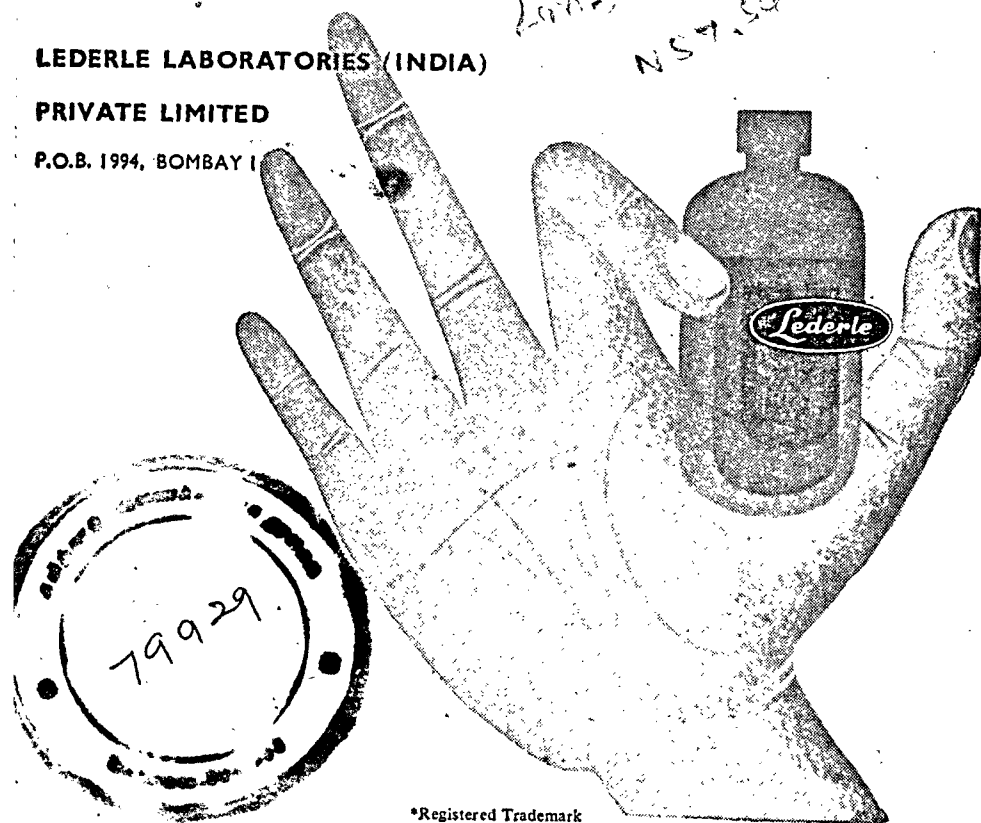


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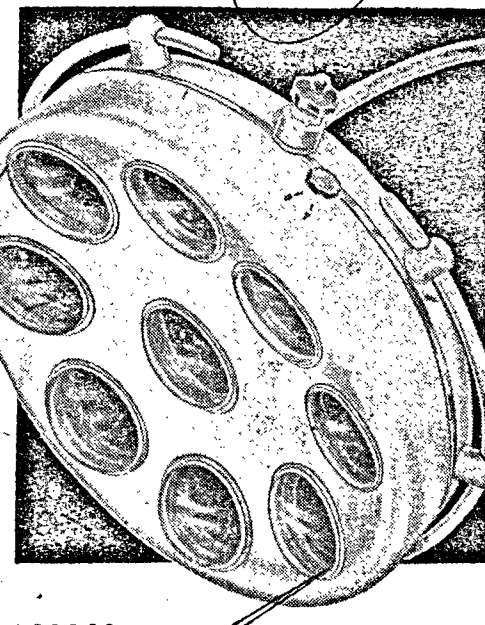
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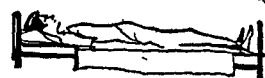


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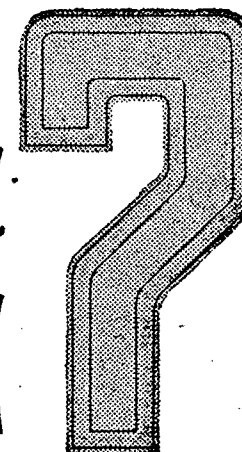
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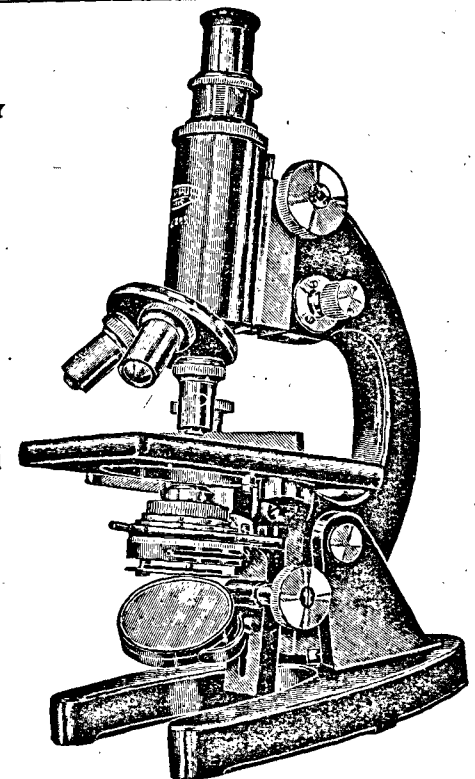
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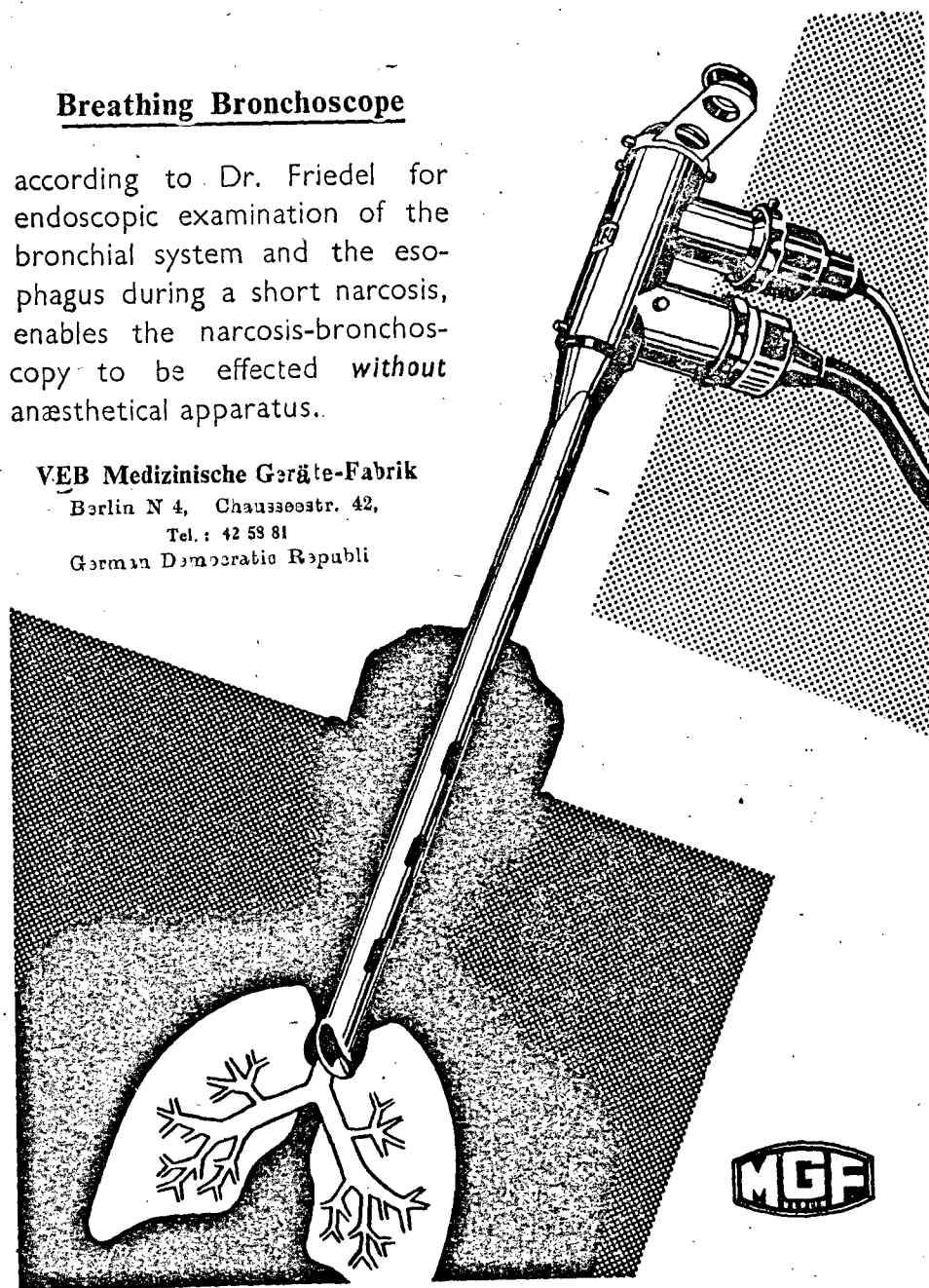
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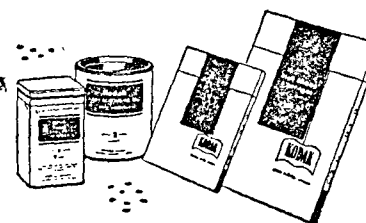
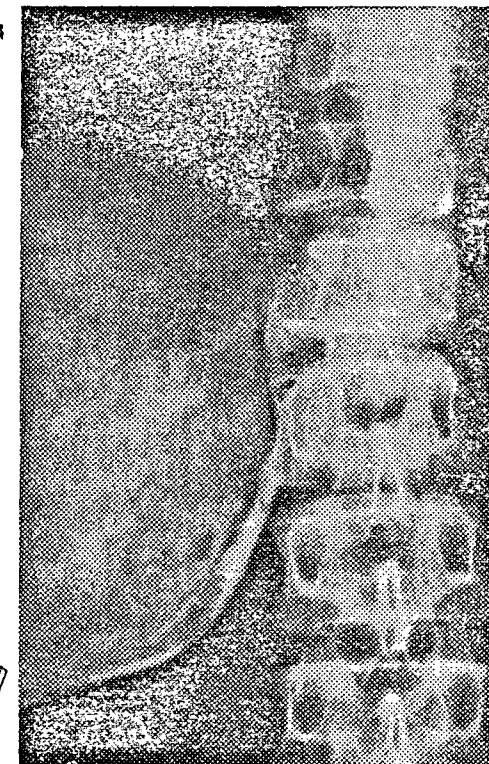
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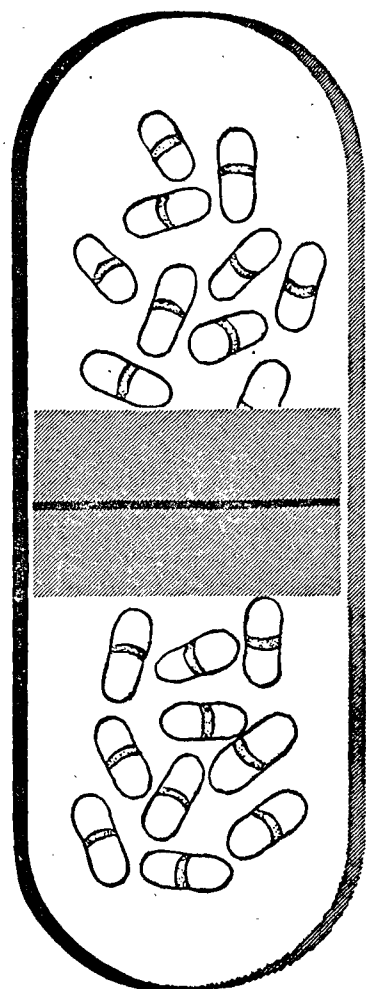
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RASULIN

•ALBERT DAVID•

(N¹-n-butyl-n³-p-amino-benzene Sulphonyl Urea)

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LTD.**

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Effective only in elderly obese subjects. Walker, G. et al (Brit. Med. Journal II, 452, 1956) used this drug in 24 stable middle age diabetics, with satisfactory reduction of blood sugar in 23.

LITERATURE ON REQUEST

PACKING :

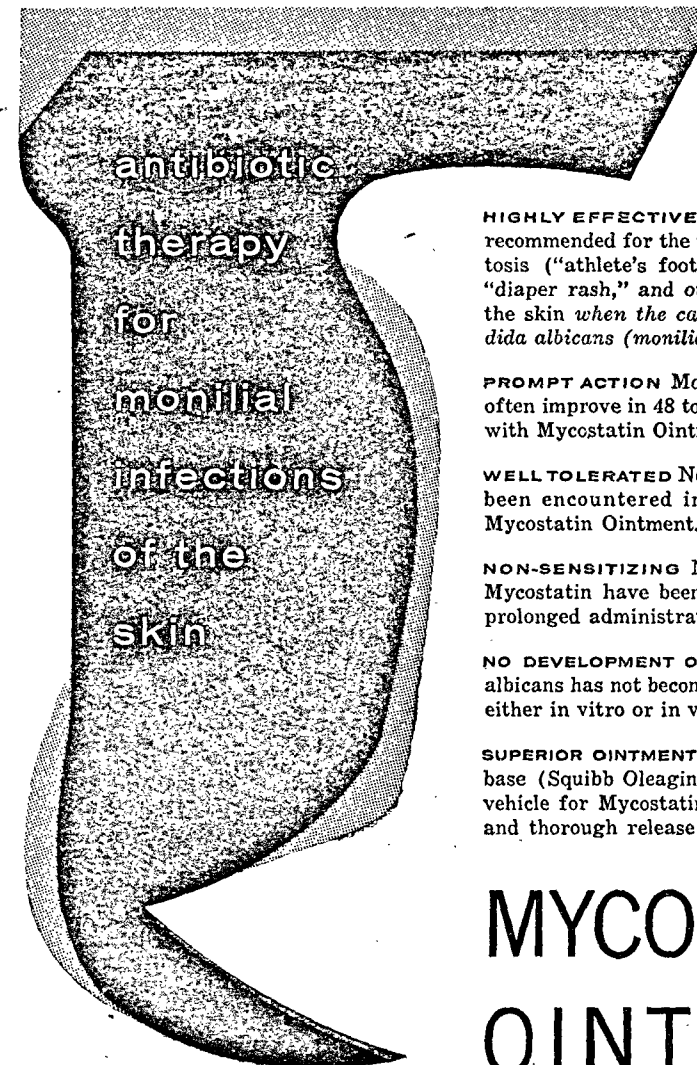
In bottles of 50 and 100 tablets

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antibiotic
therapy
for
monilial
infections
of the
skin

HIGHLY EFFECTIVE Mycostatin Ointment is recommended for the treatment of dermatophytosis ("athlete's foot"), perleche, paronychia, "diaper rash," and other fungus infections of the skin when the causative organism is *Candida albicans* (monilia).

PROMPT ACTION Monilial lesions of the skin often improve in 48 to 72 hours after treatment with Mycostatin Ointment.

WELL TOLERATED No untoward reactions have been encountered in patients treated with Mycostatin Ointment.

NON-SENSITIZING No allergic reactions to Mycostatin have been encountered, even after prolonged administration.

NO DEVELOPMENT OF RESISTANCE *Candida albicans* has not become resistant to Mycostatin either in vitro or in vivo.

SUPERIOR OINTMENT BASE The use of Plastibase (Squibb Oleaginous Ointment Base) as a vehicle for Mycostatin Ointment insures rapid and thorough release of the active ingredient.

MYCOSTATIN Squibb Nystatin OINTMENT

Mycostatin Ointment contains 100,000 units of the antifungal antibiotic, nystatin, per gram of Plastibase (Squibb Oleaginous Ointment Base).

Administration: Apply directly to mycotic lesions once or more daily until healed.

Supply: ½ ounce tubes.

Also available: MYCOSTATIN Tablets: 500,000 units, bottles of 12. MYCOSTATIN Vaginal Tablets: 100,000 units, bottles of 15.

SQUIBB

SARABHAI CHEMICALS, BARODA
Manufacturers & Distributors of Squibb Products in India

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S.C. 453

Calcium-Sandoz
with **VITAMIN C**

500
mg.
VITAMIN C
in
10 cc


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We don't know whether worries
turn Black Hair into Grey Hair or not,
but we do know that whatever may be
the cause of Greying of Hair, Loma surely
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THE UNIVERSALLY
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Better
Nutritional
Balance
in
Infant
Feeding



Because oatmeal is a well-rounded cereal its importance in infant diets has long been recognized by the medical profession. Oatmeal is the most complete whole grain cereal in respect to protein balance, containing all of the ten essential amino acids and containing them in greater abundance than brown rice or whole corn, barley, wheat or rye. It is also superior to other cereals in fats, iron, phosphorus, thiamine chloride and caloric content.

Since an exclusively milk diet is notably deficient in iron, nutritional anemia often develops in infants having no other source of this important hemoglobin-forming element. An extract of cooked oatmeal is therefore ideal as a supplement to

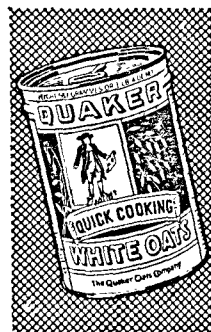
the mother's milk or as an additive in the milk formula. Mixed with the formula, it increases the iron content by forty per cent and also tends to prevent the formation of indigestible protein curds in the infant's stomach.

As a porridge, oatmeal suits the requirements of the weaned baby for a solid food that is palatable and also thoroughly and easily digestible. Experiment indicates that it may safely be given as early as the third month.

The consumer of QUAKER OATS need have no anxiety on sanitary or religious dietary grounds, as no human handling is involved. The product is mechanically processed from beginning to end, and the sealed tin container protects it from spoilage or infestation by insects.

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Best for Baby



Quaker Oats Graanproducten regrets that the supply of Quaker Oats in India is insufficient to meet current demand and that therefore the product is retailing at a considerably higher than normal price. The reason for this situation lies in the recently imposed complete restriction on any further imports.

If you are interested in further information on this important topic, please direct your inquiries to:

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P. O. Box 905 Rotterdam, The Netherlands

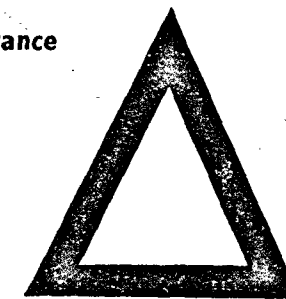
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VIALS OF 10 & 20 TABLETS

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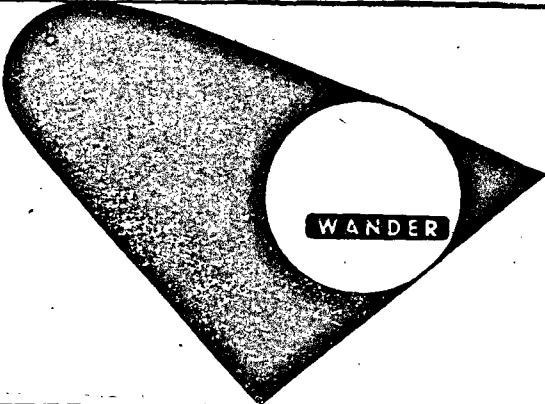
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Particulars, Literature, Etc. From
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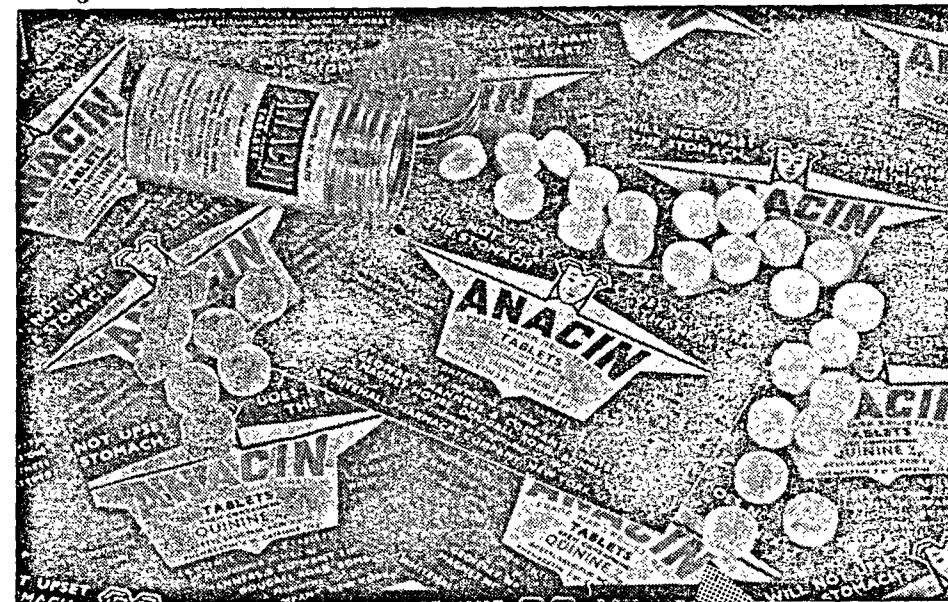
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ANACIN[®] is a non-toxic and clinically dependable preparation, specially formulated to provide a prolonged period of analgesia with a single dose of 1 or 2 tablets.

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NEURITIS
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Each capsule contains:-

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Proteolysed Stomach Powder from	1.0 G. of fresh stomach.
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Vitamin B1 B. P.	5 mg.
Vitamin B2 (Riboflavin B. P.)	2 mg.
Vitamin B6 B. P. C.	0.5 mg.
Calcium Pantothenate U. S. P.	1 mg.
Niacinamide B. P.	15 mg.
Vitamin C. B. P.	30 mg.
(Livules & Folic Acid) Folic Acid B. P.	1.5 mg.
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A standardised combination of all essential water-soluble and fat-soluble vitamins. Each capsule contains:

Thiamine Mononitrate U.S.P. 5.0 mg.
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d-Pantothenyl alcohol 1.0 mg.
Niacinamide B.P. 20.0 mg.
Vitamin B₁₂ U.S.P. 2.5 mcg.
Vitamin A, U.S.P. 5,000 I.U.
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Excess vitamins have been added to compensate for any possible loss on storage.

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Horlicks is easily digested and readily absorbed. It contains first class protein and its soluble carbohydrates possess marked protein-sparing qualities. It thus helps to prevent tissue waste, and is a valuable re-builder during convalescence. Horlicks needs mixing with water only, though it can be prepared with milk or milk and water if desired. Its ease of preparation assures the patient receiving freshly prepared food in appetising form whenever required.

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*Prescribed with confidence
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HL 1321

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Cipla



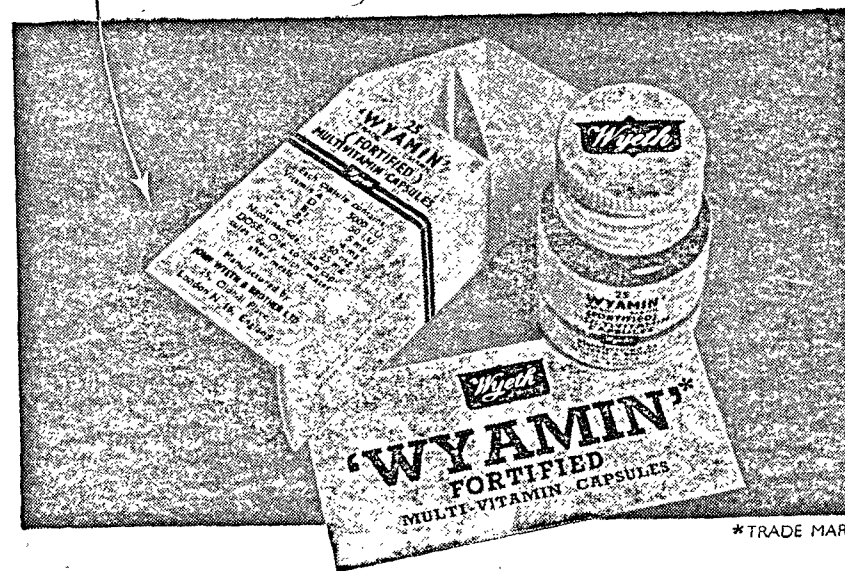
CALCIUM TABLETS WITH VITAMINS
A 700 I.U. C 10 mgs. D 500 I.U.

malnutrition...



Numerous clinical studies have emphasized the value of supplementary vitamins in the management of malnutrition. 'Wyamin' Fortified deserves a prominent place in the treatment of nutritional deficiency conditions. It is a thoroughly reliable source of vitamins A, B₁, B₂, C, D and Nicotinamide in quantities especially adjusted to meet sub-tropical requirements. Presented as capsules, 'Wyamin' Fortified ensures uniform dosage and makes administration convenient.

Supplied in bottles of 25, 50 and 300 capsules



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Dalda and its place in the diet

In a recent address on "Fundamental Problems of Vitaminology," Prof. Wilhelm Stepp, Emeritus Director of the Munich Medical Clinic, observed: "Even authoritative writers hold that in this epoch when foodstuffs abound, vitamin deficiencies are no longer seen. This is a fundamental error."

Prof. Stepp cited as an example the U.S.A., one of the well-fed nations of the world. "The addition of vitamins to the flour used for bread now practised in the U.S.A. goes on to show that insufficient vitamins seem to be a great peril which must be avoided at all costs. In effect it is not possible to buy bakery flour in the U.S.A. which has not been reinforced with vitamins and some minerals."

If this is the case in America the condition must be far worse in a country like India where the intake of milk, milk products and other animal foods is extremely low. To quote from the special report No. 27 published by the Indian Council of Medical Research: "According to Health Bulletin No. 23 (1951), issued by the Nutrition Research Laboratories, Coonoor, *vitamin A deficiency is the single factor responsible for a large number of nutritional deficiency diseases.* The daily allowances for an adult are in the neighbourhood of 3,000 to 4,000 I.U. of vitamin A. Animal foods, which are rich in vitamin A, are however, many times more expensive; hence this rich source of vitamin A cannot be utilised."

With a view to making good a part of the vitamin A deficiency in this country the Food Fortification Sub-Committee of the Indian Council of Medical Research had recommended that the vitamin A content of vanaspati should be raised to 700 I.U. per oz. thus making available to the people a good and nourishing fat at an econo-

mical price. This has been done with Dalda.

Dalda is a pure cooking fat made out of vegetable oils according to strict Government specifications. The ordinary oils of everyday use are refined, hydrogenated and enriched with 700 I.U. of vitamin A per oz. and 56 I.U. of vitamin D per oz. By virtue of this enrichment the vitamin content of Dalda is now the same as that of good quality ghee.

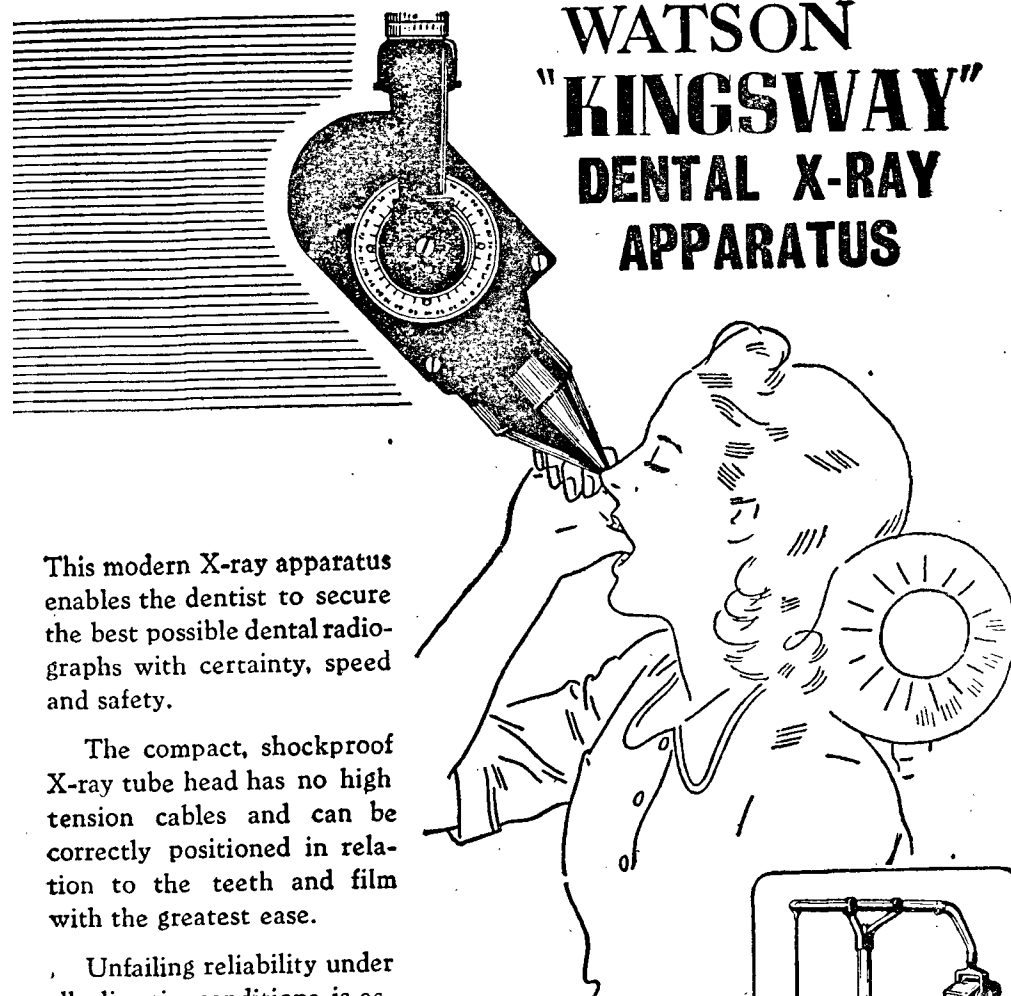
Dalda is not a substitute for but an alternative to ghee. Fats like butter and ghee are good but their supply is far short of requirements and they are too expensive for the everyday use of most people. Further, the consumption of milk as milk is more beneficial than the consumption of ghee which is a product of milk, as then the consumer gets the animal protein as well as the calcium and vitamins. In most western countries people are increasingly consuming milk as milk. This should be the ideal trend in India also.

In addition to being a fat enriched with the two essential vitamins, Dalda is easily digested and utilised by the body on account of its low melting point. The standards of quality laid down for the manufacture of this product are so high that it compares favourably with its other counterparts such as "shortening" and "margarine" used extensively in the United States, England and other European countries. Each ounce of Dalda yields 250 calories, as much as 1 oz. of any good quality ghee and over twice as much as an ounce of wheat or rice.

Dalda is, therefore, a very valuable addition to the average Indian diet which is so often lacking in essential nutrients, particularly vitamins and fats.



WATSON "KINGSWAY" DENTAL X-RAY APPARATUS



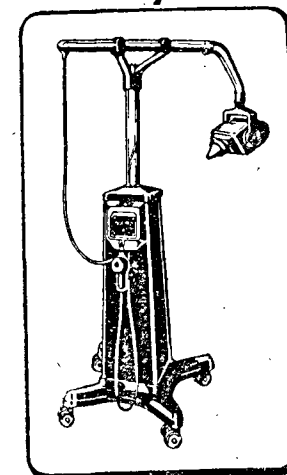
This modern X-ray apparatus enables the dentist to secure the best possible dental radiographs with certainty, speed and safety.

The compact, shockproof X-ray tube head has no high tension cables and can be correctly positioned in relation to the teeth and film with the greatest ease.

Unfailing reliability under all climatic conditions is assured by the method of enclosing the X-ray tube and transformer in a vacuum-sealed, oil-immersed container.

Manufactured by Watson & Sons (Electro-Medical) Ltd.
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Each dose of 4-5 c.c. (approx.
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Vitamin B ₁	...	0.4 mg.
Vitamin B ₂	...	0.6 mg.
Niacinamide	...	5 mg.
Vitamin C	...	20 mg.
Vitamin D ₂	...	500 I.U.
Calcium Glycero-phosphate	...	0.5 gr.
Sodium Glycero-phosphate	...	0.25 gr.
Sucrose	...	q.s.

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THE RICHEST TONIC FOR BABIES

Hamdard



Useful in the following
diseases of Children

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SALIVATION, ROUND WORMS
& OTHER WORMS, EXCESSIVE
THIRST.

FORMULA

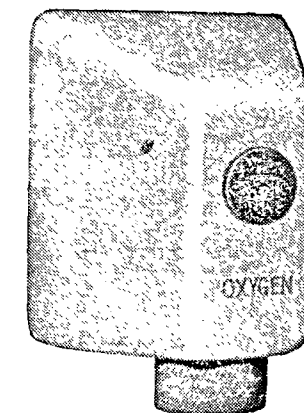
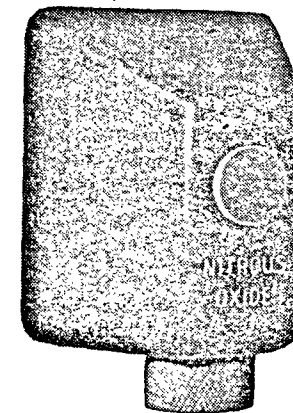
Each dose of 4-5 c.c. (approx.
one teaspoonful) contains:—

Aqua Pudina Destil-lata	...	3 min.
Aqua Zira Destillata	...	3 min.
Conc. Anisi Water	...	1 min.
Aqua Anethi Conc.	...	1 min.
Aqua Menth. Pip	...	1 min.
Soda Bicarb.	...	gr.
Sodii Bromidum	...	1 gr.
Spt. Ammonia Aromat	...	1 min.
Spt. Chloroforml	...	1 min.
Sucrose	...	q.s.

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Each 30 c.c. Contains
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Each tablet contains
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* * * * *

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CORALGIL

AND

CORALGIL SEDATIVE

(Specific Coronary
Vasodilator)

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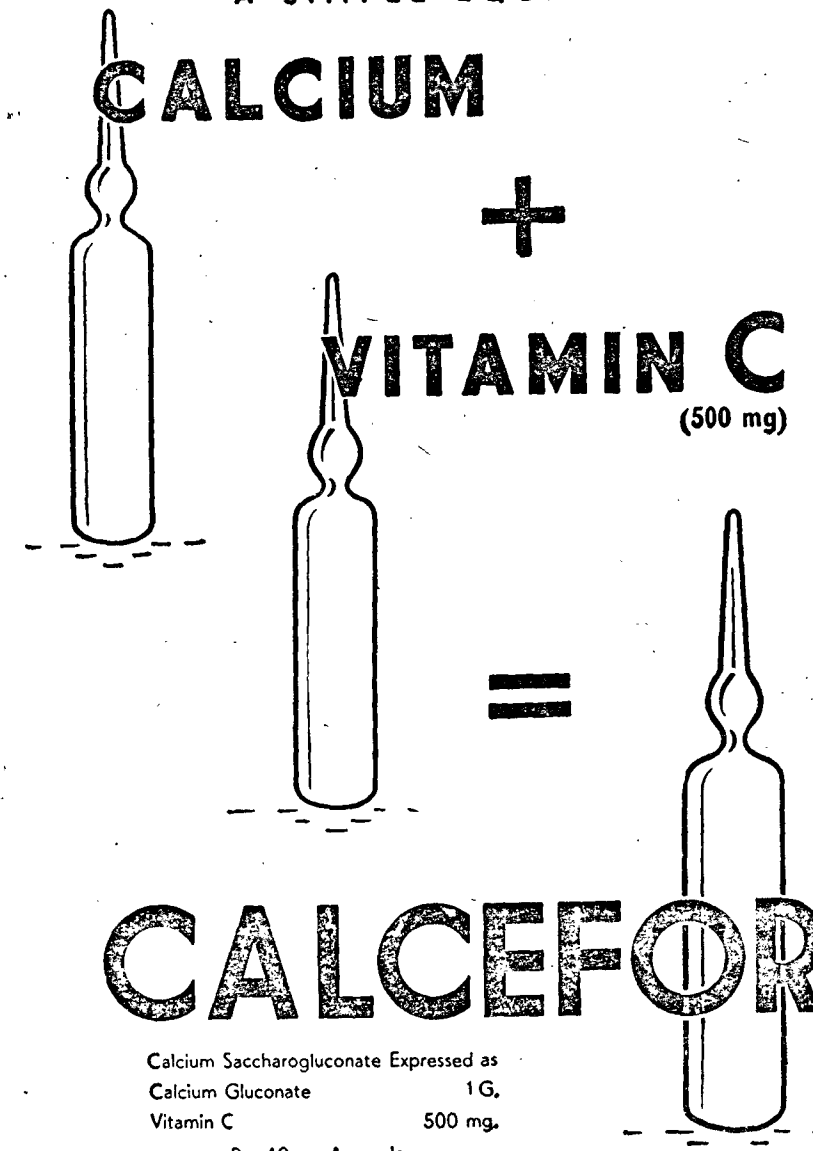
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Calcium Saccharogluconate Expressed as
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Vitamin C 500 mg.

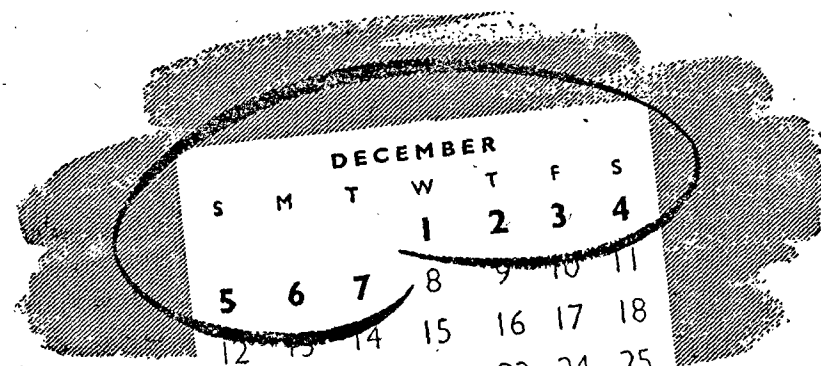
Per 10 cc. Ampoule

Boxes of 6, 25, 50 and 100 Ampoules



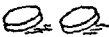
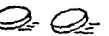
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ONE WEEK'S THERAPY

for the peptic ULCER patient

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	----- MID-MORNING -----	'SEBELLA'  2 tablets
	LUNCH followed in 1 hour by	'ALUDROX'  2 teaspoonfuls
	----- MID-AFTERNOON -----	'SEBELLA'  2 tablets
	SUPPER followed in 1 hour by	'SEBELLA'  2 tablets
	----- BEDTIME -----	'ALUDROX'  4 teaspoonfuls

This dosage may be increased wherever necessary. After one week's combined 'Aludrox'/'Sebella' therapy, 1 'Sebella' Tablet t. i. d. will usually suffice.

'ALUDROX' **'SEBELLA'**

AMPHOTERIC GEL
Available in bottles of 12 fl. oz.
'Aludrox' Tablets in bottles of 60.



TABLETS
Available in bottles
of 60 tablets

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EFFECTIVE

weapons against malaria

'DARAPRIM' COMPOUND

for treatment

Quinine is a powerful, rapidly-acting schizonticide and recent investigations (Ray et al., 1953; Jaswant Singh et al., 1953) suggest that, when given in combination with 'Daraprim', each drug potentiates the action of the other against *P. falciparum*. 'Daraprim' Compound, containing 5 mg. of 'Daraprim' and 300 mg. (4 $\frac{1}{2}$ grains) of quinine dihydrochloride in each tablet, is the logical outcome of this finding and can be relied upon to control rapidly an acute attack of malaria.

'DARAPRIM' pyrimethamine for prophylaxis

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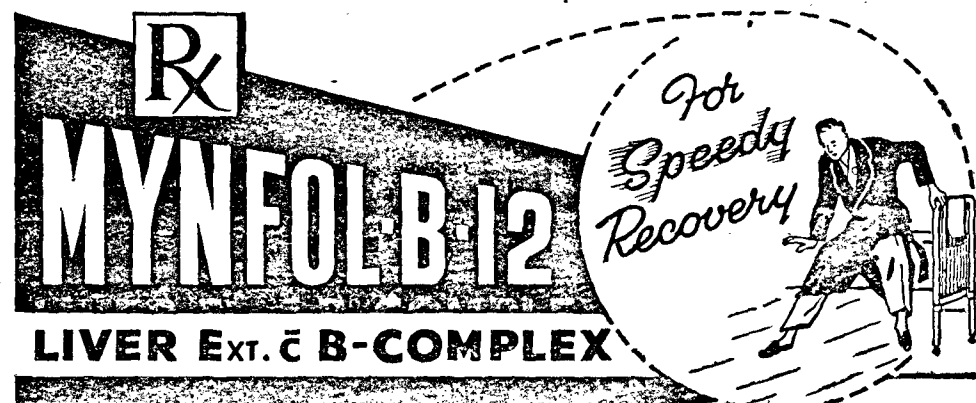
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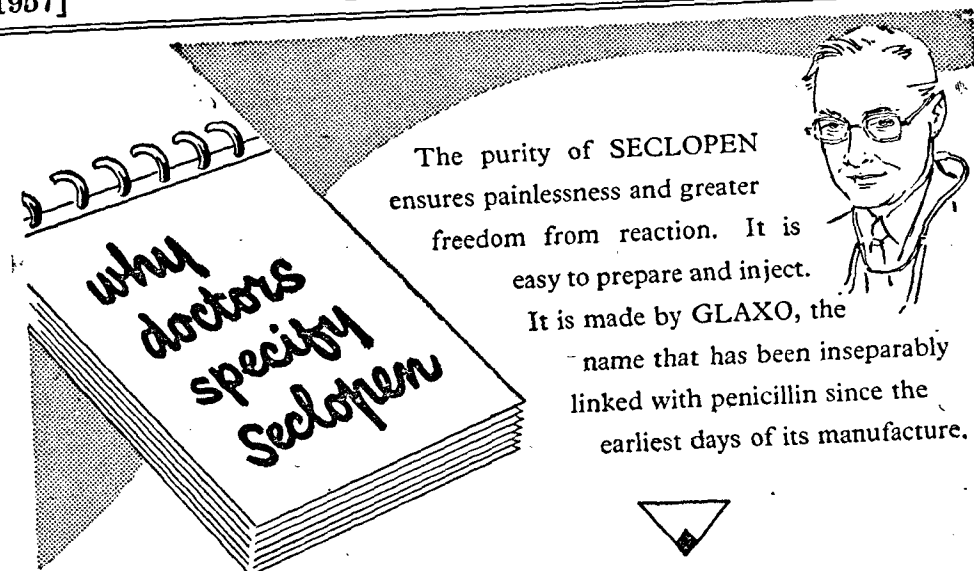
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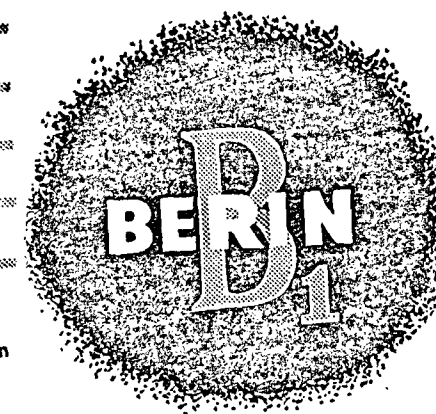
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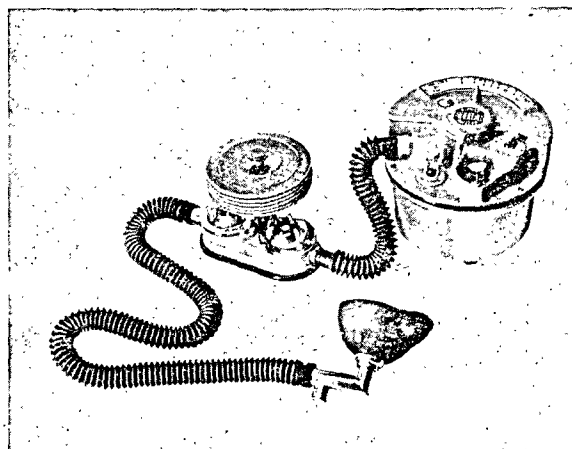


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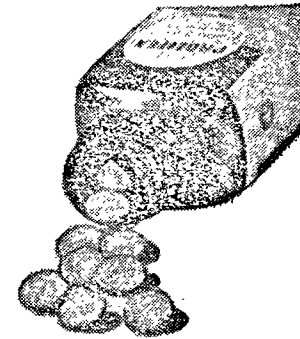
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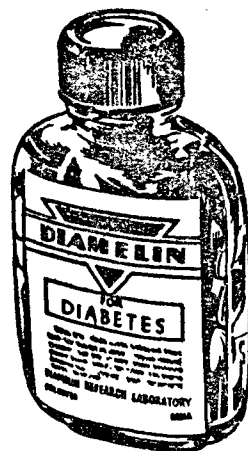
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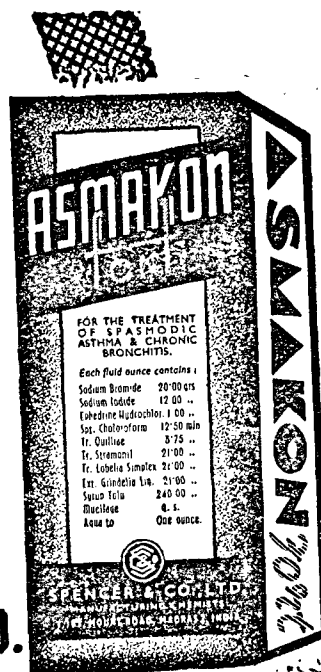
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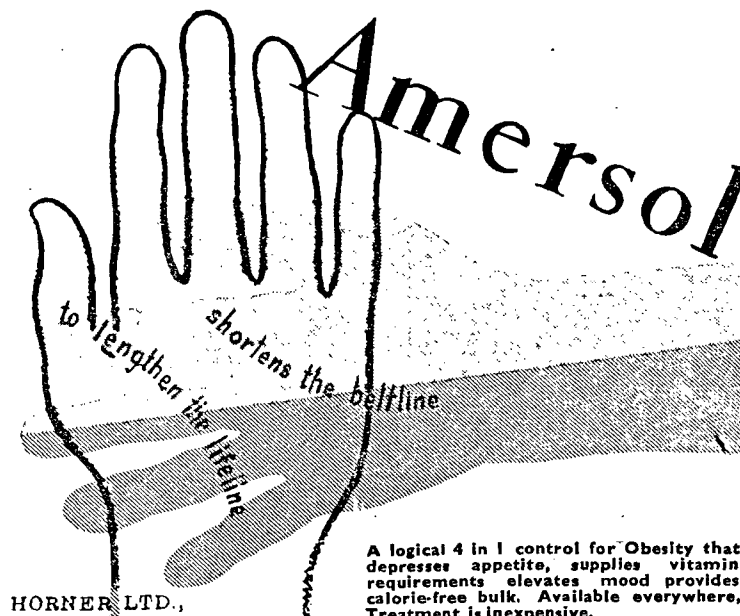
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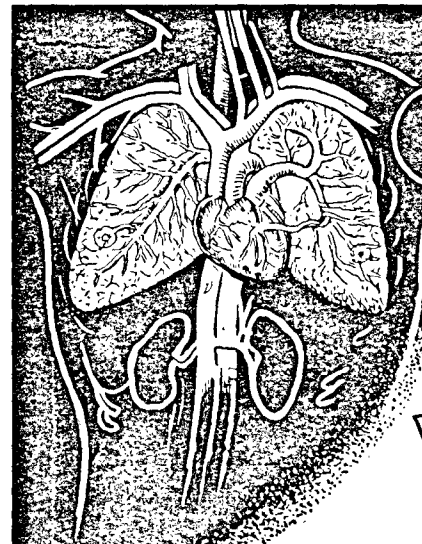
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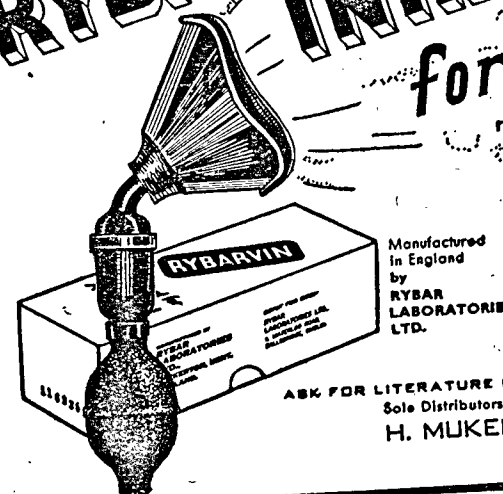
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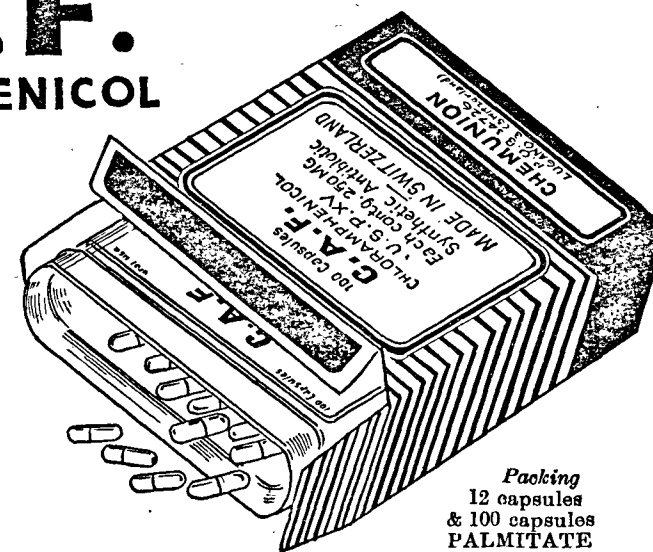
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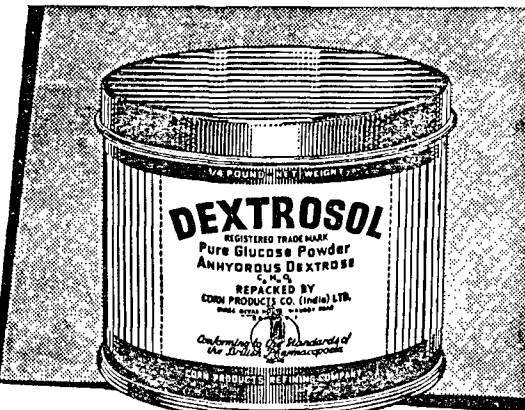


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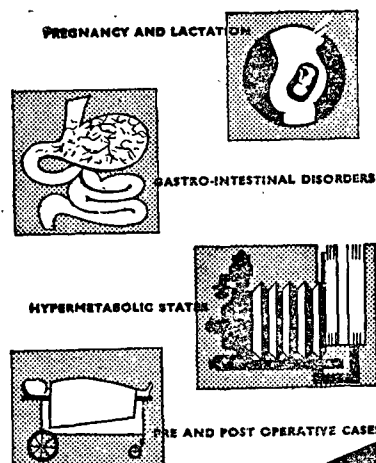
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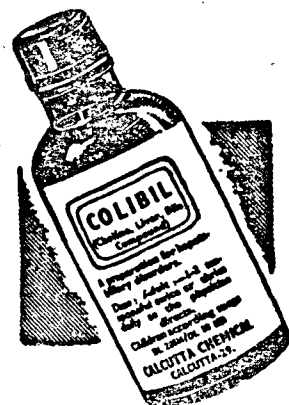
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Original Articles

ACUTE RENAL FAILURE*

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ACUTE renal failure is a condition in which there is anuria or oliguria due to some sudden blockage in the renal tubules. The usual course of such a condition is towards recovery and hence the aim of the treatment should be to maintain the patient till this predictable recovery takes place. The blockage of the tubules may be by the methæmoglobin after a mismatched transfusion, myohæmoglobin after crush injuries, sulphonamide crystals after indiscriminate sulphonamide therapy or due to degeneration of cells of the tubules after severe and prolonged renal ischæmia produced as a result of shock of acute dehydration. Whatever the cause, the resulting pathological changes are almost the same, namely the lower nephron nephrosis. Such pathological changes in the kidneys are accompanied by a typical sequence of events, namely the stages of oliguria, anuria and diuresis in almost all the cases, but there may be individual variations from case to case.

Causative factors.—The condition was first described by some German authors immediately after World War I. The clinical and pathological picture became quite clear however, only during World War II when Bywaters¹ and his associates made extensive studies of the nature of this disease in the air-raid casualties in London. Great interest was aroused amongst the investigators all over the world and numerous investigations were carried out subsequently to find out the nature of this condition. In spite of all these studies many points still require further investigation. The facts which are already known will be reviewed here:—

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1. *Crush injuries*:—Bywaters (*loc cit*) first noticed during the air-raids that some of the patients who were buried in the debris of collapsed houses and who received severe injuries developed a peculiar type of renal failure almost similar to that of transfusion reaction. He and his group felt that the occurrence of such a condition was due to release of myohæmoglobin from the crushed and necrosed muscles, after trauma, which circulated in the blood and was excreted into the tubules through the glomeruli.

Here the tubules which are already in a devitalized state, due to anoxia produced as a result of earlier renal ischæmia, from shock have to excrete large amounts of myohæmoglobin. This produces a severe inflammation in the tubules especially in the presence of acid urine, which leads to the development of typical pathological changes of lower nephron nephrosis.

2. *Transfusion reaction*:—In the transfusion reaction which usually occurs after a mismatched blood transfusion there is sudden hæmolysis. Similarly in all conditions in which there is sudden hæmolysis, as in blackwater fever, snake-bite, or severe burns, one may encounter a similar type of pathological change in the kidneys. In all these conditions, the hæmoglobin is released into the blood-stream in large quantities after the destruction of red blood cells, and then it passes into and blocks the tubules. The colour of the urine thereafter may become red to dark brown depending upon whether it contained oxyhæmoglobin or methæmoglobin. Here it should be remembered that although a large quantity of hæmoglobin is passed by many patients all of them do not develop lower nephron nephrosis. Because it has been found that it is not the actual hæmoglobinauria which produces the renal damage, but it is the accompanying vasospasm of renal vessels that occurs after a sudden shock of hæmolysis, which is responsible for aggravating the condition. The pathological changes are just the same as those found in the case of crush injuries and so will be discussed together.

3. *Other causes*:—Similarly the oliguria and anuria may also occur in many other conditions showing the same type of renal pathology, such as severe surgical shock, extensive burns, following antepartum or postpartum hæmorrhages, septic abortions and even after acute dehydrating conditions. At the onset of acute dehydrating conditions such as cholera, the oliguria is physiological caused by the depletion of water and salt in the body. Pathological changes are produced later which lead to lower nephron nephrosis. Further this condition is found to develop after the intake of a large quantity of sulphonamides or other toxic substances. In these conditions, initially there is some type of renal ischæmia due mostly to a decrease in the blood volume due to dehydration. This is followed by the

passage of toxic substances into the tubules, which are then highly sensitive to any irritants and therefore, undergo severe degenerative changes leading to anuria and oliguria depending upon the severity of dehydration and the amount of obstruction in the tubules.

Pathology.—Grossly the kidneys are found enlarged and swollen, and may show white zones of ischæmia in the cortex. Microscopically (i) the collecting tubules contain brown necrosed or other foreign materials with varieties of casts in them. The distal convoluted tubules and ascending loop of Henle show swelling with desquamation of the cells in many places. Such a change in the tubular cells is usually not accompanied by the destruction of the basement membrane. But apart from these main lesions, (ii) there may be a few random points of focal necrosis including disruption of the basement membrane. The first type of lesion, appears to be due to irritation from the toxic substance found in the urine on the tubular mucosa, whereas the second type of lesion is due to renal ischæmia. The first type of lesion can be minimized in experimental animals by the use of diuretics and magnified by causing dehydration.

All these pathological changes are mostly limited to the ascending loop of Henle and distal convolution tubules although one may also see some cloudy swelling in the proximal portion of the tubules. Because of this peculiar distribution of pathological changes in the selected portions of the renal units, some pathologists gave the name of lower nephron nephrosis to this condition.

Clinical findings.—In the clinical picture, apart from the signs and symptoms of the original pathological state the main symptom is that there is less urine. For practical purposes the suppression of urine has been subdivided into:—(a) oliguria if the daily urine output is between 100 and 500 cc., and (b) anuria if it is less than 100 cc. Apart from the urinary trouble, the patient gets a serious mental apathy alternating with an anxious awareness of his condition. There is severe vomiting and other gastrointestinal upsets throughout the course of the illness. Blood-pressure may increase temporarily in view of the renal ischæmia. The laboratory findings are of great importance both from the diagnostic and prognostic points of view. The concentration of blood urea and other non-protein nitrogens increases gradually to a very high level, depending upon the states of protein-metabolism, infection etc. Similarly the concentration of sulphates and phosphates increase as these are the end products of protein-metabolism. The increased phosphate content of the blood leads to a decrease in the calcium content and hence tetany may set in. Very often there is a decrease in the sodium chloride content of the blood, the exact cause of

which is not known. This decrease in the NaCl content leads to decreased osmotic pressure of the extracellular fluid thereby causing symptoms of extreme weakness, apathy, restlessness, muscular spasm etc.

One of the important electrolytic changes in this condition is the enormous increase in the potassium content of the blood. This is primarily due to increased tissue destruction during the phase of starvation and the consequent release of potassium from it. Secondly, during the course of the disease when there is acidosis, more potassium is released from the cells, which circulates in the blood and is excreted through whatever route available. The deleterious effect of increased potassium concentration in the blood is one of the functions of the heart muscle. There is usually an increase in the amplitude and peaking of the T. wave, depression in the S.T. segment and reduction in the size of the R. wave. Similarly there may be prolongation of P.R. interval and in severe cases the P. wave may disappear altogether.

Usually the critical period is from 7 to 10 days. Patients who get over the renal damage develop a sudden diuresis and the urinary excretion reaches a very high level up to 4 or 5 litres a day. Simultaneously the blood-urea and other non-protein nitrogen levels fall with the diuresis. It, however, takes another seven to ten days before the kidneys resume their normal function as determined by the blood-urea clearance test. If the recovery does not take place at the end of the critical period of about 10 days, the blood potassium level increases inducing toxic changes in the cardiac musculature. Therefore cardiac irregularities with failure set in from potassium intoxication and uræmia. Death may occur very suddenly due to all these changes.

Management.—The management of this condition depends upon the various factors that produce anuria. If the anuria or oliguria is due to prolonged dehydration, then the judicious use of intravenous injection of 5% glucose with or without normal saline depending upon the nature of dehydration is the best possible treatment.

If the anuria is due to prolonged hypotension, adequate blood or plasma transfusion should be given to raise the blood pressure. If the fall of the B.P. is precipitous, then vasopressor drugs such as nor-adrenaline may be given to maintain normal blood pressure. When whole blood or plasma is not available, Dextran or plasmosan may be given to maintain the blood pressure, because, any prolonged hypotension during or after the operation or after a serious injury, decreases the renal blood flow and consequently the urinary output. Hence all necessary measures must be taken to prevent oliguria or anuria developing at a later stage.

Once anuria has actually developed, the following measures should be tried. During this stage extreme caution must be exercised to see that the water load is at a minimum all the time. Otherwise the patient will drown in his own fluids. Therefore the water-intake should be just sufficient to meet the demand caused by an insensible loss of 800 to 1000 cc. per day *plus* the amount of fluid visually lost during the day. The usual water requirement during the period of anuria amounts to about 1000 cc. and this amount should on no account be exceeded. During this period, as already stated, there is acidosis, a decrease in the sodium chloride content and a high potassium content in the blood. In order therefore, to combat these electrolytic disturbances, an injection of 100 to 200 cc. of 2 to 3 per cent soda bicarb solution intravenously depending upon the severity of acidosis should be given; also if available 6 molar sodium lactate solution intravenously. These solutions will raise the sodium content of the blood. A few observers have also found that the injection of 200 cc. of an isotonic solution of sodium sulphate (4.2%) is also very beneficial as it not only raises the sodium content of the blood, but also exerts a diuretic action on the available normal tubules in the kidneys.

One of the most difficult problems to solve is the high potassium content of the blood, which has a very toxic effect on the heart. Several methods have been tried to remove the excess of potassium found in the blood. It may be reduced by the repeated intestinal or colonic lavage with large quantities of isotonic saline solution. In children and where facilities exist—even in adults—one may attempt a peritoneal lavage. But this procedure is not free from risks and hence should be resorted to only when no other method is feasible. Some of the ion exchange resins such as Dowex 50, have been tried in certain centres using 100 cc. of a 15 or 20% solution 3 to 4 times a day to reduce the potassium content of the blood.

Intravenous injections of 100 cc. of a 25% glucose solution twice a day in addition to 1 unit of insulin per 2 g. of glucose subcutaneously has also been found to decrease the potassium content of the blood and also the toxic effect of hyperpotassæmia to the various organs. Any or all of these measures should be tried to overcome this disturbance. Where facilities are available, artificial kidney apparatus should be used to dialyse the blood for taking out the excess amount of potassium and other toxic materials. Apart from these measures and in order to counteract the hyperpotassæmia one may give 10 cc. of a 10 per cent calcium gluconate solution intravenously once or twice a day with beneficial effects. During the period of anuria one should maintain the general health of the patient by giving a suitably balanced supportive and nourishing diet. For this purpose

Bull's diet³ has been strongly recommended, which consists of a high calorie diet with no protein or only a low protein content. Glucose 400 g.; peanut oil 100 cc.; gum acacia and water 400 to 600 cc. to make a thick emulsion. All the vitamins are added to this emulsion and given through a Ryle's tube three or four times a day.

The above is but an outline of the general management of cases having anuria, so far as their nutritional, electrolytic and water balances are concerned. These are the most important measures to maintain the health of patient under the best available circumstances so that during the period of anuria the tubules may regenerate and regain their normal function under optimum conditions. By following these measures, patients usually reach the stage of diuresis at the end of about 10 days. If they do not and if the condition further deteriorates, the following surgical measures, will have to be considered but only if there are no specific contraindications for the same:—decapsulation or multiple incision on the kidney on one or both sides, so as to allow the kidney parynchyma to expand and thereby hasten the regeneration of the tubules. Pyelostomy, nephrostomy and pyelonephrostomy may also be tried if one suspects an obstruction in the urinary tubules or in the calices of the kidneys. If obstruction in the pelvis or in the ureter is suspected, the obstruction may be removed by ureteric catheterization.

Stage of diuresis.—As already stated, in favourable cases there is profuse diuresis to the extent of 3 to 5 litres within 24 hours, which continues for about a week or so. During this period one is liable to lose quite suddenly a large quantity of water and salt which, if not promptly replaced, may lead to catastrophe. I have observed a case in another hospital, where a patient died because of inadequate replacement of water and salt during this period, which is as important at this stage as their complete restriction during the stage of anuria. Replacement by glucose saline, volume for volume, of the amount lost through urine, *plus* 800 cc. for meeting the insensible loss, should be the principle of replacement. Usually this may require about 3 to 4 litres of fluid during the first three or four days which may be reduced as the urinary excretion becomes less.

Along with these nutritional measures, symptomatic treatment will be necessary for the various conditions, occurring along with this complication. Any sepsis, present will have to be treated by penicillin or other antibiotics and vitamins given to preserve the strength of the patient. A typical case of acute renal failure due to the toxic effect of sulphonamides is described below to illustrate the problem.

CASE REPORT.—S. a male, aged 30, was admitted to a mofussil hospital for undergoing vasectomy as a family-planning measure. The Medical Officer performed vasectomy on both sides under local anaesthesia without any difficulty. The patient was anxious to get home, and so was discharged on the next day. He was asked to take two tablets of sulphadiazine, every 4 hours to prevent sepsis. The patient took 2 tablets every 4 hours, day and night, that is 12 tablets per day for 2 days, a total of 24 tablets in all. He did not take sufficient fluids, although he was perspiring profusely, due to the heat of the weather. The result was that on the 4th postoperative day he passed only 300 cc. of urine and on the 5th day, he passed hardly a few drops. He was therefore, referred to our hospital.

On examination the patient was found very restless with great apathy and nervousness. The tongue was dry and furred. The pulse was 120 p.m. and the temperature was 100°F; the respiration was 40 p.m. The heart and lungs were normal. Laboratory examination showed blood urea 120 mg. per 100 cc. Other laboratory findings were all within normal limits. Therefore, a diagnosis of acute renal failure was made and the following treatment was instituted immediately.

In order to overcome acidosis as well as the sodium deficiency, 100 cc. of 2% solution of soda bicarb was given intravenously every day. Similarly as a diuretic 100 cc. of a 4.2% solution of sodium sulphate was also given. To remove the hyperpotassaemia, colon lavage was given with isotonic saline. Apart from these he was also given glucose saline 800 cc. intravenously to meet the insensible loss. No attempts were made to feed him with a high calorie diet, since his general condition was good and the duration of his starvation was very short. In spite of all these *regimes*, he did not pass more than a few cc. of urine during the next three days. However, on the 10th post-operative day, he suddenly started passing plenty of urine and within the first 24 hours passed 3000 cc. and 2500 cc. of urine on the next day. The fluid-losses were replaced by intravenous glucose saline and also by about 800 cc. of fluid orally to meet the insensible loss. By carefully observing the intake and output chart, and by also replacing the fluids lost through the urine, he completely overcame his trouble within 10 days of his starting diuresis. Therefore, he did not show any evidence of kidney lesion.

Comments.—It will be seen that the course of acute renal failure in this case was due to the obstruction of the renal tubules by sulphonamide crystals, which formed partly as a result of the overdosage of the drug and partly due to dehydration. Apart from these, hypersensitivity to the drug might probably have also played some part in the production of this condition. Once the acute renal failure had developed no attempt was made to overload his system by giving too much of fluids, the insensible loss

alone being met by fluid administration. To correct the sodium deficiency and acidosis, soda bicarb and sodium sulphate solutions were given. Since the duration of illness was short, we did not expect much of potassium access, hence we resorted to colon wash only. As proper facilities were not available for serum potassium and sodium estimations, we had to rely mostly on clinical findings alone. His starvation not being a prolonged one, there was no need to resort to Bull's high calorie-diet.

At the end of 10 days there was profuse spontaneous diuresis as expected and we carefully measured the output of urine and replaced the same with glucose saline injections. As we were convinced that the obstruction in this case was intra-renal and as he went into a stage of diuresis on the 10th day, surgical procedure was not necessary.

Summary.—1. Two main factors produce acute renal failure:—(a) a reduced blood volume due either to shock or to acute dehydration with consequent renal ischaemia; (b) obstruction in the renal tubules, which may be caused by foreign substances such as myohæmoglobin, methæmoglobin, sulphoamide crystals etc. or even by the desquamated and necrosed tubular cells themselves.

2. Once the acute renal failure is produced by the combination of one or both of these factors, the resulting clinical features are the same in all cases. Usually there are three distinctive stages viz., oliguria, anuria and diuresis. Of all the changes, hyperpotassæmia which has a damaging effect on the heart muscle and uræmia, are the important dangerous signs.

3. It is always better to prevent the development of this condition by the effective treatment of shock and dehydration, thereby also preventing the development of renal ischaemia. But once the condition has developed it is of the utmost importance to restrict the fluid intake to the essential requirement, enough to meet the insensible loss of 800 cc. by giving I.V. glucose saline. Similarly during the stage of diuresis, all the amount lost should be carefully measured and replaced by glucose saline. Other nutritional disturbances must be suitably dealt with.

4. A case of acute renal failure which developed as a result of the toxic effect of sulphonamides, was successfully cured, by adopting these measures.

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TREATMENT OF CONTACT DERMATITIS DUE TO HANDLING ANTIBIOTICS

Antibiotic dermatitis is an occupational hazard of doctors and nurses. Classical "desensitization" has hitherto been used as the method of treatment. Patients receiving minute doses in the first phase of desensitization were much less vulnerable to contact and this transient tolerance to contact can be maintained by frequent repetition of the same small dose. Five case histories are presented in which minute tolerated subcutaneous doses of penicillin or streptomycin are able temporarily to suppress specific allergic reaction to skin contact. Maintained daily treatment with such doses may continuously suppress reaction despite the subject's regular handling of either antibiotic. This "cover" regime may ultimately induce a relatively lasting tolerance.—(R. M. Morris-Owen, 1956, *Brit. Med. J.*, i, 654, via *British Journal of Dermatology*).

CRUDE LIVER EXTRACT WITH VITAMIN B₁₂ IN INFECTIVE HEPATITIS*

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INFECTIVE hepatitis *per se* is a benign disease with, in the majority of cases, a limited course varying from 2 to 12 weeks.

The precise treatment of this condition is still an unsolved problem. There is no specific drug so far known against the virus; and usually by the time the patients seek treatment, the virus has already damaged the liver.

Modern treatment consists primarily of *Rest*; if not taken for a sufficient time relapse occurs and increases the chances of retrogression of the regenerating hepatic parenchyma ultimately leading to chronic hepatitis. Next to '*Rest*' comes '*Diet*' which should be of high caloric value, containing normal carbohydrates and proteins with low fat and with additional vitamins, especially vitamin B complex and '*C*'.

Aureomycin has been used with good results in cases of hepatic coma and with encouraging results on very ill patients. It is not viricidal nor does it help in regenerating the liver, but is useful in destroying the bacterial flora and checking the excess of toxins reaching the liver at a critical moment, thus resulting in a favourable balance. Indiscriminate use will however, actually cause liver damage; for fatty infiltration of the liver resulting from the use of the antibiotics has been reported.

Crude liver extract has been tried intravenously by some in cases of hepatic coma with good results. Hogland and Shank tried crude liver extract in cases of infective hepatitis but the results were not encouraging.

According to Campbell vitamin B₁₂ helps in improving the appetite and decreasing the size of the liver in cases of infective hepatitis.

The maintenance of sufficient nutrition in the average case remains a difficult problem in the face of constant anorexia, nausea and occasional vomiting. The beneficial effect of B₁₂ in controlling these symptoms as reported by Campbell and the beneficial effect of crude liver extract in cirrhosis, prompted us to use this combination in cases of infective hepatitis.

Material and methods.—Twenty-five cases of infective hepatitis from the wards and outdoor were selected for treatment while another group of 25 among similar patients served

* Specially contributed to the ANTISEPTIC

as controls. The selection was made with an eye to the following points:—(1) Previous nutritional condition of the patients; (2) Cases having jaundice for the first time; and (3) Patients not in contact with any hepatotoxic chemicals.

Patients in both groups having treatment as out-patients were asked to take complete rest and were allowed to attend hospital everyday for observation and treatment only.

They were allowed to take their usual diet with reduced fat and were asked to avoid fried articles and to take more of sugar and "*Ganney ka ras*."

The urine was examined daily for bile salts and pigments. In practically all cases, liver function tests were made before starting the treatment and again at the end. In six cases liver biopsy was also done before starting the treatment but check biopsy could only be done in two. In all cases the time of return of normal appetite and feeling of well-being were noted and the size of the liver at the time of discontinuing the treatment was also noted.

The patients were divided into two groups. Group I was given Uni B₁₂ with Folic acid consisting of 10g. of crude liver extract 25 micrograms of vitamin B₁₂, 5 mg. of folic acid, 100 mg. of niacinamide and 25 mg. of choline dihydrogen phosphate per cc.

Group II formed by alternate patients were given vitamin B and C by mouth and 25% glucose 100 cc. intravenously daily.

Discussion.—It is said that the return of appetite is a sign of recovery in cases of infective hepatitis. In group I, which received crude liver extract with vitamin B₁₂, the appetite returned early, usually on the 5th day, the patient felt much better, and was able to relish food for which he had an aversion at first.

On the first day, patients were slowly given 1 cc. dissolved in 20 cc. of 25% of glucose intravenously. From the next day onwards 2 cc. were given intravenously with glucose.

In group II the appetite took longer to return; usually it took about two weeks.

The urine was examined for bile-salts and pigments daily in all cases. Cases in group I had no bile-salts or pigments at the end of about 10 days; 2 cases of this group took a longer time than usual—it was 15 days in one and 23 days in another. It was only in 2 cases of group II that the urine became free of bile salts and pigments in 15 days, the remaining 23 cases taking about a month.

TABLE I

Case No. and Name	Duration of disease	Before treatment		Appetite returned on	After treatment		Liver function
		Liver function	Urine examination		Urine negative on B.P. and B.S. absent on		
1. G.S.	3 days	T.T—6 units T.F—++ I.I—110 units	Bile Salts + Bile Pigments ++	3rd day	10th day	T.T—2 units T.F—+	
2. B.L.	4 days	T.T—4 units T.F—++ I.I—60 units V.B Biphasic +	B. Salts ++ B. Pigments +++	5th day	10th day	T.T—2 " T.F—	
3. A.	3 days	T.T—6 units T.F—++ I.I—100 units	B. Salts 0 B. Pigments +++	6th day	9th day	T.T—3 " T.F—	
4. G.L.	2 days	T.T—4 units T.F—+ V.B. direct + I.I—40 units	B. Salts — B. Pigments +++	3rd day	8th day	T.T—2 " T.F—	
5. G.	3 days	T.T—4 units T.F—+ V.B Biphasic + Blood proteins 6.2 gm. %	B. Salts + B. Pigments +++	5th day	6th day	T.T—2 " T.F— I.I—5	
6. Bn.	15 days	T.T—6 units T.F—++ V.B. direct + I.I—50	Bile Salts — B. Pigments +++	6th day	5th day	T.T—2 " T.F—	
7. Go.	15 days	T.T—5 units T.F—+ V.B direct +	B. Salt + B. Pigments ++	5th day	7th day	T.T—4 " T.F— I.I—7 units	
8. K.K.	12 days	T.T—4 units T.F—+ I.I—80 units	B. Salts — B. Pigments ++	3rd day	12th day	T.T—2 " T.F—+ I.I—4 units	
9. Ur.	6 days	T.T—6 units T.F—+ I.I—40	Bile Salts — B. Pigments +++	12th day	8th day	T.T—2 " T.F—	
10. P.P.	7 days	T.T—4 units T.F—+	B. Salts — B. Pigments +++	4th day	6th day	T.T—2 " T.F—	
11. D.P.	20 days	T.T—6 units T.F—++ V.B direct +	B. Salts — B. Pigments +++	4th day	5th day	T.T—2 " T.F—	
12. Sk.	6 days	T.T—10 units T.F—+++	B. Salts — B. Pigments +++	3rd day	23rd day	T.T—2 " T.F— I.I—10	
13. Mk.	1 month	T.T—4 units T.F—++ I.I—100 Liver biopsy Ac Inf hepatitis	B.P. +++ B.S. —	6th day	5th day	I.I—10 T.F—	
14. Cd.	3 days	T.T—6 units T.F—++ I.I—130 units Liver biopsy Ac Inf hepatitis	B. Pigments +++ B. Salts —	3rd day	negative on 10th day	T.T—2 " T.F—	

TABLE I—(Contd.)

Case No. and Name	Duration of disease	Before treatment		After treatment		
		Liver function	Urine examination	Appetite returned on	Urine negative on B.P. and B.S. absent on	Liver functions
15. D.	3 days	T.T.—4 units T.F.—++ Liver biopsy Focal necrosis and round cell inf.	B.S.— B.P.—+++	4th day	After 1 month	T.T.—2 units T.F.—0
16. K.C.	11 days	T.T.—4 units T.F.—++ Liver biopsy advance case of subacute hepatitis	B.S.— B.P.—+++	15 days	11th day	I.I.—8 units T.T.—1 T.F.—0
17. Jn.	10 days	I.I.—150 units T.T.—6 T.F.—++	B.P.—++++	6th day	8th day	T.T.—4 T.F.—±
18. Ka.	1 month	I.I.—140 units T.F.—++ T.T.—4 units	B.P.—++++	7th day	8th day	I.I.—10 T.F.— T.T.—2
19. Da.	20 days	I.I.—100 units T.T.—8 units T.F.—++	B.P.—++++	5th day	12th day	I.I.—7 units T.T.—4 T.F.—
20. Ra.	7 days	I.I.—60 T.T.—4 units T.F.—+ V.B. direct +	B.P.—++	8th day	10th day	T.T.—4 T.F.—±
21. Sa.	12 days	T.T.—4 units T.F.—+ Alkaline Phos 12	B.P.—+++	6th day	13th day	T.T.—2 T.F.—+
22. Rs.	10 days	T.T.—6 units T.F.—+ Alkaline Phos 10	B.P.—++	9th day	11th day	T.T.—4 T.F.—
23. Lg.	4 days	T.T.—5 units T.F.— V.B.—direct +	B.P.—+++	5th day	8th day	T.T.—4 T.F.—
24. Jl.	15 days	T.T.—2 units T.F.—0 V.B.—indirect + I.I.—120 units Liver biopsy subacute inf hepatitis	B.P.—++++ B.S.—++	6th day	10th day	T.T.—2 T.F.—0 Liver biop. sy (see last page)
25. S.	10 days	I.I.—70 units T.T.—4 units T.F.—+ V.B. direct + Liver biopsy severe subacute inf hepatitis	B.P.—+++	5th day	7th day	I.I.—8 units T.T.—4 T.F.—+ Liver biop. sy (see last page)

TABLE II

Case No. and Name	Duration of disease	Before treatment		After treatment		
		Liver functions	Urine examination	Appetite returned on	Urine negative for B.S. and B.P. After	Liver functions
1. Pl	6 days	T.T.—2 units T.F.—+ I.I.—40 units	Bile salts + Bile pigment ++	16 days	20 days	T.T.—4 T.F.—0 I.I.—20
4. da	20 days	T.T.—4 units T.F.—++	B.S.—+ B.P.—+++	10th day	15 days	T.T.—3 T.F.—+ I.I.—15
5. j	10 days	T.T.—6 units T.F.—++ I.I.—70 units	B.S.—0 B.P.—+++	18 days	18 days	T.T.—4 T.F.—± I.I.—20
6. pl	15 days	T.T.—4 T.F.—+ I.I.—60	B.S.—0 B.P.—+++	13th day	16 days	T.T.—4 T.F.—0 I.I.—20
7. th	15 days	T.T.—4 T.F.—+ V.B.—indirect +	B.S.—0 B.P.—+++	20 days	20 days	T.T.—4 T.F.—+
8. Di.	15 days	T.T.—4 units T.F.—+	B.P.—++	10th day	24 days	T.T.—2 T.F.—±
9. 7	15 days	T.T.—6 units T.F.—+ V.B. direct +	B.P.—+++	12th day	20 days	T.T.—4 T.F.—0
10. Rn.	3 days	T.T.—8 units T.F.—+ I.I.—60 V.B. indirect +	B.P.—+++	14th day	28 days	T.T.—4 T.F.—0 I.I.—40
11. 9	7 days	T.T.—10 units T.F.—+	B.P.—+++	15th day	one month	T.T.—4 T.F.—0
12. 10	7 days	I.I.—120 T.T.—3 T.F.—0	B.S.—+ B.P.—+++	15 days	24 days	T.T.—2 T.F.—0 I.I.—40
13. 11	2 days	I.I.—80 T.T.—4 T.F.—0	B.S.—+ B.P.—+	14th day	26 days	T.T.—2 T.F.—0 I.I.—40
14. 12	7 days	T.T.—6 T.F.—+	B.S.—Traces B.P.—++	10th day	15 days	T.T.—4 T.F.—±
15. 13	1 month	I.I.—120 T.T.—4 T.F.—++	B.P.—+++	12th day	24 days	T.T.—2 T.F.—+ I.I.—60
16. 14	3 days	I.I.—130 T.T.—8 T.F.—++	Bile salt + Bile pigment — +++	19th day	20 days	T.T.—4 T.F.—0
17. 15	20 days	T.T.—13 units T.F.—++ I.I.—120	Bile pigment +++	17th day	24 days	I.I.—50 T.T.—4 T.F.—0

TABLE II- (Contd.)

Case No. and Name	Duration of disease	Before treatment		Appetite returned on	After treatment	
		Liver functions	Urine examination		Urine negative for B.S. & B.P. After	Liver function
16 Ac.	14 days	T.T.—6 T.F.—++	B.P.—+++	20th day	20 days	T.T.—4 T.T.—±
17 So.	3 days	T.T.—4 units T.F.—++ V.B.—Direct +	B.P.—++	18th day	22 days	T.T.— T
18 Dl.	11 days	T.T.—12 T.F.—+++ I.I.—90	B.P.—++++	22nd day	40 days	I—8 units T—1 F—0
19 Bl.	7 days	T.T.—6 T.F.—++	B.P.—++	16th day	20 days	
20 Vs.	3 days	T.T.—4 T.F.—+	B.P.—++	12th day	20 days	T—4 T—±
21 Rk.	8 days	T.T.—10 T.F.—++ V.B. Direct +	B.P.—++++	10th day	26 days	T—10 T.F.— "
22 B.B.	4 days	T.T.—4 T.F.—+	B.S.—+ B.P.—++	9th day	22 days	T.T.—4 T.F.—±
23 Kl.	15 days	T.T.—12 T.F.—+++ I.I.—120	B.P.—++++	10th day	24 days	T.T.—6 T.F.—+ I.I.—30
24 Gr.	11 days	T.T.—6 T.F.—+ I.I.—80	B.P.—+++	12th day	25 days	T.T.—4 T.F.—0 I.I.—40
25 K.	6 days	T.T.—5 T.F.—+	B.P.—++	10th day	18 days	T.T.—4 T.F.—+

N.B.—Day of return of appetite are counted from the day of starting treatment.

Liver function tests were done on the day of observation and after return of appetite.

Number of days mentioned in urine examination are again counted from the day treatment was started.

In all the cases, the liver was enlarged and tender and the few in whom liver biopsy was done, showed changes compatible with infective hepatitis (3 from each group). In group I at the time of discontinuing the treatment, within 2 weeks on an average, the liver was not palpable and the cases in which check-liver-biopsy was done, showed marked improvement.

Liver function tests, especially the thymol turbidity and flocculation tests were done in all cases and in some tests for serum alkaline phosphatase were also made. The observations in group I showed that there was marked improvement in liver functions usually within 15 days, whereas in group II there was

little difference between the two estimations which were made usually a month apart.

Patients in group I returned to work in 2 weeks while those in group II could do so only in about 40 days; even after recovery from jaundice they felt weak and depressed and required a further period of rest for atleast 10 days.

All cases in group I were checked every week for periods varying from 2 to 8 months. None of them showed any relapse, digestive complaints or enlargement of the liver. The follow-up observation was made in this group, as they improved early and 4 da. 20 convalescence was short.

It is difficult to draw any definite conclusions from this number of 50 cases and particularly so in a disease like infective hepatitis which is of varying course and severity. It is likely that cases with short duration have come into group I and none has appeared in group II.

Study of Table II (the controls) definitely appears to show a milder course as judged by:—

(1) A return of the appetite; (2) the disappearance of bile pigments from the urine; (3) the early return of a sense of well-being; (4) the early return of liver functions to normal; and also (5) an even early return to histological changes as seen in 2 cases.

In crude liver extract, there are some still unknown factors which probably arrest further deterioration of the liver and hasten regeneration.

Liver biopsy.—Before treatment.—(Jl. Case No. 24).—Shows marked involvement of the mesenchymal and parenchymal tissue.

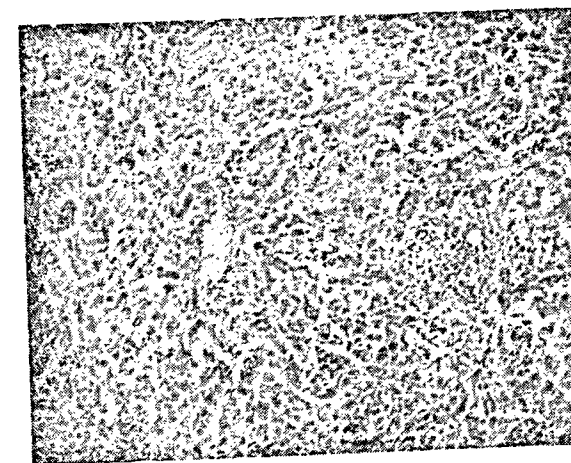


Fig. 1. Infective hepatitis of moderate severity showing periportal cellular infiltration and reticulate hyperplasia.

Rather a severe degree of changes of "Spotty" necrosis of the liver cells is seen being replaced by proliferating Kupfer cells, histocytes and infiltration by lymphocytes. Surrounding liver cells show variation in their shape and size among which 'Balloon' cells and smudged cells are also present. Regenerating liver cells are also present. Marked reticulo-endothelial hyperplasia, periportal cellular infiltration and fibrosis are quite evident. Moderately severe subacute infective hepatitis.

After treatment with crude liver extract and B₁₂:—Shows cells more uniform and the pigment content is also reduced; there is an early loss of liver architecture where fibrosis has started. Irregular periportal fibrosis infiltration by lymphocytes. This fibrosis is also traversing intralobularly at places. Regenerating liver cells are seen in the adjacent region of fibroblastic proliferation. Reticulum stain revealed increase in reticulum fibrils and its condensation in irregular fashion.

Early post-hepatic fibrosis with regenerating liver cells.

Liver biopsy report.—*Before treatment*:—S. Case No. 25.—Significant changes both in the parenchyma and in the mesenchymal tissue. "Spotty"

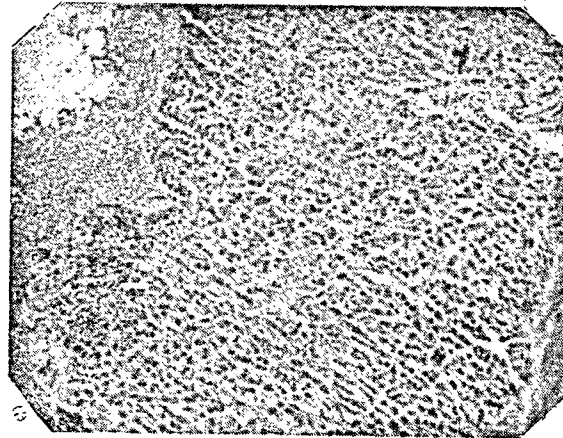


Fig. 2. Healing stage of infective hepatitis showing absence of infiltration and fibrosis. The reticuloendothelial hyperplasia is also subsiding.

necrosis of liver with accumulation of lymphocytes in place cells is seen along with regenerating liver cells showing variation in shape. There are also "cells. Moderate amo filtration by lymphocytes is present in the portal tract. Marked cell hyperplasia is a prominent feature. An early portal fibrosis is evident. Some of the bile canaliculi are distended with bile. Liver cells and Kupffer cells also show good amount of deposition of yellow pigment.

Moderately severe subacute infective hepatitis.

At the end of treatment with Crude liver and B₁₂:—The second biopsy (266—562) definitely shows diminution of mesenchymal proliferation as compared to previous biopsy. Cellular exudate is also diminished and is confined to the periportal region only. Liver cells show a good attempt at regeneration with nuclei and even mitotic figures. Pigment content is also much reduced. Moderate degree of periportal fibrosis still present.

Subacute infective hepatitis passing to recovery stage.

Summary.—25 cases were treated with crude liver extract and B₁₂ intravenously while another 25 served as controls. In patients treated with crude liver extract there was a shortening of the duration.

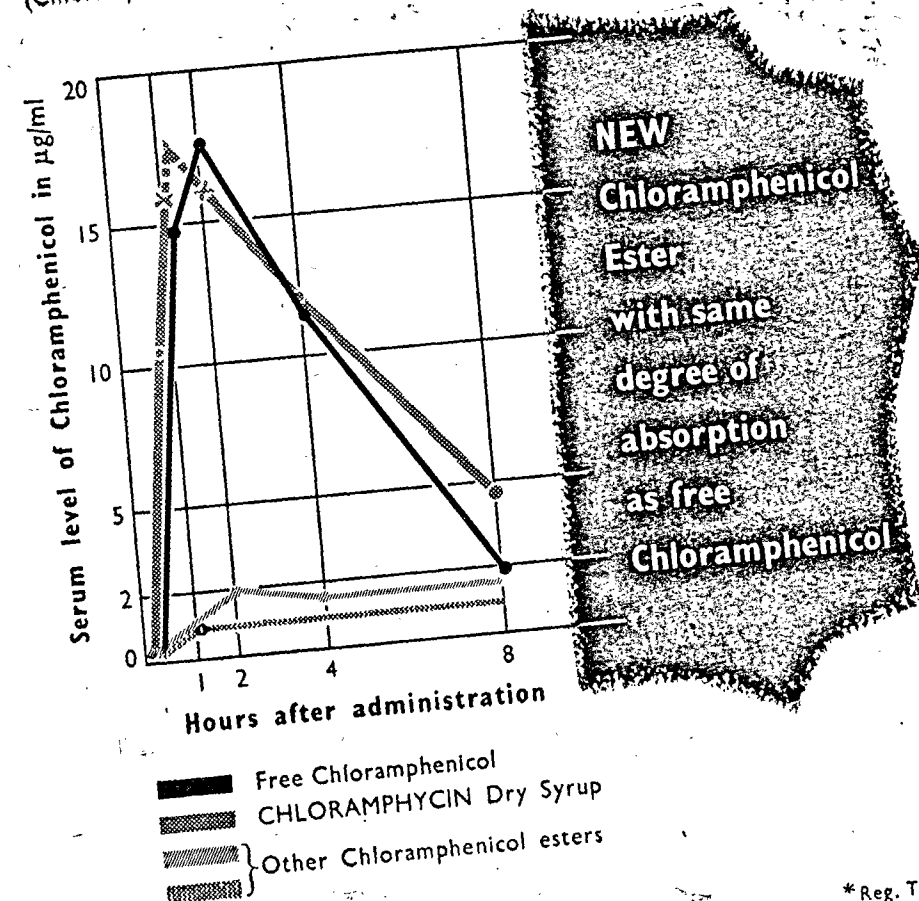
We are thankful to M/s. Unichem Laboratories, Bombay for the supply of Uni B₁₂ Folic, used in these cases.

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HUMAN CONSTITUTION IN CLINICAL MEDICINE

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(Continued from p. 265 of the April issue of the 'ANTISEPTIC')

"Le Germe N'est Rien, C'est Le Terrain Qui Est Tout"

(The Microbe is nothing, the Soil is everything—said Pasteur on his death bed)

Three fundamental categories of animate things.—The combination of physical and vital forces in the biological world gave rise to the individuality of organic existence which needs special organization to maintain the harmonious and co-ordinated working of both the physical and the vital systems of the organism. The organization of bodily constituents is the mark of all living creatures and it is in this that they differ especially from inanimate things.

The formula of physical matter cannot adequately explain the phenomena of the biological world, which is characterized by organization. One is a static existence while the other is a dynamic creative process. Hence arose the need to evolve the formula of biological function. All living organisms need minimum triple organization for their life processes.

1. *The organization of fluid-balance of the body (water-balance system):*—A specific fluid matrix is essential to full expression of life phenomena. This organization has to maintain the specific consistency and structure of the fluid matrix, under the stress of varying environmental factors.

One of the modern concepts of life is that it is a rhythmic process whereby water is alternately split into its elements and re-formed. The symbolic formula will be : $2H_2 + CO_2 + \text{Energy} \rightarrow C$.
Energy $H_2 + 2O_2 \rightarrow 2H_2O + CO_2 + \text{Energy}$.

2. *The organization of thermal balance:*—Specific heat is necessary to digest and assimilate material from the environmental world and convert it into one's own body-parts to supply energy for all kinds of work and also to maintain the optimal heat of the body for full expression of life phenomena. This is really energy metabolism.

3. *The organization of vital balance:*—Vital force is essential for the purpose of creative, evolution, progress, power of organization and such other vital processes which characterize life and differentiate animate from inanimate things.

Specific and significant biological terms.—But as the physical body forms a part of the biological living organism, the physical formula has to be co-ordinated with and incorporated into this triumvirate of biological organizations to evolve a specific biological formula of the triad of *Vata*, *Pitta* and *Kapha*. The five categories of physical matter are transferred into three by the method of earth and water being grouped into

one, and air and ether being combined together, with the result that all the five physical photo-elements found place in the living organism being translated into the biological forces of *Vata*, *Pitta* and *Kapha* i.e., air and ether being combined into *Vata*, fire turned into *Pitta* and water and earth combined into *Kapha*.

वाय्वाकाश वातुभ्यां वायुः । आग्नेय पित्तम् । अदेभ्यः पृथिवीभ्यां श्लेष्मा । अ०सू० २०-२

A specific terminology was evolved for this triumvirate biological categories, which is significant both of static existence as well as dynamic force viz., *Kapha* which signifies by its first letter *ka* (क=water) aqueous proto-element of the physical formula and by its second or last letter *pha* (फ=फलति इति evolves) signifies the evolutionary process of biological formula. Thus the whole word *kapha* (कफ) gives the sense of the organization of fluid matrix wherein the biological process of the evolution of life is carried out. The synonym *Sleshma* (श्लेष्म) if even more significant of the biological process of cohesion denoting the colloidal matrix or milieu for the vital play. The colloidal state is mainly a dynamic state and crystalloid is mainly a static state. The term *kalala* (कलल) of Ayurveda has significant similarity to the word colloidal.

Pitta derived from 'Tap' (तप्) to heat is significant of the function of heat. *Vata* is derived from *Va* (वा) to move and is quite suggestive of dynamic or functional process.

It is interesting to find that all these terms used to denote organization of the living system are verbal derivatives denoting state of action of the dynamic state.

Thus these thinkers were forced to analyze and classify the elements of the phenomenal universe and their direct and indirect products and their various modes and forms of combination to bring about the substances and qualities and actions that the physical sciences and medicine particularly have to deal with, as their subjects and also the biological organizations into which they were translated by the magic of the vital force.

This endeavour to analyze, re-group, classify and denominate the physical and biological facts and laws heralded the ushering in of medicine into the stage of a science.

Charaka propounds that there are three main classes of persons. They are the *Vatala*, the *Pittala* and *Sleshmala* i.e., of *Vata habitus*, of *Pitta habitus*, and of *Sleshma habitus* respectively. These are the three main constitutional groups in each of whom one of the triumvirate of biological organizations is predominantly active or pronounced. There are various degrees of combinations of these *vitia* (दोष) as these *habitus* are called,

of two or three of these being jointly in a hyper or hypo condition. When the symptoms associated with and characteristic of each of these *vitia* are known, the degree of their combination can be inferred from them. Laying down the general outline of the three main categories of constitution, Chāraka declares that in the clinical investigation of these three types of constitution, the following are their main characteristic traits and qualities. (*Char. Vimana*. 8).

95—(I) We shall now explain the characteristics of *habitus* etc. The foetal body develops its *habitus* from the nature of the mother's diet and behaviour, and the nature of the proto-elemental combinations at the time of conception.

95—(II) Among these factors, whichever elements are predominant, will be observed to influence the nature of the foetus; therefore are men spoken of, as of such and such *habitus* and *vitia* susceptibility beginning from their foetal life.

95. Hence some are of *Kapha habitus*, some of *Pitta habitus* and some of *Vata habitus*; some are of the combined *habitus*. Some are possessed of *vitia* equipoise. The characteristics of these, we shall now describe.

96—(I) The *Kapha* is unctuous, smooth, soft, sweet, firm, dense, slow, stable, heavy cold, viscid and clear.

96—(II) *Kapha*, being unctuous, those of *Kapha habitus* have glossy limbs; on account of its smoothness they have smooth bodies; owing to its softness they have pleasant, delicate and clear bodies; owing to its sweetness they have a profusion of semen, desire for the sex-act and children. On account of its firmness they have firm, well-knit and stable bodies; owing to the denseness of *Kapha*, they are plump and rounded in all their limbs. Owing to its slowness, they are slow in their actions and speech; due to its stability, they are slow in their undertakings and in the change of moods and pathological conditions; owing to its heaviness, they are of firm, large and stable gait; owing to its coldness, their hunger, thirst, heat and perspiration are meagre; owing to its viscosity, they are firm and well-knit in their joints. Similarly owing to its clearness they are of clear looks, of clear and mellow complexion and voice.

96. Owing to the combination of such qualities, those of *Kapha habitus* are possessed of strength, wealth, knowledge, vitality, gentleness and long life.

97—(I) *Pitta* is hot, acute, fluid, raw-meatish in smell, acid and pungent.

97—(II) Owing to its heat, those of *Pitta habitus* are intolerant of heat, very hot in the mouth, of delicate and clear bodies, and have profuse moles, freckles, spots and pimples on

the body, excessive hunger and thirst, are subject to early wrinkles, grey hair and baldness, and are possessed generally of scanty, soft and tawny hair on the head, face and body. Owing to its acuteness, they are possessed of keen valour and acute digestive fire, and given to taking excessive quantities of food and drink, are incapable of bearing suffering, and are constant eaters. Owing to its fluidity they have flabby and soft joints and flesh and profuse discharge of sweat, urine and fæces. Owing to its raw-meatish smell, they smell very much in their arm-pits, mouth, head and body. Owing to its pungent and acid taste they have a small quantity of semen, limited sex appetite and scanty offspring.

97. Owing to a combination of such qualities those of *Pitta habitus* are of moderate strength and life-span and of moderate knowledge, experience, wealth and means.

98—(I) *Vata* is dry, light, unsteady, abundant, swift, cold, rough and clear.

98—(II) Owing to its dryness, those of *Vata habitus* have dry, wasted and small bodies, long-drawn, dry, low, broken hollow and hoarse voice, and are always wakeful. Owing to its lightness they are light and inconstant of gait, behaviour, diet and speech. Owing to its unsteadiness, they are restless in their joints, eyes, brows, jaws, tongues, heads, shoulders, hands and feet. Due to its abundance, they are given to such talk and have prominent veins and tendons. Owing to its swiftness they are quick in their undertakings and variations of moods and pathological changes. They are quickly affected by fear, likes and dislikes. They are quick in grasping and in forgetting too. Owing to its cold quality, they are intolerant of cold, and are greatly liable to suffer cold, shivering and stiffness. Owing to its roughness, they have rough hair on the head, face and body, rough nails, teeth, mouth, hands and feet. Owing to its clearness they have cracked limbs and their joints always creak as they walk.

98. Owing to the combination of such qualities, those of *Vata habitus* are generally of small-strength, short life-span, scanty offspring and means, and of meagre wealth.

99. In persons of combined *habitus*, the qualities are also combined.

100. Those possessed of the equipoise of triumvirate of *vitia* are endowed with all the good qualities described. Thus one should examine patients from the point of view of *habitus*.

The perfect equilibrium of this *vitia* is the norm or perfect health.

The importance of a knowledge of the Constitution of the Body in the Study of Disease-Conditions and Practical Therapeutics :—

(1) Significance of constitutional factors in the ætiology of disease.

(2) Significance of constitutional factors in the clinical course of disease.

(3) Significance of constitutional factors in prognosis.

(4) Significance of constitutional factors in practical therapeutics.

Modern medicine is now gradually realizing the subtle importance of the knowledge of the constitution of man as it greatly aids in clinical study, in diagnosis, prognosis and especially in therapeutics. It is becoming very common nowadays to say 'Study the man in the patient' or 'Study the total personality.' This trend of revival of the ancient constitutional concept becomes too evident when we find the importance and the explanation given so frequently by eminent authors, physicians and clinicians of modern times.

Hoskin states that medicine is now in a transitional phase. The inaptness of regarding a man as a mere collection of interesting organs is becoming increasingly clear. The personality of their possessor is more important than his organs no matter what fascinating pathological condition or secretory versatility they may disclose.

Draper observes that because most clinical teaching is predicated on the idea that any single disease is a pathological entity with appropriate symptoms, physical signs and laboratory findings, many students draw the conclusion that there is a text-book picture for each of the diseases they study, and that deviations from this accepted pattern cannot be explained on any sound basis. This can be explained if the concept of human constitution is properly understood.

There is, no kind of illness in which the personal physiological quality of the patient does not help to determine the time of onset, the character and severity of symptoms, the response to treatment and the rate at which the person succumbs to or recovers from the effects of his disease.

Wingate Todd explains that the result of waving a stick at a dog depends less on that gesture than on the condition of the animal at the moment and what is true of the dog is true of the human being.

The impact of a stimulus may be far less significant than the condition of the organism which receives the stimulus. Certainly this is true of allergy. Hence a consideration of the constitution assumes the greatest importance.

Selye concludes that we must henceforth keep in mind that in every aspect of experimental or clinical medicine (e.g. in all observations concerning the specific effects of drugs, diets, surgical intervention and diseases) some manifestations of the G.A.S. will unavoidably be superimposed upon the specific changes caused by the agents under study.

I. Significance of constitutional factors in the aetiology of disease.—If the constant balance of the *vitium* which is dominant in the constitution of the individual is placed on a higher threshold the person is more sensitive or affective to the ætiological factors which are the excitants of that particular *vitium*. The threshold tolerance is transgressed even by a small degree of exciting factors. This is the relative condition of predisposition or susceptibility.

The constituent *vitium* whose threshold or sensitivity or affectivity is on a lower level, will require usually a larger degree of exciting factors to manifest disease condition. This is the relative condition of immunity.

Charaka states :

तल वातलस्य वातप्रकोपणान्यासेवमानस्य क्षिप्रं वातः प्रकोपं आपयते, न तथेतरो दोषौ । पित्तलस्यापि पित्तप्रकोपणान्यासेवमानस्य क्षिप्रं पित्तं प्रकोपमापयते, न तथेतरो दोषौ । श्लेष्मलस्यापि श्लेष्मप्रकोपणान्यासेवमानस्य क्षिप्रं श्लेष्मा प्रकोपमापयते, न तथेतरो दोषौ ।

च०वि० ६-१६, १८.

“In a person of the *Vata habitus* who is given to indulgence in *Vata*-provoking things, the *vata* is readily aggravated; not so the other two *vitia*.”

Similarly in the *Pitta* type of man, who is given to the indulgence in *Pitta*-provoking things, *Pitta* is readily aggravated; not so the other two *vitia*.

Similarly in the person of *Kapha habitus* given to indulgence in *Kapha* provoking things, *Kapha* is readily aggravated; not so the other two *vitia*. (*Char. Vim.* 6: 16—18).

II. Significance of constitutional factors in the clinical course of diseases.—It is the every day experience of the clinician that no two persons will have similar experience or have similar reactions under the same stress or injury; hence each case of disease varies in some respects from all others.

Charaka Samhita gives a succinct but clear account of the part constitution plays in the production of the clinical picture of a disease and lays down as a general clinical law that the manifestation of actual disease conditions is the resultant of the varying interaction of the ætiological factors, the triumvirate of constitution and the body-tissues.

इह खलु निदानदोषद्वयविशेषोभ्यो विकारविघातभावाभावप्रतिविशेषाभवन्ति । यदा हेयते तयो निदानादिविशेषाः परस्परं नानुवचन्यथवा कालप्रकर्षा दबलीयांसोऽथवाऽनुवचन्ति न तदा विकाराभिनिर्वृत्तिः, चिराद्वाऽप्यभिनिर्वर्तन्ते तनवो वा भवन्त्यथौकतसर्वलिङ्गावा, विपर्यये विपरीताः इति सर्वविकारविघातभावाभावप्रति विशेषाभिनिर्वृत्तिहेतुर्भवत्युक्तः । च०वि० ४-४

“Here we shall describe the suppression or the incidence of the disease which occurs as a result of the variations in the ætiological factors, intensity of morbidity of the *vitia* and susceptibility of the body elements.

If these three factors, particularly the ætiological ones do not mutually associate or support, or if they do so after a long time, or in a very mild form, either there occurs no manifestation of the disease at all or the disease takes long to evolve, or appears in an ambulatory or abortive form. Under the contrary conditions, there occur contrary results. Thus are laid down the different causes of the modes of incidence or suppression of all diseases.” (*Char. Nid.* 4: 4).

Concerning the resultant of the encounter of ætiological factors with the *vitia* and susceptible body tissues, the author describes the following possibilities.

1. If the ætiological excitant and constitutional *vitia* and body tissues are not mutually agreeable at all, i.e., if the excitant factors and *vitia* are of the opposite types and the body tissues are resistant or are more or less immune to them, then there does not occur any manifestation of disease-condition. (न विकाराभिनिर्वृत्तिः). *No manifestation of disease-condition; masked form*).

2. If the excitant and *vitia* and body tissues are mutually agreeable but all of them are so mild or weak that all combined together do not suffice to produce a full disease condition, there will be manifestation of a mild, abortive or ambulatory type of disease condition. (तनवो विकारा भवन्ति-अणुविकारजनम्) *mild or latent or ambulatory type of disease-condition; Formes frustes or oligo, symptomatic form*).

3. If mutual agreement and combination of all these three factors are gulped by a long interval, there will be a delayed development of disease and the disease-condition will run a prolonged clinical course. Incubation period is long and clinical course is chronic or prolonged. (चिरेणजनम् *chronic disease condition*). Under the above-mentioned two conditions the disease does not run a fixed, regular or constant clinical course. Rather does it manifest diversified clinical pictures. It may not manifest all the classical symptoms of the disease condition, or it may manifest them in an irregular way. There may not be an orderly sequence in the development of symptoms or the

symptoms may be intensely manifested in one part of the body tissue or system with no symptoms at all in other parts; or manifestation of symptoms may be delayed or prolonged. (अथोक्तसर्वलिङ्ग) *Manifestation of (रूक्षणां) symptoms in an irregular way; atypical or incomplete symptoms*).

4. If the ætiological exciting factors, constitutional *vitia* and the body tissue are mutually agreeable, there will be full development of the disease condition, manifesting all classical symptoms in due order of time and degree of intensity giving the text-book picture of the disease-condition. (यथोक्तसर्वलिङ्ग) *Disease condition with typical manifestation of symptom*—(the Text-book picture).

5. If the ætiological excitant is more severe and acute, the *vitia* just on the threshold of excitement, and body tissues quite predisposed, the result is the manifestation of a very acute or even a fulminant type of disease-condition which runs a very acute course with greatly exaggerated general or local symptoms. (शीघ्रं निर्वर्तमाना महान्तो यथोक्तसर्वलिङ्ग) *Disease conditions with acute or grave clinical course manifesting all symptoms in severe form*.

These are the general postulates on the manifestations of the clinical course in disease conditions. The constitutional factor being an individual one, there will always be individual variations and differences in the clinical picture, the course and the termination of the disease.

The constitutional factors not effective—only in epidemics. —There are some disease conditions where constitutional factors cannot play any part nor counteract the incursion of the ætiological factors. Charaka describes such a state of things to occur in epidemic and pandemic diseases. (जनपदहर्वस) where the incursion is so strong, powerful and sudden that the constitutional factors are not able to counteract at all, and so all people with varying constitutions suffer simultaneously from a severe type of disease-condition which runs a nearly uniform clinical course in all of them.

प्रकृत्यदिभिः भावैः मनुष्याणां येऽन्ये भावाः सामान्याः तह वैगुण्यात् समानकालः समानलिङ्गा व्याधयोऽभिनिर्वर्तमाना जनपदमुद्वंसयन्ति ।

“There are other common factors which being adversely affected, will cause a simultaneous outbreak of diseases having similar symptoms, which will decimate whole populations.” (Char. Vim. 3 : 6).

These postulates can well be expressed in a simple mathematical formula as under :—

Disease { Aetiological factors
 { *Vitia* and body-tissues.

III. Significance of constitutional factors in prognostics.—Charaka gives great consideration to constitutional factors in foretelling the prognosis. Constitution is given by Hippocrates an equally important place in the branch of prognostics. Charaka emphasizing the value of the knowledge of prognostics to the physician to attain full success in practice, states :

साध्यासाध्यविभागज्ञो ज्ञानपूर्व चिकित्सकः ।

काले चारभते कर्म यत्तत् साधयते ध्रुवम् ॥

च०सू० १०-७

“The physician who knows the differential diagnosis between the curable and the incurable diseases and begins treatment with a full knowledge of the case and in time, obtains success for his efforts without fail.” (Char. Sut. 10 : 7).

He divides the disease condition into four categories from the prognostic point of view.

सुखसाध्यं मतं साध्यं कृच्छ्रसाध्यमथापिच ।

द्विविधं चाप्यसाध्यं स्याद्याप्यं यच्चानुपक्रमम् ॥

च०सू० १०-६

“The curable diseases are of two kinds :—Those that are easily cured and those that are cured with difficulty. The incurable diseases also fall into two categories those that can be palliated and those that are totally irremediable.” (Char. Sut. 10 : 9).

Constitutional factors play an important part in determining these four prognostic categories ; moreover the knowledge of constitutional factors helps the physician to some extent to know the prognosis and thus enables him to be fore-armed and prepared to meet likely emergencies and for framing future lines of treatment.

IV. Significance of constitutional factors in practical therapeutics.—The diligence of the skilful clinicians who previously determined the exact role played by each of the three factors *viz.* ætiological, excitant, constitutional triumvirate and nature of body-tissue, becomes fully fruitful when practical therapeutics are to be prescribed.

The text-books of modern medicine prescribe treatment for *Homo sapiens* in general, giving the limits of minimum and maximum doses which can be safely administered without harm. This is the scientific formula worked out fully by experimental and observational methods and properly standardized, and is hence all-essential for correct guidance and is valid for the average. But in the practical application and use of this scientific knowledge in the best interest of each individual, lies the real art of medicine.

The treatment based on the average concept of human beings will not be exact or strictly correct as individuality in existence as well as behaviour is the main characteristic of human-beings. It has been said that variety is the mark of human and uniformity of behaviour is the mark of animal life. Hence there is need to have knowledge of both—of the *general* (सामान्य) as well as of the *particular* (विशेष).

All acquisitions of practical knowledge of diseases or drugs or even diagnostic skill will be to no purpose if not combined with the art of practical scientific application of the therapeutic measures which alone will bring full success in treatment.

Charaka states this very forcibly :

मात्राकालाश्रया युक्तीः सिद्धिर्युक्तो प्रतिष्ठिता ।

तिष्ठत्युपरि युक्तिज्ञो द्रव्यज्ञानवतां सदा ॥

“The art of prescription depends on the knowledge of dosage and time, and on this art, in turn, depends success, hence the skilful physician stands ever superior to those possessing merely a theoretical knowledge of drugs.” (*Char. Sutra*, 2 : 16).

As Morris R. Cohem has aptly put it, “The physician must adjust himself to the peculiarities of the individual; this adjustment is an art and involves a subtle sense for many imponderable factors.”

It is essential to understand and study the environmental aetiological excitant but the knowledge of the individual constitution of the patient which plays such an important role in the phenomena of disease is not only equally necessary but is rather an indispensable pre-requisite to the exact determination of the dose for that particular stage of disease in the particular constitution of the particular individual.

It is hardly necessary to emphasize the need for meticulous accuracy in dosage, as deviation on either side fails to produce the full desired results. A small dose is not sufficient to counteract the disease condition while a large dose may err on the side of excess and prove harmful to the body at times.

सहसाद्विबलमौषधमपरीक्षकप्रयुक्तमल्पबलमातुरमतिपातयेत् । तथा

बलवद् व्याधिपरिणते स्वल्पबलमौषधमपरीक्षकप्रयुक्तमसाधकमेव भवति ॥

“A rash administration to a weak patient, of a very strong medication without examination will upset him. But in strong persons affected with a strong disease, weak medicine administered without examination becomes useless.” (*Char. Vim.* 8 : 94).

तत्र सर्वाण्येवौषधानि व्याधि, अग्नि, पुरुषबलानि अभिसमीक्ष्य विदध्यात् । तत्र व्याधिबलदधिकमौषधमुपयुक्तं तमुपशम्य व्याधिं व्याधिमन्यमावहति ।

सर्वदा सर्वभावानां सामान्यं वृद्धिकारणम् ।

हासहेतुविशेषश्च प्रवृत्तिरुभयस्य तु ॥

च०सू०१-४४

Therefore, all the drugs should be administered with due consideration to the gravity of the disease, the gastric fire and the total personality of the patient. In this respect the drug administered in excess of the gravity of the disease may, having mitigated that disease, produce another. If it is in excess of the strength of the gastric fire it either produces indigestion or is digested after a long time. The sedative given in excess of the strength of the patients produces lassitude, fainting and intoxication. Similarly does a purificatory drug harm them. Drugs of a mild type administered to them have no effect. Therefore, the medication must be adjusted to suit the strengths of the patients. (*Sushruta Sutra*, 39 : 10).

The keenness in Ayurveda regarding accuracy in dosage is quite evident from the term (मात्रा) meaning measure, which has been selected for denoting dosage; the word (मात्रा) is derived from the root (मृ) to measure; thus significant stress is laid on accurate measuring of medication.

The word ‘Dose’ is derived from Greek (*dosis-didomi* to give) which is cognate to the Sanskrit root (दा to give) where the significant meaning is mere giving. To attain accuracy in dosage is the main purpose of the detailed study of the constitution of the triumvirate.

दोषादि मानज्ञानायत्तत्वात् क्रियायाः ।

“Treatment depends on the accurate recognition of the measure of the three *vitia* and the other factors.” (*Char. Vim.* 1 : 3).

The significance of a knowledge of the constitution in determining the personal regimen of the individual has, already been described and is of equal importance as a rational prophylactic measure.

Mathematical exactitude in therapeutic science.—To attain the ideal of easy comprehension combined with exactitude, the ancients reduced therapeutic science almost to a mathematical formula, as mathematics affords the simplest and least ambiguous way of expressing a truth.

Lord Kelvin says, “when you can measure what you are speaking about and express it in numbers, you know something about it; where you cannot express it in numbers, your knowledge is of a meagre and unsatisfactory type. Science is measurement.” Numerical data should be given wherever possible.

Ingestion of food and drug was the sole method of administration at that time; and hence taste (रस) which was the main index was grouped into six categories to fit in easily with the three categories of the triumvirate of constitution and they further evolved the general formula co-ordinating each of the triumvirate with a group of three of the taste categories, one group of three increasing and the other remaining group decreasing the force of each of the *vitia* (Char. Vim. I : 6).

The mathematical formula concerning *Dosha* (दोष) and *Rasa* (रस) did not end here. As *Dosha* (दोष) was worked out by the permutation and combination method to 63 forms, so also was *Rasa* (रस) worked out to 63 forms by the same method. (Char. Sutra, 26 : 22).

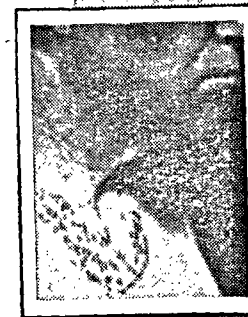
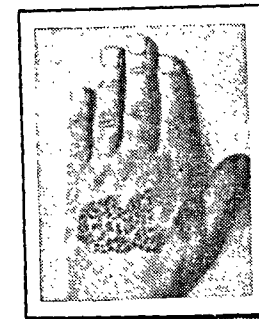
Rasa (रस) was also considered in its (तर) and (तम) comparative and superlative state as was *Dosha* (दोष) considered. (Char. Sutra, 26 : 23).

Thus (रसदोषविमान) the specific determination of *Rasa* and *Dosha* and reducing them to a mathematical formula of inter-relation is the most significant attainment of exactness in practical therapeutics conceived and achieved by the ancients. Charaka who devotes a whole section (विमान) *Vimana* of eight chapters to the specific determination of the details of all the various factors concerned in the production of disease as well as the factors important in diagnosis and treatment, discusses this inter-relationship of (रस — दोष) *Rasa* and *Dosha* in great detail in the first chapter of *Vimana* and thereby emphasizes the great importance of an accurate knowledge of constitutional factors (दोषविमान) for practical therapeutics.

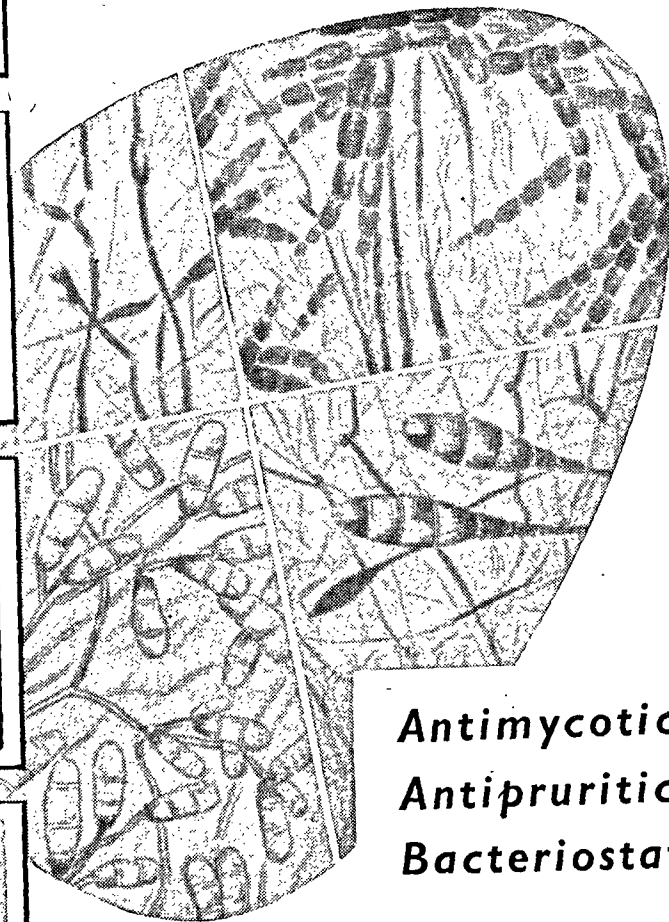
In conclusion, I would like to quote from the great physician Sir William Osler who well emphasizes the importance of constitutional factors in the clinical manifestation of disease, and shows the inter-relationship between the soil and the seed.

"Many years ago I drew the parallel between infection in tuberculosis and the parable of the sower, which though now somewhat hackneyed illustrates in an effective way the importance of the nature of the ground upon which the seed falls. "Some seeds fell by the wayside and the fowls of the air came and devoured them up." These are the bacilli scattered broadcast outside the body, an immense majority of which die. 'Some fell upon stony places. These are the bacilli that find lodgement in many of us, perhaps, with the production of a small focus, but nothing comes of it; they wither away, because they have no root.' Some fell among thorns, and the thorns sprang up and choked them. This represents the cases of tuberculosis, latent or active, in which the seed finds the soil suitable and grows, but the conditions are not favourable as the thorns, representing the protecting force of the body, get the better in the struggle. But others fell on good ground and sprang up and bore fruit a hundredfold."

This parallel which Osler applied to tuberculosis is generally applicable to all disease conditions. The seed is any stress due to physical, chemical or biological injury and the soil is the body constitution.



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MACROCYTOSIS*

(A Review)

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ERYTHROCYTES are considered to be the store-house of Haemoglobin—an element of conjugated protein consisting of an iron containing pigment and a globulin fraction, which together make a heavy molecule.

The production of erythrocytes is by no means the activity of endothelial cells of the sinusoids of the bone marrow *e.g.*, Endothelial cells → Megaloblasts → Erythroblasts → Normoblasts → Erythrocytes. Conversion or maturation of erythrocytes from endothelial cells is dependent on several factors, which are popularly known as *Haematinic principles*.

Lack of maturation leads to a clinical and pathological condition of the body known as macrocytic anaemia. It is a chronic deficiency disease with a gradual onset, characterized by disturbances in the gastrointestinal tract, nervous derangement, wasting and anaemia. The 'factors' are not able to convert and deliver the normal and matured red blood cells to the blood stream. Fewer-red cells are therefore, supplied to the circulating blood thus producing anaemia. The clinical condition of macrocytic anaemia may be observed in the following groups of cases:—

(1) *Gastrointestinal disorders*:—(a) sprue and allied disorders; (b) chronic dysentery (colitis); and (c) peptic ulcer and gastrectomy cases. (2) *Nutritional deficiencies*:—(a) pellagra; (b) tropical nutritional anaemia; (nutritional macrocytic anaemia); and (c) malnutrition in infancy and childhood. (3) Liver damage and liver diseases. (4) In pregnancy. (5) Bacterial, toxic and chemical agencies. (6) Physical injury to bone-marrow. (7) Cancer metastasis and leukæmic conditions and (8) Addison's anaemia (pernicious anaemia).

The 'multiple factors' which influence the activity (erythropoiesis) in marrow sinusoids and subsequent maturation of erythrocytes are viewed—as shown in the diagrammatic chart overleaf.

A. "A. P. Principle," "Haematinic principle," "Haematopoietic liver principle," etc.

This active principle has not yet been isolated but is known to be *not* an iron protein, or any of the vitamins. It is supposed to be *polypeptide in nature*.

This substance is formed in the stomach by the interaction of the intrinsic factor (an agent present in gastric juice) and an extrinsic factor (substance present in many food stuffs, meat and yeast). The "principle" is absorbed from the intestines and is stored mainly in the liver.

* Specially contributed to the ANTISEPTIC

ENDOTHELIAL CELLS

Megaloblasts

ERYTHROBLASTS

NORMOBLASTS

ERYTHROCYTE

The mechanism of conversion is not known. Arrested development at this stage leads to *aplastic anaemia*.

There is a progressive decline in the red cell count which ultimately proves fatal.

"Haematinic principle" is needed at this stage. In its absence the process of maturation is disturbed. Deficiency of this agent is the cause of *macrocytic anaemia* or macrocytosis.

Megaloblasts are prematurely and excessively filled with *haemoglobin*. Few of these, however develop further and give rise to larger red cells. (Macrocytes).

Fe, Cu, thyroxine and vitamin C are needed at this stage.

Deficiency of any one of these leads to microcytic anaemia. Normoblasts being insufficiently filled with haemoglobin give rise to smaller or normal sized red cells. (Microcytes).

(Matured R.B.C.)

In 1926 Minot and Murphy reported marked improvement in their cases of pernicious anaemia with large quantities of fresh liver in support of the idea that the "haemopoietic liver principle" is stored in the liver.

Castle who studied the relationship between defective gastric secretion and the production of pernicious anaemia concluded that the normal gastric juice contained an 'intrinsic factor' which acts on an 'extrinsic factor' and liberates the curative principle. The exact site of formation of the intrinsic factor is still undecided.

In the tropics, malnutrition is exceedingly common. Macrocytic anaemia, frequently develops. The 'extrinsic factor' is found in autolysed yeast and that is why some cases respond to treatment with Marmite.

In 1931, Lucy Wills observed a striking effect of crude liver and yeast extract on tropical macrocytic anaemia.

The extrinsic factor may be called the "*food factor*" because an unsatisfactory diet causes this disorder.

B. Folic acid.—In 1935, Day, Langston and Shukers observed good results with Brewer's yeast and liver extract. They concluded that these materials must contain an unknown essential substance, to which they gave the name of vitamin M which has since come to be identified with Folic acid (Pteroylglutamic acid).

Folic acid by itself has the property of regenerating the blood up to a certain level in macrocytic anaemia which is very prevalent in our country.

Folic acid is present in all green leaves, animal tissues especially the liver and kidney, yeast, milk etc.

C. Vitamin B₁₂.—Shorb (1948) isolated from liver-extract a red crystalline substance which was found to be highly effective in the treatment of pernicious anaemia. Recent findings suggest that vitamin B₁₂ is the A.P. principle. This substance was labelled as the nutritional factor for various animals and was thus known as 'animal-protein factor,' 'chick-growth factor' etc.

In man there is evidence that the dietary deficiency of Vit. B₁₂ may result in severe macrocytic anaemia. But it has not been definitely established that it acts as a growth factor in human children. It has been well recognized the Vit. B₁₂ by itself, given in sufficient doses (Chowdhary 1951, Patel 1948, Patel 1950, Patel Kochar 1950) for an adequate length of time will produce a complete regeneration of blood in most of the cases of macrocytic anaemia. Vit B₁₂ occurs in liver, fermentation liquors and milk.

D. Vitamin B complex.—B-complex factors are not needed in haemopoiesis as concluded by various workers :—

(1) *Riboflavin* :—Its deficiency causes normocytic anaemia in rats, dogs, pigs and monkeys (Kornberg *et al* 1945, Potter *et al* 1942, Wintrobe *et al* 1944, Copperman *et al* 1945). It has no action on the anaemia associated with riboflavin deficiency in human beings. (Mayer *et al* 1942).

(2) *Nicotinic acid* :—It cures most of the symptoms of pellagra but does not cure anaemia. (3) Vit B₆. (4) Pyridoxin (Vit B₆). (5) Pantothenic acid. (6) Choline. (7) Biotine. (8) Para-amino benzoic acid (PAB) and (9) Inositol: These are not concerned in haemopoiesis in any species of animals.

E. Citrovorum factor.—This factor was discovered by Sauberlich and Bauman (1948) and was synthesized in crystalline form by Brockman *et al* (1950) at the Lederle & Calco divisions of the American Cyanide Company. The synthetic form is known as leucovorine. It is chemically related to Folic acid. The addition of a Formyl unit and four hydrogen atoms to the folic acid (Pteroylglutamic acid) molecule will form *Leucovorin*.

Clinical and hæmotological improvement of varying degrees has been reported in nutritional macrocytic anæmia. (Spies *et al* 1950, Woodruff *et al* 1951, Dass Gupta and Chatterjee 1953, Narayan *et al* 1954).

F. Protein factor.—The mere fact that hæmoglobin is a protein would suggest that a good protein-intake should be maintained in patients with anæmia. (Stare and Thorn).

The vitamins, amino-acids and minerals are the known factors concerned in the formation of red cells.

Recent research tends to show that when the nucleic acid metabolism is deranged, megaloblasts instead of normoblasts are formed.

Nucleic acid metabolism takes place in the presence of anti-anæmic substances and amino acids of protein to complete normoblastic hæmopoiesis. Therefore, a deficient intake (poor in quality and quantity) of food and deficient absorption from gastrointestinal tract of these important substances are factors which cause the anæmia prevalent in the tropics.

Chuttani recorded a number of observations while studying anæmia in vegetarians and meat-eaters. He observed that the majority of severe cases among vegetarians were obviously seriously ill; 24.7 per 1000 per year in vegetarians and 0.16 per 1000 in meat eaters.

On an average the vegetarian exhibited lower blood level with macrocytosis. (Taylor *et al* 1949). Vegetarian anæmia cases showed marked deficiency signs as compared to meat eating patients.

DIAGNOSIS:—All cases which look apparently anæmic may not be so hæmatologically and some anæmic cases may be neglected as normal because they do not look apparently anæmic. Early diagnosis is impossible because of the gradual onset.

The most common complaints are:—general weakness and abnormal fatigue; anorexia and nausea with vomiting. Recurring attacks may precede for many years before the anæmia is manifest. In Addisonian pernicious anæmia, an additional feature of achlorhydria (histamin-fast) and involvement of the central nervous system may be seen. This disease is rare in India.

Procedures used in laboratory investigation for correct diagnosis before treatment are:—Estimation of the hæmoglobin in g%; total R.B.C. count; and hæmatocrit (packed cell volume). The values for colour-index, M.C.V., M.C.H., M.C.H.C., can all be easily calculated from these data.

In every case all these figures are taken into consideration as no single value should be taken as pathognomonic of macrocytic anaemia.

The bone-marrow picture is undoubtedly megaloblastic, because all further development of megaloblasts is arrested. Megaloblasts themselves are not swept into circulation because they remain adherent to each other.

TREATMENT:—Before the commencement of the proper treatment it is important as already stated, to arrive at the correct diagnosis by hæmatological investigations and classification of the type of anæmia.

(a) Cases of macrocytic, hyperchromic, with normosaturation need only A.P. factors and whole liver extract; (b) cases of macrocytic hypochromic with hyposaturation; macrocytic, normochromic with hyposaturation and those with macrocytic hypochromic with hyposaturation, all require A.P. factors and iron.

Patel (1952)—suggested a line of treatment of macrocytic anæmia by mixing together of multifactors: Crude liver extract plus Vit. B₁₂ plus Folic acid parenterally, the dose and duration to be varied according to the severity of cases.

(c) *Dimorphic cases* (Macrocytic with hyposaturation) require the addition of Fe by mouth or by I.V. route.

In 1927, Minot and Murphy introduced liver by mouth in the treatment of pernicious anæmia.

Soon after, crude and refined liver extract by injection, took the place of the oral method in the treatment of macrocytic anæmia, in the belief that the liver is capable of storing large amounts of the antianæmic principle. Tropical macrocytic anæmia is more amenable to treatment with crude liver extract than the refined variety, but still the results are not up to the mark. Later liver extract was mixed with B. complex factors and used but with no encouraging results.

B. complex factors are not needed in hæmopoiesis though they may prove beneficial in dealing with the deficiency symptoms.

With the introduction of Folic acid another phase in the treatment of macrocytic anæmia was reached. Folic acid when used alone for treatment was found useful but the results were not quite satisfactory.

Lately it has been well recognized that Vit. B₁₂ by itself, given in sufficient dosage, for an adequate length of time will produce a complete regeneration of blood in most cases of macrocytic anæmia. The results are not however, wholly satisfactory.

In addition to the above substances required to start enzymic processes to form normoblastic hæmopoiesis, the administration of the amino-acids of proteins which are important building materials is very helpful.

Blood transfusion in macrocytic anæmia helps by stimulating the bone-marrow to form red cells. But how far it helps in the maturation of the red cell series is not however clearly understood. In severe cases, repeated slow small transfusions of 200 to 400 cc. are recommended.

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CHLORPROMAZINE MIXTURES

Drs. G. L. Jackson and D. A. Smith of the Harrisburg Polyclinic Hospital stated that they had investigated the analgesic properties of chlorpromazine administered alone and combined with morphine and with meperidine. Chlorpromazine was given postoperatively to various groups of patients in doses of 10 and 20 mg. Chlorpromazine in doses of 10 mg. relieved pain in 54% of the patients so treated for an average of 2.08 hours and in doses of 20 mg. relieved pain in 60% for an average of 2.26 hours. Doses of placebo were found to have an average of 2.26 hours. Doses of placebo were found to have an average effectiveness of 33% for an average of 1.38 hours. They concluded that chlorpromazine alone produces significant relief of pain but there is no significant difference between the two doses studied.

Morphine in doses of 2.5 mg. relieved pain in 48% of the patients so treated for an average of 1.93 hours; in doses of 5 mg. it relieved pain in 75% for an average of 3.22 hours; and in doses of 10 mg. it relieved pain in 82% for an average of 2.9 hours. The combination of 2.5 mg. of morphine with 10 mg. of chlorpromazine relieved pain in 75% of the patients so treated for an average of 2.36 hours; 2.5 mg. of morphine with 20 mg. of chlorpromazine relieved pain in 73% of the patients so treated for an average of 3.7 hours; and 5 mg. of morphine with 10 mg. of chlorpromazine relieved pain in 73% for an average of 4.38 hours. In the same patients the effect of 7.5 mg. doses of meperidine were compared with those of (1) 25 mg. doses of meperidine with 10 mg. doses of chlorpromazine and (2) 25 mg. doses of meperidine with 20 mg. doses of chlorpromazine. The results indicated that chlorpromazine when combined with meperidine, increases meperidine's analgesic effectiveness. It was also observed that the previous administration of chlorpromazine enhanced the effectiveness of subsequently administered morphine.—(*Proc. Am. Coll. Phys., J.A.M.A., 7-7-'56*).

PITYRIASIS VERSICOLOR may be alleviated by application of an ointment containing 1 per cent of selenium sulphide in a water-miscible base. Harry M. Robinson, Jr., M.D., and Stanley N. Yaffe, M.D., of the University of Maryland, Baltimore, state that the ointment is first applied after the patient bathes and rinses the skin to remove all soap. The bath is repeated every three days, and the ointment is applied twice daily. Lesions disappear within two weeks after therapy is begun and do not recur.—(*Modern Medicine*, January 15, 1957).

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COMPARATIVE EVALUATION OF ADRENOLYTIC AGENTS*

IN REDUCING SENSITIVITY TO ADRENALINE AND NOR-ADRENALINE AFTER GANGLION BLOCKADE

R. B. DOCTOR and A. D. JOSEPH,

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THE autonomic nervous system has always been physiologically and pharmacologically a field of romance. Many investigators have experimented with it and have made important contributions to our knowledge far beyond the anatomic confines of the system. Much however still remains to be learned, and this field remains a constant challenge to investigators. The use of drugs as 'tools' in experimental investigations in this field has contributed substantially towards unravelling of the functional 'mysteries' of the autonomic system. Among these 'tools', ganglion-blocking drugs and adrenergic blocking agents figure prominently as agents interfering with the chemical mediation of nervous impulses passing through the system. The ganglion-blocking agents do not prevent the release of mediators, but only bar the access of the mediator to the receptors. The blocking agent has, just like the mediator, an affinity for the chemical structure of the receptor. The blocking agent forms a chemical combination with the receptor, occupying the site normally available to the transmitter, thereby disallowing the transmitter to produce the characteristic response. The adrenergic blocking agents are compounds which selectively inhibit the response of the effector cells to adrenergic sympathetic nerve impulses and to epinephrine and related amines. The *locus* of action of these blocking agents is on the effector cells. The alkaloids of ergot were the compounds first recognized as showing adrenergic blocking action. Hydrogenation decreases the ability of these compounds to stimulate smooth muscle and increases their blocking activity. Yohimbine is another alkaloid having adrenergic blocking action. Among the first adrenergic blocking agents to be synthesized, were the dioxane compounds, developed by Fourneau and his collaborators. Nickerson and Goodman (1947) first described the adrenergic blocking action of dibenzylchloroethylamine (Dibenamine), one of the B-haloalkylamines. It was also suggested that Priscoline (Tolazoline) had anti-adrenergic properties. Several other compounds with similar properties have also since been synthesized. The only feature common to all the synthetic compounds is the presence of a tertiary amine. Conversion to the quaternary or to the secondary form abolishes the adrenergic blocking activity. Although the natural and synthetic adrenergic blocking compounds exert a definite block,

* Specially contributed to the ANTISEPTIC

they do not act as competitive antagonists with epinephrine for the common receptor. They do not possess a common structure which is similar to the phenylethylamine structure of epinephrine. The effector cells that respond to adrenergic stimulation are considered to possess two types of receptors, *alpha* and *beta*. The *alpha* receptors are chiefly concerned with excitatory responses. The excitatory response associated with *alpha* receptors are usually blocked by moderate doses of the synthetic and natural adrenergic blocking agents. The *beta* receptors are relatively insensitive to blockade but can be blocked by very high doses (thirty to forty times larger) of the synthetic blocking agents. The ergot alkaloids are relatively more effective than the synthetic agents at the *beta* group of receptors.

Method and materials.—Paton and Zaimis (1951) observed that subsequent to the administration of pentamethonium and hexamethonium salts, the 'sensitivity' to adrenaline was increased. The scope of the present work was extended to testing the sensitivity to adrenaline and *nor*-adrenaline before and after the administration of ganglion-blocking agents and evaluation of the effects of some adrenergic blocking agents in reducing the 'hypersensitivity'.

The animals selected for experiments were medium-sized healthy dogs. In each experiment the animal was weighed and then anaesthetized. The anaesthetic used was either paraldehyde orally (1 cc. per kg. of body-weight) or intramuscularly ($\frac{1}{2}$ cc. per kg. of body-weight) or phenobarbitone sodium by the intravenous route (125 mg. per kg. of body-weight). After the animal was anaesthetized, the femoral vein was cannulated for the administration of saline. The carotid blood-pressure was recorded graphically. Adrenaline was injected in the dosage of 1 μ g. per kg. and the blood-pressure response recorded. A ganglion-blocking drug was then administered and the effect was noted. After the blood-pressure returned to normal, the same dose of adrenaline was administered and the response to this was compared with the previous one. This was followed by an adrenolytic drug and the same dose of adrenaline was administered again. The modification in the response was noted and recorded. The same procedure was followed with *nor*-adrenaline. The above series of experiments were repeated with every one of the ganglion-blocking agents studied, as detailed below :—

The ganglion-blocking drugs selected were hexamethonium hydrobromide (1 mg. per kg.), Pentapyrrolidinium tartrate ($\frac{1}{2}$ mg. per kg.), and tetra-ethylammonium bromide (3 mg. per kg.) The dosage adopted corresponded more or less to the dosage schedule used in therapeutic practice. The adrenergic blocking agents and the dosages used are given below :—

Tolazoline	...	1 mg. per kg. of body weight.
Ergotoxine-ethanosulphonate	...	200 μ g. per kg. "
Yohimbine hydrochloride	...	200 μ g. per kg. "
Regitine	...	200 μ g. per kg. "

The results of the experiments are given in Tables I, II and I.

TABLE I
Showing the results of blood-pressure studies using T.E.A.B. for ganglion blockade

Serial number of animal used	Pressure response to adrenaline in mm. of Hg.		Pressure response to <i>nor</i> -adrenaline in mm. of Hg.		Adrenolytic drug and blood-pressure response in mm. of Hg. after its administration
	Before blockade	After blockade	Before blockade	After blockade	
1 2	5 —	6 —	— 5	— 6	1. Yohimbine hydrochloride Rise of B.P. 3 Rise of B.P. 5
3 4	6 —	7 —	— 12	— 15	2. Ergotoxine ethane sulphonate Rise of B.P. 10 Rise of B.P. 16
5 6	3 —	5 —	— 12	— 11	3. Priscoline Rise of B.P. 6 Rise of B.P. 12
7 8	20 —	20 —	— 15	— 22	4. Regitine Fall of B.P. 12 Rise of B.P. 8

TABLE II
Showing the results of blood-pressure studies using Hexamethonium bromide for ganglionic blockade

Serial number of animal used	Pressure response to adrenaline in mm. of Hg.		Pressure response to <i>nor</i> -adrenaline in mm. of Hg.		Adrenolytic drug and blood pressure response in mm. of Hg. after its administration
	Before blockade	After blockade	Before blockade	After blockade	
9 10	20 —	25 —	— 12	— 15	1. Yohimbine hydrochloride Rise of B.P. 15 Rise of B.P. 14
11 12	6 —	16 —	— 7	— 10	2. Ergotoxine ethane sulphonate Rise of B.P. 8 Rise of B.P. 18
13 14	2 —	5 —	— 5	— 7	3. Priscoline No effect No effect
15 16	20 —	24 —	— 18	— 28	4. Regitine Fall of B.P. 10 Rise of B.P. 8

TABLE III

Showing the results of the blood-pressure studies using Penta-pyrrolidinium tartrate

Serial number of animal used	Pressure response to adrenaline in mm. of Hg.		Pressure response to <i>nor</i> -adrenaline in mm. of Hg.		Adrenolytic drug and blood pressure response in mm. of Hg. after its administration
	Before blockade	After blockade	Before blockade	After blockade	
17	15	16	—	—	1. Yohimbine hydrochloride Rise of B.P. 13 Rise of B.P. 15
18	—	—	15	23	
19	3	7	—	—	2. Ergotoxine ethane-sulphonate Rise of B.P. 7 Rise of B.P. 10
20	—	—	6	11	
21	3	9	—	—	3. Priscoline Rise of B.P. 7 Rise of B.P. 11
22	—	—	2	8	
23	10	23	—	—	4. Regitine Fall of B.P. 7 Rise of B.P. 10
24	—	—	18	25	

Discussion.—It is now generally accepted that reduction in blood-pressure of sufficient degree and duration can produce great clinical improvement in most cases of hypertension and that with few exceptions, such reduction is desirable in malignant cases of hypertension. There is however, less agreement as to the types of cases that need active hypotensive therapy and the most suitable means of reducing blood-pressure. Among the drugs used for hypotensive therapy, the methonium compounds have been subjected to such extensive experimental and clinical investigations, that their pharmacological properties have been largely understood and their therapeutic status fairly well defined. Paton and his collaborators (1949), studying the properties of methonium compounds found that they interfered with the transmission of the impulse at autonomic ganglia reducing the post-ganglionic neurone refractory to pre-ganglionic stimulation. Hence it is apparent that these agents possess in common the therapeutic disadvantage of blocking the parasympathetic as well as the sympathetic ganglia. These constitute their side effects which limit their therapeutic utility. They do not block the acetylcholine effects in any other situation except the ganglia; in fact, the peripheral effects of acetylcholine would be prolonged subsequent to ganglion-blockade. Moreover, these compounds have certain excitatory actions, for example, contraction of the cat's ileum by hexamethonium (Paton and Zaimis, 1951). Moe and Freyburger (1950) have indicated that they also possess pressor and adrenal stimulating effects. According to Paton and Zaimis, these effects may be due to their depolarizing

certain post-synaptic elements, as does the decamethonium homologue. Paton and Zaimis (1951), showed that the pressor action of epinephrine is prolonged and enhanced following ganglion blockade. The present study with ganglion blocking drugs like T.E.A.B., Hexamethonium bromide and Pentapyrrolidinium tartrate (Ansolsen) have confirmed the enhancement of the pressor action of adrenaline following ganglionic blockade. Further, this was shown to be the case with *nor*-adrenaline also but the pressor action was generally greater than that of adrenaline, both before and after ganglionic blockade. It is unlikely that the increased sensitivity towards adrenaline and *nor*-adrenaline after ganglionic blockade would be of practical significance in the exhibition of ganglion blocking drugs except perhaps in the administration of sympathomimetic drugs to combat the severe acute hypotension occurring as a complication of ganglionic blockade. However, in chronic therapy with ganglion blocking drugs, the increased 'sensitivity' towards endogenous adrenaline and *nor*-adrenaline may assume importance. In such instances, simultaneous medication with adrenergic blocking agents to reduce this hypersensitivity may suggest itself. The ability of some adrenergic blocking agents *viz.*, Ergotoxine, Yohimbine, Tolazoline and Regitine in reducing the 'hypersensitivity' was tested. Regitine was found to be the most potent among the agents tested. It can reverse the action of adrenaline in the dosage employed (200 µg./kg.), but can only reduce the pressor effect of *nor*-adrenaline without actually reversing it. In the same dosage, ergotoxine has no adrenolytic effect but on the other hand it enhances the action of adrenaline and *nor*-adrenaline. The effect of Priscoline was variable. It enhanced the effect of adrenaline and *nor*-adrenaline after T.E.A.B. and Pentapyrrolidinium tartrate but reduced the effect after Hexamethonium. The enhancement of pressor action of adrenaline and *nor*-adrenaline after ganglion-blockade is probably due to the inability of compensatory mechanisms to intervene. This is common after ganglion-blockade of any kind but the degree of action varies with the different agents used. If the enhancement of the adrenaline 'sensitivity' may be taken as an index of the degree of ganglionic blockade, Pentapyrrolidinium appears to be the most potent among the agents tested. The reduction in 'sensitivity' to adrenaline subsequent to ganglionic blockade can serve as a criterion of the adrenergic blocking effect.

Summary and conclusions.—1. Experiments were conducted to test the pressor response to adrenaline and *nor*-adrenaline after ganglionic blockade with T.E.A.B., Hexamethonium bromide and Pentapyrrolidinium tartrate (Ansolsen).

2. It was observed that the pressor response to adrenaline and *nor*-adrenaline was enhanced and prolonged after ganglion-blockade.

3. The increase in 'sensitivity' to adrenaline and *nor*-adrenaline after ganglion-blocking was generally more marked with pentapyrrolidinium tartrate.

4. Pressor effect due to *nor*-adrenaline was generally greater than in the case of adrenaline.

5. The reduction in 'sensitivity' to adrenaline observed after ganglionic blockade, suggests itself as a basis for experimental assessment of the adrenergic blocking effect.

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STREPTOCOCCAL VACCINES FOR UVEITIS

Severe uveitis may be due to streptococcal hypersensitivity. If inflammation is chronic or frequently recurring, desensitization with specific vaccines should be tried.

Hypersensitivity is detected by testing with stock vaccines and with vaccines prepared from organisms isolated from any foci of infection in the teeth, nasopharynx, sinuses, tonsils, or genitourinary tract of the patient. Incidence of hypersensitivity is about 85% in patients with nongranulomatous uveitis but only about 27% in those with granulomatous uveitis.

Vaccine is prepared from equal parts of all the strains of streptococci to which the patient is sensitive. An intravenous injection of a dilute concentration of the vaccine is given every four days. If no focal or systemic reactions occur, the concentration and amount of vaccine are gradually increased up to 0.5 cc. of T-50 concentration of the organism, as determined electrospectrophotometrically. After this dose is reached, injections are given at weekly intervals for another six months.

Treatment completely relieves ocular inflammation in about 63 per cent of hypersensitive patients. In an additional 15 per cent, symptoms are somewhat decreased. Bacterial hypersensitivity and ocular symptoms may recur three months or more after cessation of treatment; vaccine injections may be repeated for these patients. Maintenance therapy is sometimes necessary after desensitization is accomplished. Treatment is unsuccessful in 22 per cent of patients.—(*Modern Medicine*, January 15, 1957).

THE PROBLEM OF OTITIS EXTERNA

A joint otological and dermatological investigation demonstrated that otitis externa is usually caused by pathogenic cocci or by intestinal organisms, the reservoirs of infection being the nasal vestibules, staphylococcal folliculitis, paronychia, areas of infected dermatitis, and the anogenital region. Prevention depends on avoiding digital transference of organisms from these foci of infection; a high standard of personal hygiene is essential.

Treatment consists of eliminating the infective state, treating any associated skin disorder, removing irritating detritus, and relieving any persistent aural pruritus with local and systemic remedies.—(C. Keogh and B. Russell, 1956, *Brit. Med. J.*, i, 1068, via *British Journal of Dermatology*).

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Cases and Comments

UNEXPECTED DEATHS (A report of two cases)

D. BHASKARA REDDY, M.D., *Professor of Forensic Medicine,*

AND

P. RAMACHANDRA RAO, M.B., B.S., *Andhra Medical College, Visakhapatnam*

FORENSIC pathologists frequently encounter cases that have died unexpectedly without premonitory symptoms. These persons may have been in excellent health until the moment of death or might have manifested few signs and symptoms. In many such cases there is no suspicion of poisoning or foul play but because of the unexpectedness of the death and the previous

good health of the individual the case may be referred to the coroner and an autopsy may be ordered. Sudden death brought about by pathological changes which might have been severe but which did not reveal clinically recognizable symptoms is referred to as "unexpected death from natural causes." Often insignificant factors may lead to untimely death—such as is brought about by emotion or slight exertion. In all these cases a careful recording of case history, a searching autopsy, including a histological examination of all organs would be of help in finding out the immediate cause of death. A detailed study of 26 cases of various types of unexpected deaths was made by Reddy and Reddy² and was recorded in 1955. We have since come across two interesting cases of unexpected deaths, the detailed autopsy findings on which are given below.

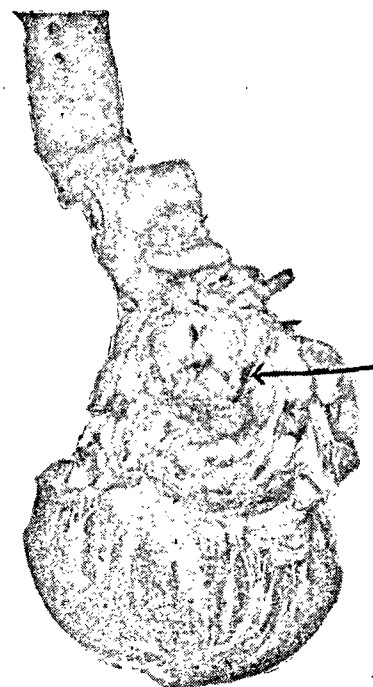


FIG. 1. Photograph shows the heart with aneurysmal dilatation of the aorta, showing the perforation. The intima shows characteristic syphilitic changes.

Case reports.—CASE 1:—*Rupture of an aortic aneurysm (P.M. No. 46/56)*:—A Hindu male, aged 35

years, was found dead suddenly at his residence at 3-45 p.m. on 20-9-1956 after his meal and after attending to his routine duties.

Chief autopsy findings:—A well-nourished individual of about 35 years. A healed scar seen on the corona of the penis. The pericardial cavity contained 6 ozs. of blood-stained fluid with

blood clots. Saccular aneurysm of the ascending aorta, close to the heart was observed and it had ruptured (see *Fig. 1*, p. 359).

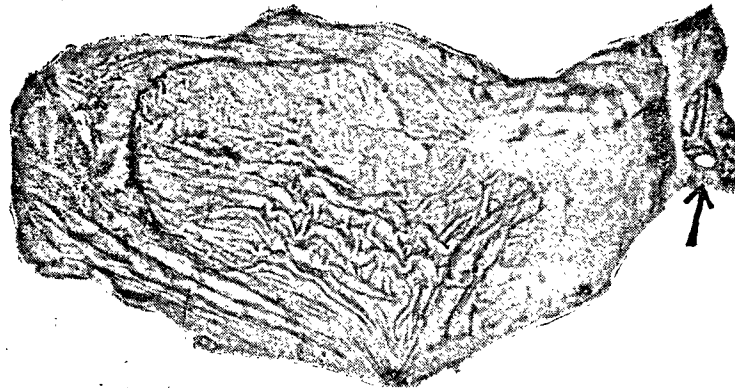


FIG. 2. Photograph of stomach with the peptic ulcer showing perforation.

The intima of the ascending, transverse and upper half of the thoracic aorta was pitted and scarred and the intervening tissue was wrinkled like the bark of a tree and some areas of the intima showed ulceration. There was left ventricular hypertrophy and also pulmonary oedema, congestion of the liver, spleen and kidneys.

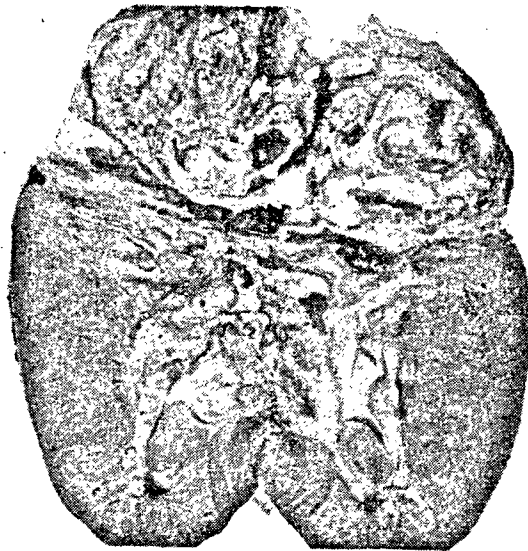


FIG. 3. Photograph of the kidney with the ossifying fibroma at the upper pole.

Chief autopsy findings:—Peritoneal cavity contained 6 ozs. of seropurulent fluid. An oval perforation 1 cm. $\times$ $\frac{1}{2}$ cm. over the anterior surface of the pylorus of the stomach was seen. On

Histological study of the sections of the aorta revealed meso-aortitis, lymphocytic collections around the arterioles in the adventitia and end-arteritic changes of the same with destruction of the elastic tissue of the media—all conclusive of a syphilitic aetiology.

CASE 2:—Perforated peptic ulcer (P.M. No. 47/56):—A Hindu, male, aged 45 years, was found dead by the road-side early on the morning of 6-10-1956.

opening the stomach, a chronic peptic ulcer was seen over the area corresponding to the perforation (see *Fig. 2*, p. 360). The right kidney showed an ossified mass of 1½" diameter sitting over its upper pole. Cut section showed gritty bony areas while the kidney itself was normal (see *Fig. 3*, p. 360). Histological sections from the above area showed a fibroma showing ossification (see *Fig. 4* below).

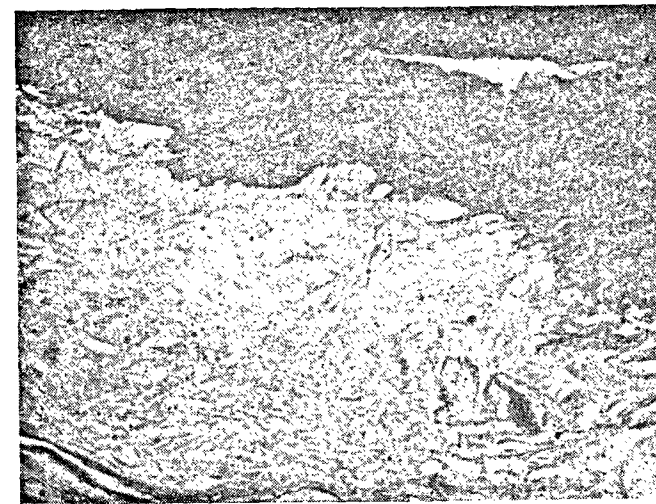


FIG. 4. Photomicrograph illustrates the fibromatous structure with the bony areas. (H & E $\times$ 400).

Comment.—Case No. 1 clearly shows that the rupture of the aneurysm occurred soon after slight exertion.

Case No. 2 very well exemplified that perforations of peptic ulcers have also to be borne in mind in dealing with cases of unexpected death. Reddy and Reddy in their review of 26 cases of unexpected deaths

did not come across a case of perforated peptic ulcer. Fibromas of the kidney are rare and they seldom give rise to any clinical symptoms except for their mechanical effects. They frequently undergo calcification and even ossification, when radiological examination will be of diagnostic help. Reddy in 1955 recorded a case of fibroma of the kidney weighing 3 lb. showing areas of calcification. It can be also an incidental autopsy finding as is seen in the case recorded.

Summary.—Two interesting cases of unexpected deaths are recorded.

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RESULTS OF SURGERY FOR AORTIC COARCTATION

Operation for coarctation of the aorta causes immediate improvement in hæmodynamic status, which thereafter continues gradually for several years. Five years after operation, the femoral and radial diastolic pressures are about equal. Radial systolic pressure falls during this time, while femoral systolic pressure increases; ratio between these pressures usually approaches normal. Cardiac output after operation is normal. Hypertension is not related to residual coarctation. Heart murmurs may disappear or diminish but often persist unchanged.—(*Modern Medicine*, January 15, 1957).

CORTISONE THERAPY IN PSORIASIS

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AND
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PSORIASIS is one of the commonest diseases of the skin; the treatment of this condition however, continues to be unsatisfactory. While there are certain broad principles useful as guides in treatment, it must be realized that each case of psoriasis presents an individual problem. Vitamin B₁₂ therapy was tried by us in psoriasis (a report on which is pending publication) and proved ineffective. Subsequently a clinical trial was given to cortisone therapy which has recently been largely employed in clinical practice.

Cortisone acetate was administered to ten cases of psoriasis and the results are given below :—

TABLE I
Summary of the Cases

Serial No.	Name of patient	Age	Type and duration of the lesions	Cortisone therapy	Response to therapy
1	C. S. P.	38	Wide-spread 6 yrs.	25 mg. I.M. daily for 7 days	No response
2	R. K.	26	Localized extensor type 7 months	"	"
3	R. L.	45	Wide-spread 1½ yrs.	"	"
4	C.	20	" 4 months	"	"
5	D. D.	17	" 4 yrs.	"	"
6	S.	30	" 3 "	"	"
7	G. D.	47	" 2 "	"	"
8	J. S.	30	" 4½ "	"	"
9	Y. S.	34	" 6 "	"	"
10	L. S.	28	" 4 "	"	"

NOTE :—All the ten were males; and only No. 4 was a Muslim, the other nine being Hindus. Kahn test was negative in all cases.

Discussion.—Ten cases of psoriasis were given 25 mg. of cortisone acetate daily for 7 days intramuscularly. The patients failed to show any improvement in the original lesions. New lesions did not however, develop during the course of the treatment.

It is always difficult to assess accurately the value of a particular drug in a chronic incurable malady and this difficulty

is very much greater in psoriasis. Psoriasis is not a disabling disease though it may be very demoralizing. The physician should not therefore, trouble the patient with treatment which is expensive and troublesome. We found that cortisone had no curative effect in the treatment of psoriasis.

Summary.—A trial of cortisone in ten cases of psoriasis is reported. The drug failed to effect a cure in any of them.

Acknowledgement.—We are grateful to Dr. A. S. Misra, Superintendent, A. Group of Hospitals, Gwalior, for his kind permission to utilize the records relating to these hospital cases.

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ACUTE GONOCOCCAL URETHRITIS IN THE MALE
TREATMENT WITH SINGLE DOSE OF INTRAMUSCULAR
OXYTETRACYCLINE

At the San Francisco City Clinic the authors have found an increasing number of patients to be intolerant of penicillin, and especially of those preparations in delayed adsorption vehicles which have become "the essential cornerstone of therapy" for gonorrhoea and syphilis. Oxytetracycline given by mouth has been shown to be effective against gonorrhoea, but this has involved the taking of regular doses over a variable period of days, whereas "the ideal medicament is one that can be given in one dosage under supervision." With the advent of injectable oxytetracycline, therefore, a study of the treatment of acute gonorrhoea with this preparation in a single dose of 400 mg. (given in two separate intramuscular injections) was carried out on 135 male patients. Prostatic or urinary cultures made approximately one and two weeks after treatment were negative on both occasions in seventy cases, in 27 cases a single culture only was made and was negative, and in ten cases failure of treatment was presumed in that a positive culture was obtained after one or two weeks, though some of these may have been due to re-infection. The remaining 28 patients failed to return. The cure rate for cases in which two cultures were made after treatment was thus 87.5 per cent., and when cases in which only one culture was made were included the rate was 90.7 per cent. These compare favourably with the results obtained with other injectable antibiotics. The only side-effect of oxytetracycline noted was "burning" at the time and site of injection.—(*Antibiot. Med.*, 2: 110, 1956, via *British Journal of Venereal Diseases*).

PREDNISONE TREATMENT OF CHALAZIA

Since chalazia are essentially the result of reaction to a toxic agent, steroids which inhibit tissue susceptibility should be helpful. Prednisone, 20 to 30 mg. daily, causes significant reduction in size of the lesions within five to eight days. Treatment is gradually discontinued after eight days by reducing the dosage 10 mg. daily. Conjunctival irritation and refractive error are corrected. The mass may disappear completely; occasionally, surgical removal of the residual lesion may be desirable for cosmetic reasons.

Steroid treatment is not advisable for patients with peptic ulcer, diabetes, or hypertension.—(*Modern Medicine*, January 15, 1957).

A CASE OF TROPICAL EOSINOPHILIA
SHOWING UNUSUAL FEATURES

B. S. RAHEJA, M.D.,
Bombay

Introduction.—Tropical eosinophilia is fairly common in Bombay. A complete clinical picture of it and a specific remedy (arsenic) were first given by Weingarten (1943). Since then many reports (Apley and Grant, 1944; Leishman and Kelsal, 1944; Treur, 1944; Patel, 1945 etc.) with fuller descriptions of the condition have appeared. The disease is characterized by a feeling of malaise, low temperature, dry spasmodic cough and leucocytosis with a high eosinophilia. There may be anorexia, general weakness and loss of weight. Cough is usually paroxysmal, becoming worse at night. There may be typical asthmatic attacks. Expirations are usually prolonged and the sputum which is scanty and tenacious is brought out only with great difficulty. Radiologically there may be increased bronchial markings, a mottling which may disappear or an appearance not unlike that of miliary pulmonary tuberculosis. The condition is generally believed to be allergic in nature. The whole syndrome is essentially benign and responds to arsenic. Relapses may occur.

Case report.—The patient aged 34 is myself. Complaints of the last or the fifth attack started insidiously on or about the 3rd August 1955, with loss of breath on climbing stairs, and cough on exertion. Within a few days the following symptoms were also noted viz., severe dry cough with prolonged expirations, temperature varying from 99°F to 101°F, vomiting, loss of appetite and disturbed sleep. The cough was troublesome and breathlessness was marked. Due to vomiting and loss of appetite there was reduction in weight. The diagnosis was confirmed on 7-9-'55 by blood examination. Fluoroscopic examination of the chest revealed increased bronchial markings.

The different investigations which were carried out revealed no abnormality other than the eosinophilia. The course of the ailment, blood counts, and the treatment taken are given in tabular form (vide Table I, p. 365). Various antibiotics, alone and in combination were taken but without any effect. Arsenic was not taken. Ephedrine and anti-histaminics gave partial relief of the cough and were therefore, continued all along. Partial relief was obtained by the use of A.C.T.H. but even then the complaints were fairly severe and so it was finally discontinued from 27-11-'55. An increase in the dose of A.C.T.H. did not prevent either the rise of the circulating eosinophils or the severity of the complaints. "Hetrazan" was taken from 14-1-1956 for four days in a daily dosage of 13 mg. per kg. of body-weight as suggested by Ganatra and Lewis (1955). The daily dose was taken in three divided doses. To my great satisfaction the relief was

TABLE I
Showing the hematological and clinical details during various treatments

Date	Total leuco-cytes per cmm.	Eosinophils per cmm.	Neutrophils per cmm.	Basophils per cmm.	Lymphocytes per cmm.	Monocytes per cmm.	Severity of symptoms	Weight in lbs.
7-9-'55	24,900	19,173	2,241	Nil	3,486	Nil	++	148
25-9-'55	43,800	35,040	4,380	Nil	4,380	Nil	+++	144
2-10-'55	32,650	27,752.5	2,938.5	Nil	1,959	Nil	+++	142
16-10-'55	32,150	23,150	3,215	Nil	5,787	Nil	+++	138
3-11-'55	23,900	15,535	3,585	119.5	4,421.5	239	++	135
27-11-'55	29,800	22,946	2,980	Nil	3,874	Nil	++	132
14-1-'56	37,500	29,250	3,000	Nil	4,875	375	+++	121
22-1-'56	12,000	6,720	1,800	Nil	3,360	120	Absent from 15-1-'56	126
17-2-'56	4,700	752	1,833	Nil	2,021	94	Absent	133
8-3-'56	4,500	360	1,935	Nil	2,070	135	Absent	142
21-4-'56	3,900	234	1,755	Nil	1,833	78	Absent	145
22-7-'56	6,300	819	2,583	Nil	2,772	126	Absent	147

Ephedrine and antihistaminics taken regularly upto 14-1-'56.

TREATMENT:—Aureomycin 1.0 g. daily from 7-9-'55 to 18-9-'55.
"Entacyl" i.e. Piperazine adipate 600 mg. t.d.s. from 25-9-'55 to 1-10-'55.
Terramycin 1.0 g. daily from 2-10-'55 to 13-10-'55.
ACTH Gel 20 units daily from 16-10-'55 to 2-11-'55.
ACTH Gel 30 units daily from 3-11-'55 to 26-11-'55.
Procaine penicillin 4,00,000 units + Streptomycin 1.0 g. daily from 27-11-'55 to 6-12-'55.
Tetracycln 1.0 g. + Chlorphenicol 1.5 g. daily from 7-12-'55 to 16-12-'55.
Hetrazan 750 mg. daily from 14-1-'56 to 17-1-'56.

dramatic and I was almost symptom-free from 15-1-'56 *i.e.*, just a day after the start of the therapy. The progress was uneventful with gradual increase in weight and in the sense of well-being. The leucocytes and eosinophils, after an initial rapid fall gradually decreased even below the normal level. Leucopænia persisted for over three months after "Hetrazan" was discontinued.

Previous attacks.—The first attack of eosinophilia was seen in January 1949. Carbarsone, one tablet twice daily for 10 days, was taken and recovery was uneventful. The second attack began in April 1950. This time "Acetylarsan" was taken intramuscularly every fifth day. The third injection was followed by a large vomit, and no more arsenic was taken thereafter. The symptoms continued for about a fortnight after the last dose of arsenic and gradually subsided thereafter. A month and a half after discontinuing the drug, severe arsenical dermatitis developed which persisted for over 2 months. The third attack in May 1952 lasted for only a few days. This time Carbarsone, one tablet daily for only 3 days, was taken. Small petechial hæmorrhages and epistaxis were noted on the 3rd day of the therapy. No more arsenic was taken after that and recovery was uneventful.

The fourth attack had a prolonged course from March 1953 to June 1954 *i.e.*, for nearly 15 months, during which repeated blood and stool examinations, radiological examinations of the chest and paranasal sinuses and sternal puncture revealed no abnormality other than the eosinophilia. In view of the intolerance to arsenic noted previously, arsenic was not taken on this occasion. A liberal use of ephedrine and antihistaminics, gave only temporary relief of the cough. Catarrhal vaccine, auto-hæmotherapy, calcium gluconate, prolonged courses of various antibiotics and various anthelmintics were of no avail. Cortisone was used from 5-2-'54 but gave only temporary and partial relief. The symptoms increased in severity and the eosinophils in the blood also increased while still on cortisone; so it was discontinued from 19-3-'54. Instead, 30 units of A.C.T.H. gel daily was continued from that day. This also gave only partial relief and was discontinued from 7-4-'54. Various dietetic changes were made to see if allergy to any particular food could be the cause. It was thought that there was some allergy to onions and they were omitted from the diet from the middle of May. From that time onwards, there was also improvement with practically no complaints after the middle of June 1954. On various occasions thereafter, the ingestion of onions produced coryza, and dry cough.

Discussion.—The first and third attacks need no comment. Intolerance to arsenic manifested itself during the second attack.

That arsenical dermatitis developed a month and a half after arsenic was discontinued is rather surprising. It may be attributed to cumulation and very slow excretion of the drug. The fourth attack ran a very prolonged course. In the absence of arsenic no other medication had any curative effect. Chaudhari (1950) had noted that "Aureomycin" (*i.e.*, Chlortetracycline) effected remarkable improvement in some cases of tropical eosinophilia. In my case however, there was no beneficial effect during the last two attacks. Likewise other antibiotics, alone or in combination had no effect. Cortisone and A.C.T.H. gave only very temporary and partial relief, even which was of short duration and the severity of the disease increased in spite of the drugs being continued. Increasing the dosage of these drugs did not help in any way and the circulating eosinophils closely followed the severity of symptoms. To what extent the eschewing of onions from the diet contributed to the recovery of the attack is difficult to say. The use of onions in the diet, thereafter resulted in coryza and dry cough. In spite of the fact that onions were completely excluded from the diet, I had a typical and equally severe attack in 1955. I therefore, feel that allergy to onions is not the likely cause of the eosinophilia in my case although it may have aggravated the severity of the cough. Studies to find the effect on blood counts and circulating eosinophils following the ingestion of onions have not been done. In spite of repeated negative stool reports, various anthelmintics (*i.e.*, Chloroquine, Santonin, Diphenin and Entacyl) were taken to see if they might help. The results were disappointing. I am therefore, inclined to attribute the recovery on this occasion (*i.e.*, the fourth attack) to no specific therapeutic agent but regard it as instance of spontaneous recovery.

The difficulty regarding treatment again presented itself during the last attack in 1955. Response to various drugs was similar to that during the previous attack. "Hetrazan" was tried after Ganatra and Lewis (1955), reported their experience with it in cases of tropical eosinophilia. Relief in my case was dramatic and most gratifying especially after having suffered so long, during which time practically no other medicine produced a lasting beneficial effect. I became almost symptomless in about 24 hours after the initial dose of the drug. Relief was therefore, earlier in my case than what was reported by Ganatra and Lewis, or as seen by myself later on in other cases treated with "Hetrazan." The circulating eosinophils showed a rapid fall as will be seen in the count made on 22-1-'56. Thereafter, the decline was more gradual. The numerical reduction in the total leucocytes was mainly due to the decrease in the eosinophils. Neutrophils more or less maintained their level during the follow-up period, although a leucopænia was seen to persist even 3 months after the drug was taken.

My case clearly demonstrates the value of "Hetrazan" in the treatment of tropical eosinophilia; it is specially indicated for those who cannot tolerate arsenic in any form.

Summary.—I have myself been a sufferer from tropical eosinophilia off and on for nearly 8 years. The main features described are frequent relapses and intolerance to arsenic resulting in prolonged illness. In the absence of arsenic, no other medication except "Hetrazan" had any lasting or curative effect. Leucopenia occurred after the use of "Hetrazan" which lasted for over 3 months.

Acknowledgement.—I wish to thank Dr. M. B. Mody, Dr. J. G. Parekh and Dr. A. J. Vazirani for their valuable suggestions and keen interest in treating me and Dr. P. N. Ojha for helping me with the many blood examinations and laboratory investigations.

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SPONTANEOUS PERFORATION OF THE OESOPHAGUS

G. Tilling (*Acta radiol.*, March, 1956) states that spontaneous rupture of the oesophagus constitutes an acute emergency and occurs almost exclusively in connexion with vomiting or defaecation. The patient is shocked, with severe pain in the chest and upper part of the abdomen, but the clinical picture varies according to the site of the lesion and the direction in which the perforation takes place. For example, perforation into the mediastinum may produce local emphysema spreading upwards to the cervical region. The lower end of the oesophagus is seen to have no relation with the right pleura, but lies in close contact with the left. For this reason rupture of the lower end of the oesophagus commonly takes place into the left pleural cavity, whereas the upper parts of the organ more readily perforate into the right. The most significant radiological sign, however, is the presence of hydropneumothorax. When found in a patient with acute severe pain in the thorax and/or upper part of the abdomen, it should always lead to suspicion of rupture of the oesophagus, and examination of the latter should be carried out with a sterile absorbable medium as contrast agent. The differential diagnosis includes perforation of a peptic ulcer, coronary occlusion and pulmonary embolus. Acute cholecystitis and acute pancreatitis should also be excluded.—(*via Medical Journal of Australia*).

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Dr. U. KRISHNA RAU, M.B., B.S., M.L.A.,
Speaker, Legislative Assembly, Madras.

We wish to convey to our readers the welcome and glad news of our Editor Dr. U. Krishna Rau having been elected as the Speaker of the Madras Legislative Assembly on the 30th ultimo. The worthy son of a worthy father (the late Dr. U. Rama Rau, our Founder Editor and a former President of the Madras Legislative Council), Dr. Krishna Rau has himself been connected for many years with the political and social life of the City in various capacities, having been the Mayor of Madras in 1947 and also the Minister of Industries and Labour during 1952-1954.

We are confident that Dr. Krishna Rau with his sweet temper, affable manners, genial disposition and his reputation for judicious handling of difficult situations will be able to hold the scales even, during the deliberations of the New Assembly, the leaders of the different parties in which offered handsome praise and encomiums in welcoming him as their new Speaker.

1-5-1957. }

U. Vasudeva Rau,
Associate Editor.

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Editorials

THE PASTEUR INSTITUTE AT COONOR

THE Pasteur Institute of South India which celebrated its Golden Jubilee on the 2nd of April last, was opened formally on the 25th of April 1907 by SIR ARTHUR LAWLEY, the then Governor of Madras. It has since made significant contributions to medical research and treatment during half a century which is indeed a very long period in the history of any human institution. Contrary to popular belief, the closing years of the last and the opening years of this century in India witnessed the establishment of many medical research institutions. Thus the Agra Bacteriological Institute was established in 1892, the Haffkine Institute at Bombay in 1896, the first Pasteur Institute of India at Kasauli in 1900, the King Institute of Preventive Medicine at Guindy (Madras) in 1903 and the Central Research Institute at Kasauli in 1906. All these laboratories have since considerably expanded their activities connected with the diagnosis and treatment of diseases requiring expert microbiological examinations and medicaments. They have truly served as the "temples of the future, of riches and of comfort," as Louis Pasteur said of laboratories, "where humanity grows better, stronger, and where she can learn to read the works of progress and universal harmony." This meed of high praise is applicable to the institute at Coonoor which has been associated with the name and memory of the great French Scientist and which as already stated, has given devoted service to mankind for 50 years in the unending war against disease. Under a succession of able, efficient and research-minded directors assisted by equally efficient and zealous assistants, all animated by a selfless spirit of service to humanity—which, by the way, is at once the glory and the pinnacle of all scientific research—the Pasteur

Institute at Coonoor has created a record of achievements which will compare very favourably indeed with those of the more famous institutions in Europe and America. It is not therefore, surprising that Dr. M. G. CANDAU, the Director General of the WHO, in his message of greetings on this unique occasion, warmly congratulated the Institute and said:

"This is an appropriate occasion for the WHO to take note of its indebtedness to institutions like yours which are helping greatly in the national and international tasks involved in raising the levels of health everywhere..... and to express our great appreciation of the excellent co-operation which the WHO has always enjoyed from you."

Started with the main object of making available effective means of preventing the occurrence of the much dreaded disease of rabies, the scope of work of the institute was gradually expanded to include research work on that and other diseases. The routine work of the institute was somewhat lightened in 1922 when it was decided by the governing body to supply anti-rabic vaccine to all Government headquarters hospitals—an important development which did away with the necessity for patients to travel all the way to Coonoor for anti-rabic treatment.

During recent years the institute has worked in collaboration with the WHO and the International Health Division of the Rockefeller Foundation among various other organizations and institutions.

Valuable contributions have been made almost from its inception to the study of diseases other than rabies such as typhoid, malaria and kala-azar. It has lately been co-operating with the Public Health Department of the Government of Madras in the distribution of certain types of vaccines.

Its present research programme relates to cholera, influenza, rabies, and Q fever, among other diseases. It is serving as the Influenza Centre of the Union Government and is also being utilized by International organizations, like the WHO for conducting several important investigations. Valuable as have been its services in the past, there are indications that its record will be even more glittering and still more valuable in the years to come. RAJKUMARI AMRIT KAUR, the Union Health Minister, who, on 2-4-1957, opened the Golden Jubilee block of the Institute said:—

"The virus problem has been assuming in recent years special significance. Poliomyelitis, up till now only a sporadic infection, has attained epidemic proportion in certain urban areas. We have had recently many epidemics of Encephalitis in children presumably of viral origin, like the "so-called Jamshedpur fever." We had also to deal with an epidemic of Viral Hepatitis in Delhi recently and an increased incidence of the disease in many other parts of the country. Latterly, there was an epidemic of viral origin in South India, also affecting children, which had been diagnosed as Japanese B. encephalitis. There are many other ailments which are likely to be traced to viruses."

In the light of the above observations we are glad to welcome the attempts of the workers at this institute to devote themselves to the study of other virus diseases, particularly those believed to be causing respiratory and intestinal infections. For there is an imperative need for a more complete scheme of research into viruses, to map out the various virus diseases which exact a heavy toll of life in the country. Further, there is considerable scope for training the personnel needed to execute the programmes of research. By reason of the many facilities available, this institute appears, to our mind, to be best suited as a centre for post-graduate training in bacteriology in general and virology in particular.

It is somewhat disheartening to know that from its early days, this institution has been handicapped by the paucity of funds. It is hoped that assistance from the Central and State Governments will be more generous so that research may progress unhampered by want. We feel confident that we may look forward to a continuance of the life-saving contributions of this institute which, according to its indefatigable and enthusiastic Director, Dr. N. VEERARAGHAVAN, has on this occasion of its Golden Jubilee adopted as its motto, the soul-stirring words of Ulysses, "*To strive, to seek, to find and not to yield.*"

RECENT DEVELOPMENTS IN THE CONTROL AND RELIEF OF HANSEN'S DISEASE

(The Noble work of the Mission to Lepers)

ON the 1st of April 1957, a decision to expand the Central Leprosy Research and Teaching Institute at Tirumani near Chingleput, with laboratory, surgical and clinical blocks attached to it, at an estimated cost of Rs. 6.34 lakhs was taken by the governing body of the institute which met at the Madras State Government's Secretariat Cabinet Room. Sanction was also accorded to the construction at a cost of Rs. 1,76,000 of a tuberculosis block for treating leprosy patients suffering from a co-existing T.B. infection. Several other measures designed to improve the control and treatment of the disease were also discussed and decided upon. We also understand that Dr. DHARMENDRA, the eminent leprologist of India is to be placed in charge of this institute and will join his post shortly. It is indeed very gratifying to note that the Central Government has been taking considerable interest in the control and eradication of leprosy and in the treatment of patients suffering from this disease and to this end have started 'study centres' in several villages to study the epidemiology of the disease and also established rehabilitation and housing colonies for the unfortunate victims.

In the context of this Government sponsored programme we may take the opportunity of reviewing the splendid work done during 1955-'56 by the Mission to Lepers. In addition to the work in Leprosy Homes maintained and aided by the mission, the care and treatment of leprosy patients in outlying villages have been greatly expanded and by the introduction of the more effective modern treatments, fresh hopes and greater interest have been roused in the public mind.

In its Homes, the mission has made immense progress in the correction of the mutilation of hands and feet and facial and other deformities caused by leprosy. Many victims of the disease have been enabled to work and support themselves as self-respecting members of society instead of being a burden on relatives and friends.

New operations have been devised and performed and new knowledge gained about the causes of the deformities and their prevention, thanks to the strenuous efforts of Dr. PAUL W. BRAND and his band of enthusiastic lieutenants at the Christian Medical College in Vellore. As an example of the results of continuous researches and attempts to arrive at the most effective techniques, it is pointed out that a large number of those who underwent operations for hand reconstruction was traced and re-examined, and 75 per cent showed good results in spite of the hazards through which they had to pass. Dr. BRAND has found that, in general, hands that are properly used and kept active, following operation, continue not only to remain strong, but actually to improve their range of movement in the years that follow. This is indeed an achievement of the first order.

Equally encouraging have been the results of operations for the correction of deformities of the nose and other parts of the face. Another type of operation, which has proved completely successful, is that to remedy eyebrow baldness, long regarded as incurable even when the disease has been arrested. These and other new discoveries are naturally proving sources of pride and happiness to inmates of the Homes and other leprosy patients.

We are glad to learn from the Mission's annual report that they have adopted a policy of maintaining surgical centres in or near their large Homes, in order that they may be used by the smaller Homes, and out-patient clinics in the district and patients with deformities in outlying areas may not be put to the pain and discomfort of having to travel long distances to undergo operations. This programme awaits further development and its success depends upon the training of an adequate number of surgeons in the specialized technique. As Dr. BRAND always aims at a high standard of perfection, the work of training cannot be hurried. Newly trained surgeons have already been placed in charge of six special centres in widely separated

parts of the country, and these surgeons have been training their own assistants and supervising the organization of their operation theatres in the respective centres.

The Mission to Lepers began its noble and unostentatious work of relief in 1865, and during 82 long years has stimulated sister missions and several other official and non-official agencies to assume greater responsibilities in the control and relief of leprosy.

Since the achievement of Independence, the campaign against leprosy has been given a fresh impetus by the Hindu Kushta Nivaran Sangh (which has taken the place of the Indian branch of the British Empire Leprosy Relief Association), the Gandhi Memorial Leprosy Foundation, and the Leprosy Research and Training institutes established by the Government. Generally speaking, in the various centres, there is greater personal concern for the patients. In many villages, new drugs are administered to the patients in their own homes by doctors or nurses, assisted by trained social workers. Not many years ago, Dr. R. G. COCHRANE, in co-operation with other leprosy workers, tried experimentally, in villages in the Chingleput District of the Madras State, the segregation of patients in their own homes or in separate places in the same village during nights, so that they might usefully attend to the affairs of their families, and not be separated from these altogether. We note with pleasure that it is now being copied wisely in other areas. Greater organization, however, is needed in most States to detect early cases of leprosy and to cure them or prevent them from progressing.

We are confident that the glorious and selfless work of the Mission to Lepers, will serve as an example of the devotion and self-sacrificing spirit that should pervade amongst all persons who are interested in the amelioration of the lot of these unfortunate brethren who, for no fault of their own, suffer from a distressing and deforming malady.

MENTAL HEALTH SERVICE

(Urgent need for development)

RAJKUMARI AMRIT KAUR, the Union Health Minister, who declared open the academic wing of the All India Institute of Mental Health and the 4th Pavillion of the Mental Hospital at Bangalore on the 16th of March 1957 rightly stressed the importance and need to give a new orientation to people's approach towards and their outlook on the problem of mental health. The All-India Institute of Mental Health was established last year by the Union Government, with the close co-operation of the Mysore State Government and the WHO. A sum of 41 lakhs of rupees has been provided for the development of this

institute during the Second Five-Year Plan period. The Institute is administered by the Central Government through a Governing Body and the Mental Hospital is maintained by the Mysore State Government. A comprehensive mental health service which is stated to be the ultimate goal of these two institutions should provide not only for the care and treatment of the mentally disordered and deficient, but also for the preservation and promotion of the mental health of the people as a whole.

We often hear it stated in recent reports in the medical and lay press, that in many countries of the west more hospital beds are devoted to the care of the mentally ill than to the treatment of all other patients put together. We in India are not, however, in a position to judge correctly the extent of prevalence of mental maladies in our country but there is certainly no room for complacency in this regard. For, the stress and strain of modern life and the so-called civilized living characterized by undue haste and speed in every item of human endeavour, seen particularly in urban areas, should certainly have been insidiously and adversely telling on the mental equilibrium and poise of the people of the land and predisposing them to various ailments, *e.g.*, peptic ulcers, schizophrenia, nervous breakdowns and the like. A great deal of research is being carried out in the advanced countries of the West on the causes of the high incidence of mental aberrations and ill-health among their nationals. There is no particular reason to believe that there are in India any special or inherent factors which will help to resist the onslaught of those forces which normally go with rapid industrialization and modern civilization which are proceeding apace.

This is what makes it a matter of great urgency for us to develop the mental health services of our country in such a way as will enable them to provide the requisite facilities for arresting those insidious but rapid processes which lead ultimately to psychological maladjustments and nervous derangements. The work of reform must start early in life and the care of the child and training of its mental faculties must receive high priority in any mental health organization. We are glad to know that a national plan for the setting up of Child Guidance and Psychiatric Clinics has now been drawn up and it has been suggested that these clinics, to begin with, may be attached to teaching hospitals. The number of clinics proposed to be started on these lines, at present is but a fraction of the number that would eventually be required, but we hope these would pave the way for a demand for their extension on a country-wide basis. There is vast scope for research in this field in which we must develop standards and methods suited to our ancient traditions and

culture and to the emotional and spiritual values that really weigh in the mental make-up, peculiar to us of this ancient land.

The general concepts of the Five-Year Plans, in the matter of health promotion aim, as we all know, at laying more emphasis on the expansion and development of preventive services; such services cannot function effectively without trained workers and it is a happy augury that arrangements have been made to train nurses in psychiatric nursing by providing facilities for this purpose at the Institute for Mental Health. The Union Health Minister expressed the hope that it would be possible to evolve a working arrangement under which the Institute and the Mental Hospital could be managed by the same Governing Body, instead of the dual management which, as stated *supra*, is in vogue at present. We are in complete agreement with this view of the Union Health Minister as we sincerely believe that it will conduce to harmony and smoothness of working and at the same time also make for general all-round efficiency and economy.

ISONIAZID TREATMENT OF LUPUS VULGARIS

Oral administration of isoniazid alleviates lupus vulgaris. The drug is given in doses of 100 mg. three times a day. The lesions usually disappear after six months to one year of continuous treatment, leaving the skin normal or slightly atrophied and pigmented, with a reticular pattern. Therapy is continued for at least three months after clearance of lupus. Oral and intralesional calciferol may be given in addition to isoniazid if the disease is resistant.

Relapses may be treated by local acid nitrate of mercury, by intralesional injections of calciferol, or by a second course of oral isoniazid.

No serious side effects of isoniazid therapy occur, though transient nausea, dyspepsia, constipation, giddiness, headache, fatigue, and anosmia may be observed. Resistant strains of bacilli rarely develop during treatment. Isoniazid is also given before and after plastic surgery or excision of growths complicating lupus to prevent formation of new tubercles in the scar or grafted tissue. Other forms of cutaneous tuberculosis, such as tuberculosis verrucosa, scrofuloderma, and erythema induratum, may also be amenable to isoniazid treatment.—(*Modern Medicine*).

VITAMIN B₁₂ IN THE TREATMENT OF PSORIASIS

Vitamin B₁₂ has been credited with various beneficial effects apart from its hæmopoietic activity. Within a few years of its isolation it brought about the usual successes in other fields that are expected of all new drugs. Its "lipotropic" action has recently been directed against xanthelasma palpebrarum, the newest disease to fall victim to its magic. (Do medicines with a number always have a greater effect than those with only a name?)

Thirty-one patients with psoriasis have been treated with this vitamin and the results assessed. They are equivocal: 7 excellent results, 12 good. 1000 µg. a day for 10 to 12 days were given to most of the patients. The best results were observed in patients who complained of itching. The reviewer distrusts the itching psoriatic as a subject for drug trials. But at least the treatment is harmless.—(Muscardin, L., *Cronache dell'Idi*, 5-6: 115, 1956, via *British Journal of Dermatology*).

OPHTHALMOLOGY

Uveitis.

Uveitis, in which the brunt of the inflammation may fall either on the anterior segment as an 'iritis' or 'cyclitis,' or on the posterior as a 'choroiditis,' is a familiar disease of great importance, since the sight is generally damaged by each attack, but, like glaucoma, it remains in most cases an ætiological enigma. A detailed summary is given of 200 consecutive cases seen last year at the Institute of Ophthalmology by Smith and Ashton (1955). Not one of these showed a positive Wassermann or Kahn reaction; in only two cases was the gonococcal complement-fixation test positive and in neither instance was a history of venereal infection obtained, so that its diagnostic value is very doubtful. The results of the Mantoux test followed closely those to be expected in the population at large, although a high cutaneous sensitivity was more frequent in the group in which the uveitis involved the anterior rather than the posterior structures. In anterior uveitis the frequency of raised anti-streptolysin titres suggested an underlying streptococcal hypersensitivity. A blood count was the rule, and no correlation could be found between uveitis and hæmoglobin level. A leucocytosis of over 12,000 per cmm. was found in only 12 cases (five in anterior uveitis, one in posterior uveitis and six in total uveitis). Thirteen cases had a polymorphonuclear leucocytosis, and among these a source of infection was located in ten (two with positive gonococcal complement-fixation tests, three with staphylococcal infections, one with active pulmonary tuberculosis, one with Behcet's disease, one with laryngitis, one with septic teeth and one with active toxoplasmosis).

In the treatment of uveitis, topical cortisone is of increasing service, since most of the attacks, if not certainly allergic in origin, are at any rate self-limiting, and a method of treatment that reduces the congestion and exu-

dation, and therewith the amount of subsequent mechanical impediment to vision, is of major importance, even if it has no effect on the cause or course of the inflammation. Atropine (or in cases of sensitivity, its synthetic equivalent 'lachesine') should be given as before, along with heat, a pad and sometimes a salicylate mixture. Topical cortisone has scant hope of reaching a focus of choroiditis, and systemic cortisone or corticotrophin has sometimes been used in such conditions (Hobbs and Simpson, 1953), although this treatment has not found general acceptance.

Keratitis and its treatment.—(Von Nordheim, R.W. (Utrecht, Netherlands). Naphazoline [2-(1-naphthyl-methyl-imidazoline)] as a Curative for the Treatment of Keratitis Punctata Superficialis and Dendritic Keratitis, *Ophthalmologica* (Switz.), 132: 198, 1956).

Von Nordheim has achieved good results with Privine in two ophthalmological indications—keratitis punctata superficialis (23 cases) and keratitis dendritica (5 cases). In the case of the former the average duration of the disease was successfully reduced to 2½ days. Keratitis dendritica, on the other hand, did not respond so quickly and took, on the average, about a week to cure. The disease, however, ran a quieter course when Privine was administered. There was never any need to resort in addition to the usual less conservative methods of treatment (abrasion of the cornea, application of tincture of iodine).

Treatment consisted in instilling a ½% or 1% Privine solution into the eye five times daily; depending on the severity of the case, a solution containing 1% Privine and 2% atropine was also instilled. No bandage was necessary, except in cases of photophobia; where a bandage is applied, it is advisable to smear on a little antibiotic eye-ointment. A relapse may occur following sudden withdrawal of Privine, but renewed appli-

cation elicits a successful response. A possible explanation for the beneficial effect of Privine in these cases is that vasoconstriction may produce a higher concentration of antibodies in the infected area than in the blood.

Latent strabismus.—(*British Medical Journal*, September 15, 1956).

Heterophoria or latent strabismus is defined as a tendency for the visual axes to deviate from their normal relative directions. Thus, if a person who has heterophoria looks steadily at an object and then has one eye occluded, the occluded eye deviates. Ordinarily the tendency to deviate is kept in check by the power of binocular vision without any conscious effort. If, however, the effort to maintain the eyes in the normal position becomes a conscious one, certain symptoms may occur. The varieties of heterophoria are as follows:—Esophoria—a tendency for the visual axes to diverge; hyperphoria—a tendency for the visual axes to converge; exophoria—a tendency for the visual axes of one eye to deviate upwards; hypophoria—a tendency for the visual axis of one eye to deviate downwards; and cyclophoria—a tendency for the vertical axis of one eye to "wheel-rotate" inwards (incyclophoria) or outwards (excyclophoria).

Slight degrees of heterophoria are physiological and rarely cause symptoms. Even large degrees of heterophoria may not cause symptoms, for the tendency to deviate may be fully controlled—that is, the heterophoria may be fully compensated. On the other hand, if the heterophoria is not fully compensated, it may cause symptoms such as blurred vision, headaches, and ocular discomfort. In some cases the latent deviation becomes an intermittent manifest deviation giving rise to loss of binocular vision, with diplopia or more usually suppression of part of the vision of one eye. The grosser degrees of "heterophoria" are usually due to an underlying congenital ocular palsy.

The condition of heterophoria can be diagnosed by a variety of "disso-

ciation tests" such as the cover test, the Maddox rod test, and the Maddox wing test. It must be emphasized, however, that it is not the presence of heterophoria that matters but simply whether the heterophoria is fully compensated or not. This can only be determined by a proper evaluation of the symptoms and a careful assessment of the binocular functions. This latter requires special orthoptic apparatus, and a description of its use is beyond the scope of this paper. Fully compensated heterophoria usually requires no treatment. Decompensated heterophoria needs treatment.

Treatment varies according to the case. It may be a matter of spectacles—for example, the correction of hypermetropia in some cases of esophoria; orthoptic treatment to improve the fusional reserve and to improve the binocular functions; or operation upon the extrinsic ocular muscles.

Cortisone in ophthalmology.—(Niedermeyer, S., and E. Wurster (*Augenklin., d. Med. Akad., Dusseldorf, Germany*). *Cortisontherapie in der Ophthalmologie. Eine kritische Studie. Aertz. Forschg. (G)*, 10: 1/212, 1956).

In ophthalmology cortisone is indicated primarily for allergic and endogenous processes, but not for exogenous infections. It inhibits the formation of fibroblasts, vessels, connective tissue, and new epithelium, as well as promoting the absorption of cell elements. Cortisone—in the form of ointment, drops, or local injections—is therefore, an ideal means of preventing proliferation of connective tissue after removal of a pterygium; it may also be used to absorb a secondary cataract after operation, but not until the wound is properly closed and cicatrized.

In addition, cortisone renders good service in the after-treatment of ser-piginous and other ulcers, once the florid stage has been halted by antibiotics and the tissue largely regenerated. Opacity of the cornea clears in response to cortisone, and superfluous cell constituents are absorbed,

thus promoting the restoration of normal parenchyma and helping to reduce the density of the scars.

Cortisone is also indicated in all allergic and inflammatory diseases of the eye, such as vernal and allergic conjunctivitis, as well as in all endogenous types of scleritis, keratitis, and uveitis. Furthermore, this hormone plays an important part in the treatment of sympathetic ophthalmia.

Hypertensive retinopathy.—(*Practitioner*, Sep. 1956. Advances in treatment).

Hypertensive retinopathy, formerly presaging an early death, and itself expected to deteriorate steadily with increasing hæmorrhages and retinal œdema, now presents a much less gloomy picture. The effects on the retinopathy of hypotensive drugs (the centrally acting rauwolfia derivatives and the ganglion-blocking agents such as pentolinium), rice or low-sodium diets, and of sympathectomy, are often dramatic, with proportional gain in vision.

Recent investigations into the pathogenesis of diabetic retinopathy have also been most fruitful. The incidence of this has markedly increased during the last two decades, partly through more careful diagnosis and partly through longer life expectancy in the young diabetic. It has been found that the frequency of retinopathy increases rapidly after the diabetes has persisted for ten years, and the majority are affected after a latent period of 15 to 25 years (60 to 100 per cent. according to various estimates). Its onset is generally believed to be postponed by good management of the diabetes, but what constitutes the latter is variously interpreted and some advocate a 'free diet'. It is more common in females and is unrelated to the severity of the diabetes. The micro-aneurysms that form the classical primary fundus lesion were first described by Mackenzie and Nettleship at Moorfields in 1877, and have been demonstrated by modern injection techniques by Ashton and his colleagues (1954), who also showed that these were mirrored

in the renal nodules of glomerulonephrosis (Kimmelsteil-Wilson's disease) which tends so often to co-exist. Recent evidence has shown the striking relationship between the degree of adrenocortical activity and the incidence of retinopathy (and glomerulonephrosis) in diabetes (Becker *et al.*, 1954). This has been largely supported in experimental diabetes, and less certainly by the clinical improvement which has attended a decrease in the activity of the adrenal cortex. Further studies relate both diabetes and adrenocortical function to the disordered metabolism of some vitamins of the B-complex, particularly pantothenic acid and cyanocobalamin, but these important findings are yet some way off from offering any therapeutic harvest.

OBSTETRICS & GYNÆCOLOGY

Clinical use of amniotic fluid.—(*J.A.M.A.*, 7-7-1956).

Amniotic fluid, which has a clinically detectable coagulating effect in adults and children, can be safely transfused according to Dr. Alfonso Galvez Tio (*Revista peruana de obstetricia*, 3:3, 1955). He added amniotic fluid to a blood transfusion in treating a pregnant woman with uterine rupture. The patient's shock subsided and her hæmorrhage was quickly controlled. Twenty-seven patients with a prolonged coagulation time were given amniotic fluid intravenously in doses of from 5 to 500 cc. In each patient, the coagulation time returned to normal or nearly normal within 24 hours after the transfusion. In four patients who had nasal and gingival hæmorrhage that did not respond to ordinary therapeutic measures, the amniotic fluid brought about a prompt arrest of the hæmorrhage and normalization of the coagulation time. To show that the amniotic fluid was harmless, it was given to 73 patients of all ages, and no serious untoward effect was observed; only 6 complained of mild symptoms of intolerance after the first dose, but not after subsequent doses. The amniotic fluid was obtained

by suprapubic puncture of the uterus before the beginning of labour and it was replaced by isotonic sodium chloride solution in order to maintain the natural evolution of delivery.

Cervical cancer and cæsarean section.—(*J.A.M.A.*, 7-7-1956).

Cervical cancer in pregnant women is not an absolute indication for cæsarean section according to Dr. L. Robles Araujo (*Revista Peruana de obstetricia*, 3:2, 1955). Endometrial changes closely resembling carcinoma *in situ* may occur in pregnancy and are more frequent than it is believed. Such changes, when erroneously believed to be caused by cancer, may lead the obstetrician to perform a cæsarean section followed by total hysterectomy. The fact that the cytological findings in these patients are consistent with an endometrial carcinoma *in situ* further interferes with accurate diagnosis. For this reason, the author regards the concurrence of pregnancy and invasive cervical carcinoma as the sole condition warranting the performance of a cæsarean section, the invasive character of the tumour being essential to a positive diagnosis. During her first pregnancy, a 17 year old woman was found to have a polypoid mass on the posterior lip of the cervix that bled freely when touched. Biopsy specimens taken at different times were reported as demonstrating epidermoid carcinoma, grade 2. After the 39th week of gestation, a cæsarean section was performed. Twelve days later a pelvic examination revealed no abnormality and biopsy specimens taken from the place where the tumour mass had been located showed only glandular hyperplasia. A cytological study of vaginal smears performed 40 days later was likewise negative.

Prolapse of the uterus.—(*J. A. M. A.*, 7-7-1956).

Tampan and Thankam have analyzed 1,000 cases of prolapse of the uterus in relation to parity, age, type, and degree of prolapse (*Journal of Obstetrics and Gynaecology of India*,

December, 1955.) Of these, 38 occurred in nulliparas. The incidence of prolapse was high in those with four or less children. Maximum incidence was found in the age-group 25 to 44. Uterovaginal prolapse was the commonest type, being present in 75% of the cases. Severe cystocele was present in 9.6%, severe rectocele in 0.5%, rectocele and cystocele in 7.7%, enterocele in 4.1%, recurrent prolapse in 0.7%, and vault prolapse in 1.2%. Third-degree prolapse was observed in 68.5%. Hypertrophic elongation of the cervix was found in only 1.2%. The latter, altogether with vault prolapse, showed a maximum incidence in the age group 15 to 24. There was a gradual increase in the degree of prolapse with increase in age. The maximum incidence of hypertrophic elongation of the cervix was seen in nulliparas. The uterovaginal type had its maximum incidence in second paras. The incidence of rectocele combined with uterovaginal prolapse was only 0.5%. In this series 88.9% had natural delivery; 4.1% had forceps delivery; 1.9% had had prolonged and difficult labour; and only one patient had breech delivery.

Obstetrical anaesthesia.— (Advances during 1956. *Practitioner*).

In obstetrical anaesthesia the problem concerns the mortality and morbidity that follow existing methods, and a feeling that many of the advantages of new anaesthetic techniques have not yet been passed on to obstetrical patients. With the general decline in over-all maternal mortality, those obstetric deaths which are due to anaesthesia assume an increasingly obvious place, accentuated by the fact that many are caused by vomiting. Death can be brought about in this way by acute anoxia, or as the result of aspiration into the lungs, but damage may be done to both mother and child, even when there is no question of a fatal outcome.

At the outset the advantages of a local analgesic procedure, such as pudendal nerve block for operative delivery by the vaginal route in

unprepared patients, must be emphasized. About 60 per cent. of assisted deliveries can be performed under local analgesia (Parker, 1956). There are, of course, hazards with local analgesic techniques, but for this type of case they are likely to be less than those of general anaesthesia if an expert anaesthetist is not available. Nevertheless, some patients will need general anaesthesia for either personal or obstetric reasons.

In hospital practice a solution to the difficulty may well be found in the use of advanced techniques by experienced anaesthetists. Thus, a recent report has drawn attention to the value of a cuffed endotracheal tube and muscle relaxants (Coleman and Day, 1956). Once the patient is intubated, the risk of aspiration is eliminated whilst any given level of anaesthesia can be maintained with less anaesthetic than would otherwise be the case, and, moreover, with complete maternal oxygen saturation. If deep anaesthesia should be needed, it can be quickly and easily produced. The use of muscle relaxants not only facilitates easy intubation but also allows excellent operative conditions to be produced with minimal narcosis.

The introduction of this type of anaesthesia to obstetrics is no more than the transfer of accepted operating theatre practice to the labour ward. For safety therefore, the equivalent conditions in terms of apparatus, suction, and a quickly tilting labourward bed are essential. More important than all these, however, and indeed than any particular anaesthetic drug or sequence, is the experience of the anaesthetist.

Unfortunately all advances of this type in the field of practical anaesthesia widen the gap that already exists between hospital and domiciliary obstetric practice.

SURGERY

Repair of industrial electrical burns.—(*Plastic. Reconst. Surg.*, 18: 177-184, 1956, via J.A.M.A.).

Shock following electrical burns is often severe, but in those who survive

it has not been prolonged, owing to the prompt parenteral administration of fluids followed by whole blood. Protection against tetanus and antibiotics are given. Other injuries may be present, particularly if the patient has taken a fall, and to detect them a thorough physical examination must be carried out. The vessels may serve as pathways between entrance and exit of the current, and they may become so damaged that thrombosis or repeated hæmorrhages result because of crumbling of the vessel wall during attempted hæmostasis. Primary excision and immediate coverage may be done in areas in which the exact extent of the burn is recognizable. In these instances, initial repair usually may be done by closure or with a free graft, and complicated flap coverage is postponed. Dressing the wounds after they have been cleansed and irrigated may be all the patient's general condition will stand initially. The dressing should allow for surgical drainage, be comfortable, and splint the part. A firm, fine-mesh grease gauze pressure dressing accomplishes this.

Debridement of all nonvital tissue can usually be done within 7 or 10 days after the injury. Free skin grafts can be used at the time of debridement and may be suitable for permanent coverage. If they are used for temporary coverage the wound is said to be dressed in a graft. They can be placed on bleeding bone and expected to grow. Limited areas of exposed tendon can also be covered with this type of graft. Short, broad-based direct abdominal or chest pedicle flaps are used where thicker coverage than a free graft is required. The pedicle can usually be cut within 3 weeks, set back, and the remainder of the donor site covered with a free graft. Bone grafts, joint, tendon, or nerve operations can be done through the flap after 2 to 3 months. Permanent pedicle blood-carrying flaps have the advantage of bringing a new blood supply into a relatively avascular area. If the repair has to be done in stages, time lost from work can be reduced by encouraging patients to return to work between operations.

My method of treating middle basal cavities.—(*Chir. torac.*, 1955, 8: 402, *Int. Abst. Surg.*, July 1956).

Dr. G. Gucci presents his method of treating tuberculous cavities of the lower lobes. He classifies these as middle-basal because of their location in the usual posteroanterior roentgenogram of the chest.

Numerous arguments against excisional surgery are presented and the author advocates phrenic exeresis and pneumoperitoneum as the treatment of choice. Seventeen patients so treated are reported as cured. Careful phrenic dissection, with removal of all branches and excision of as much of the main phrenic trunk as possible, is emphasized. Measurements of vital capacity showed no reductions over 15 per cent subsequent to this manoeuvre. The associated pneumothorax is a vigorous one with positive pressure refills of 1,200 to 1,500 cubic centimetres of air weekly, maintained for 10 to 18 months.

Pain and urinary retention after hæmorrhoidectomy.—(*British Medical Journal*, 18-8-1956).

After hæmorrhoidectomy the reduction of pain and avoidance of complications, of which retention of urine is the most common, depend on attention to a number of points, such as (1) correct choice of cases for operation—this involves selection of third-degree piles which are free from recent infection and thrombosis; (2) correct operative technique, which must be based on accurate knowledge of ano-rectal anatomy—it is particularly important that an accompanying dorsal fissure should be recognized and dealt with, preferably by adequate drainage and suitable division of the internal sphincter in the right posterior quadrant; (3) a well-chosen post-operative regime, which must be well understood by the nursing staff and carried out with gentleness, thoroughness, and confidence. Many of the rectal cases are of the nervous, apprehensive type and need much reassurance. It is a great help to use a type of anaesthesia which permits the male

patient to be stood out of bed early to pass urine, and a combination of local analgesia (2 per cent aqueous procaine) with intravenous thiopentone and galamine has proved to be the ideal method. Spinal analgesia has been discarded owing to the high incidence of post-operative retention of urine. Finally, in patients of the nervous type it is a great help to give phenobarbitone, 1/2 gr. (32 mg.) twice daily, for the first week after operation. Most patients treated on these lines will need only one injection of injectio papavereti (B.P.C.) on the night after operation, and it is gratifying to find that the majority now say that their fears were groundless and that their post-operative course has been much better than anticipated. It is curious how the old tradition of patients having "excruciating pain" after operation for hæmorrhoids still persists but each additional patient successfully dealt with on modern lines should help gradually to kill this myth.

Treatment of hæmatemesis.—(*Lancet*, 1: 360, 1956).

Discussion on the treatment of hæmatemesis due to gastroduodenal hæmorrhage resolves itself into arguments for and against operation. From a study of hospital records, Brandon observed that emergency gastrectomy had a case-fatality rate of 50%, whereas in elective gastrectomies it was only 2%. He concluded that surgery was best confined to those patients who could be saved only by operation. The use of epinephrine to stop gastric hæmorrhage was abandoned many years ago. Brandon has revived this treatment, using very large doses. He claims that many patients stop bleeding after the passage of a Ryle tube, a washing out of the stomach, and the injection of 40 cc. of a 1:1,000 solution of epinephrine and 5 cc. of Stypven (Russell viper venom) down the tube. After slow withdrawal of the tube, a slow intravenous transfusion of 2 to 4 pts. of blood is started. After using this method on 92 patients, Brandon concludes that emergency gastrectomy is the second line of defence. The mortality in the epi-

nephrene-Stypven series was 7.6%, compared with 12% in combined expectant and surgical treatment. Brandon first deals with gastroduodenal hæmorrhage medically by means of epinephrine and Stypven. If bleeding recurs within 72 hours and is excessive, additional treatment with these two drugs is given and gastrectomy performed without further delay.

Carcinoma of the larynx.—(*Practitioner*, Sep. '56. *Advances in Medicine*).

Gone are the days of dispute between radiotherapist and surgeon over the best method to treat patients suffering from laryngeal cancer. Bias is largely forgotten and almost every case is discussed in detail before procedure is decided. Surgeons must now admit that early carcinoma confined to a vocal cord is as curable by irradiation as by excision and that the voice subsequently is very much better. In either event failure will mean laryngectomy. There seems a large measure of agreement concerning subglottic growth of any size: surgery is the better course because the results of irradiation are poor. In the past, surgeons have avoided irradiation unless the prognosis after such treatment has been good. They have argued that when irradiation failed laryngectomy became technically extremely difficult, and also pointed out the high incidence of postoperative pharyngeal fistula. Now the pendulum is swinging the other way and patients are more often advised to undergo irradiation. They are told that success is not guaranteed and that failure will mean radical surgery. Mill (1956) stated that, in his experience, pharyngeal fistula was no more likely to complicate post-irradiation laryngectomy than laryngectomy performed as the first step in treatment. He also pointed out that he had encountered very few operative difficulties when compelled to remove the larynx on account of irradiation failures.

The mutilating operation of laryngectomy is now much less of an ordeal for patient and surgeon. Wounds heal

better, drainage tubes are left in for a shorter time whilst, as Ormerod (1954) pointed out, it is now possible to dispense with a feeding tube. Modern speech therapy has made great strides so that a higher proportion of patients acquire serviceable oesophageal speech.

Adrenalectomy for intracranial metastases from carcinoma of the breast.—(Clan and Hunt of the St. Bartholomew's Hospital and the Royal Marsden Hospital, in the *British Medical Journal*, 15.9.1956).

It is now generally recognized that bilateral gonadectomy with bilateral adrenalectomy often leads to a regression of metastatic carcinoma of the breast and gives results which are well worth while. A course of hormone treatment by androgens (or by oestrogens in the male) should usually precede the operation. There seems, however, to be a widely held opinion (not shared by us) that the presence of cerebral metastases contraindicates surgical treatment because of the poor results of the results, although they could not discover a definite statement to this effect in the literature.

At the Royal Marsden Hospital over 90 adrenalectomies had been done up to the end of 1955. In only two patients were cerebral metastases clinically evident. Both have responded very favourably.

Bilateral gonadectomy and adrenalectomy have been performed in over 300 patients with metastatic breast cancer in five series. Among all these only five have had involvement of the brain, of which three (including our two cases) have shown a worth-while response. While it would be foolish to draw hard-and-fast conclusions from so small a number, it appears that cerebral metastases may respond to hormone deprivation and will probably do so with the same order of frequency as metastasis is that the condition often becomes urgent. It is a morbid swelling within the rigid skull, and this fact should lead us to submit the patients to early surgery. Often an one-stage operation is to be preferred, as the

patient will not improve until the intra-cranial mass begins to regress in size. We would regard this particular complication of breast cancer as a contra-indication to androgen therapy, except perhaps for a short period pre-operatively.

Hypophysectomy or destruction of the hypophysis by radioactive methods whatever its place may be in the treatment of the other manifestations of metastatic breast cancer, has no place in the palliation of cerebral metastases. R. Luft (1956, *personal communication*) states that Professor Olivecrona, of Stockholm, does not perform hypophysectomy if intracranial metastases are present.

The operation of bilateral gonadectomy and adrenalectomy is at present the only possible treatment of value for patients with intracranial metastases from cancer of the breast. It should be attempted when possible, because these patients are otherwise doomed.

MEDICINE & THERAPEUTICS

The modern treatment of malaria.—Writing in the *British Journal of Clinical Practice*, Jan. '57, Sir Philip Manson-Bahr says:—

"The modern treatment of malaria is all-important, but we have to tread our way carefully through a perfect maze as our therapeutic menu gets yearly longer. It becomes so very confusing when the nations of the world busy themselves in producing hordes of anti-malarials of the most complicated structure and bearing wondrous names; very difficult to remember, not omitting the extra long list of synonyms. All that can be done here is to try to simplify the problem. There are some 4 categories of these compounds and many varieties. According to a list I have compiled there are no less than 36—all in common use.

(1) The 4-amino-quinolines include chloroquine, nivaquine, sontochin and camoquin. These have the advantage of being practically non-toxic and, as

efficient schizonticides and suppressants, constitute probably the most useful all-round anti-malarials at the present day.

(2) The 8-amino-quinolines comprise pamaquin, pentaquine and primaquine. All are potentially toxic and are apt to produce hæmolytic, especially in coloured races. They are given in very small doses (5–10 mg.) and act upon the schizonts of the exo-erythrocytic cycle in the liver and have a special affinity for the sexual stages (gametocytes) in the peripheral blood.

(3) The diguanides, represented by proguanil or paludrine, can be given in comparatively large doses (100–600 mg.) without any toxic effects. Proguanil has the great property of acting on the various stages of the exo-erythrocytic cycle. It thus constitutes an ideal and powerful causal prophylactic. The usual dose is 100 mg., but it may be necessary to take 200 mg. As a curative of the actual malarial attacks it has not been so successful, as it so readily produces paludrine-resistant strains of the parasite.

(4) The pyrimidines are represented by daraprim or pyrimethamine. This appears to be a remarkably efficient drug especially against *P. falciparum*. It, too, is practically harmless. In doses of 5 mg. daily it is a good schizonticide and suppressant, and in bi-weekly doses, of 25 mg. each, it is being given on a large scale as a prophylactic in West Africa. Its defect is that the parasites become so readily resistant, a property it shares with paludrine, and the resistance to both these is reciprocal.

The best all-round drug for treatment is chloroquine diphosphate (aralen, avlochlor) and closely allied to camoquine (amodiaquin). The maximum dose is 1 gramme. It is given in tablets of not 0.25 gramme each by mouth. It is practically tasteless and does not disturb digestion. To an adult man the dose is 1 tablet 3 or 4 times daily for the next 7 days. As a suppressant it is taken in bi-weekly doses of 0.5 gramme. The side effects are seen rarely and consist

of diplopia and bleaching of the hair (consequently popular in Hollywood).

Of the 8-amino-quinolines the favourites are now *pentaquine* and *primaquine*. They are used mostly as suppressants in benign tertian malaria and when combined with quinine have proved to be the most successful method of curing this infection and of preventing relapses. The dose is 60 mg. together with 20 gr. (1.3 gramme) quinine daily for 14 days or longer. The two have now been combined in a tablet called *quiniplex* (150 mg. quinine sulphate with pentaquine phosphate 6.5 mg.).

This is the essence of modern malaria treatment, but what about quinine? Have we now been forced to discard this old and trusted friend of 300 years' standing? No certainly not! Quinine still remains our sheet-anchor as the most rapid and powerful malaricide and, when there is an emergency, let us never neglect to employ it. No other drug approaches it in efficacy in cerebral malaria, or in other pernicious forms of the subtertian infections. There should be no hesitancy under these circumstances of injecting it intramuscularly (dihydrochloride gr. 7) in resistant fevers or intravenously in cerebral malaria with coma.

Treatment of pneumonia.—(*Journal of the American Medical Association*).

The effectiveness of chlortetracycline hydrochloride in the treatment of pneumonia is established; however, a number of patients develop unpleasant side-effects, particularly affecting the gastrointestinal tract. A comparison of the clinical result obtained with this drug with those obtained with tetracycline was, therefore, arranged at the City General Hospital, Sheffield (*Brit. M.J.*, 2: 1146, 1956). Fifty-six adult patients were admitted to the trial, and each was given, at random, one of the antibiotics. Patients over 70 years of age, convalescent patients, those with heart failure, and those who had received treatment with another antibiotic or sulphonamide were excluded from the trial. Both drugs were given in a dose of 0.5 g. orally every six hours for three days and then 0.25 g. every six hours until it was considered safe to

stop treatment. A thorough bacteriological examination was done on the sputum or nasopharyngeal swab of each patient, and all pneumococci isolated were typed. Paired sera were tested for cold agglutinins and antibodies to influenza A and B viruses, the psittacosis-lymphogranuloma venereum viruses, *Coxiella burnetii*, and *Streptococcus MG*. Some of the sera were also examined for antibodies to influenza C virus and to the adenoviruses. Roentgenograms of the chest were also taken. The two groups treated were comparable. The commonest pathogenic organism was the pneumococcus. Using the number of deaths, temperature reduction, clearing of physical signs and roentgenograms, and day of discharge as indexes of effectiveness of treatment, there was no difference in the effectiveness of tetracycline and chlortetracycline. Most of the side-effects were mild, and their incidence was about 30 per cent in the two groups. The only serious complications followed the use of tetracycline; there was one case each of micrococcic enteritis, pulmonary moniliasis, and aspergillosis. The last-mentioned was fatal. It was concluded that tetracycline has the same disadvantages as other broad-spectrum antibiotics and should therefore be used with appropriate care and consideration.

Oral administration of iron in hypochromic anæmia.—(A. Piney, Plaistow, *British Journal of Clinical Practice*, Jan. 1957).

The causes of hypochromic anæmia are so numerous that, for the present purpose, they will be ignored; it will be assumed that the cases to be treated have been adequately investigated, so as to exclude those in which there are underlying causes which demand other than hæmatinic treatment. In other words, only the therapy of iron-deficiency itself will be discussed.

First, it must be realized that 'iron deficiency' and 'hypochromic anæmia' are not interchangeable terms. True enough, iron is not only the main atom in the molecule of hæmoglobin; it is also essential for innumerable

ther vital reactions, for example, it is present in various enzyme-systems, in myoglobin, and so on. So the symptoms and signs of iron-deficiency are not necessarily all attributable to næmia. Indeed, occult iron-deficiency (larval sideropænia) is becoming more and more clearly recognized as a cause of a multitude of 'functional' symptoms. Even in cases of hypochromic anæmia, when administration of iron has produced an excellent emission, symptoms may persist if the deficiency has not been completely relieved, while relapses are notoriously common. Restoration of the hæmoglobin level to normal is not enough: the depots need to be filled. This act is often striking in the anæmia of pregnancy, which needs to be treated for weeks after the obvious anæmia is cured: if this is not done, relapse will occur in the last week of gestation, after parturition or during lactation.

Secondly, in the great majority of cases, hypochromic anæmia will respond to oral administration of a suitable preparation of iron: only rarely is it necessary to use the parenteral route. One can almost go so far as to assert that the physician, who often resorts to intravenous injection of iron for the treatment of such anæmias, has probably been unskilful in his choice of an oral preparation.

Further, oral administration has the advantage of being more or less self-regulating. Absorption from the gastrointestinal tract depends upon an intracellular protein substance, apoferritin, which enables the quantity of iron passed through the wall to be graduated according to the needs of the body, of course only if there is enough iron in the intestinal contents. Overdosage, in the sense of presenting more iron to the hæmopoietic organs than they can deal with, is thus not possible, whereas the parenteral route, which by-passes the natural barrier, is obviously open to the objection that an excess of iron will be deposited in tissues where it is possibly deleterious.

It is, naturally, possible to administer iron preparations by mouth in such quantities as to cause gastrointestinal upset, but here it is not only the quan-

tity of iron itself that is at fault: various preparations are more likely than others to disturb the digestion, cause constipation, and so on.

The preparations of iron are legion, but are divisible into two groups: more or less simple salts of iron, and mixtures of such iron-salts with various adjuvants, such as vitamin C (alleged to assist absorption), vitamin B (stated to diminish digestive disturbance), minute amounts of cobalt (for its stimulating effect on hæmopoiesis), and so on.

Simplicity and economy, are fortunately, no hindrance to efficacious treatment. In most cases, preparations of the first group, that is, simple ferrous salts, serve the double purpose of relieving the anæmia and of restocking the depleted iron-depots.

Ferrous sulphate is still the most widely prescribed ferruginous medication and, although the incidence of gastro-intestinal disturbance is relatively high, it is efficacious in most cases. Basically, a very large proportion of the available anti-anæmia preparations depend upon ferrous sulphate for their results, although admixture with the B-complex (Ferraplex) is advocated by some, because the general nutritional state is improved at the same time as the iron-deficiency is being overcome. Much the same is true of Plastules, which contain, in addition to ferrous sulphate, yeast concentrate with a high content of B-vitamins.

Other salts than the sulphate are also in use. Thus, ferrous gluconate appears to allow of more rapid absorption of iron, while the incidence of digestive upsets is lower than with the sulphate. Ferrous succinate (Ferromyn) is a more recent product, which is remarkably bland, so that the incidence of gastro-intestinal disturbance is minimal. This has the further advantage that the mucosa is not irritated and diarrhoea produced, and the iron, therefore, remains longer in the gut with, naturally, more time for absorption. This is borne out by the observation that the daily dose need rarely exceed one tablet (35 mg. of elemental iron) three times a day.

Some of the more complex ferruginous preparations, which are correspondingly more costly, are of value in some cases of intolerance, for example, a preparation of iron, vitamins B and C, nicotinic acid amide and lipoid fractions (which accelerate absorption of iron) with or without cobalt, is almost invariably acceptable (Ferrilecit), but the number of cases in which sensitivity is so great as to make such an expensive preparation necessary is small.

In short, it can be said that treatment of iron-deficiency can be adequately carried out with any of the currently available ferruginous preparations, but that some of the older ones, such as ferrous sulphate, are less well tolerated and, probably, less well absorbed than are the more modern, but still quite simple salts, such as the gluconate and especially the succinate.

Myocardial infarction in young men.—(L. V. McVay Jr., *Post-grad. Med.*, 20: 506—13, 1956, via *J.A.M.A.*).

Coronary atherosclerosis is a disease and not a result of ageing. No effective prophylaxis can be anticipated, since its pathogenesis is not understood. Forty-seven patients, from 21 to 65 years of age, with myocardial infarction were observed within a 4½ years period (Jan. 1, 1951, to July 1, 1955) in the Maxwell Air Force Base Hospital. Myocardial infarction occurred in only one negro patient. The incidence of the disease was lowest in the winter. Most cases of myocardial infarction occurred in August, May, and October. Sedentary employment or light or moderate labour were the occupations of 31 of the 47 patients. Frequently, infarction occurred during the active hours of the day (7 a.m. to 7 p.m.). This suggests that effort and activity may be of importance in the development of coronary occlusion. In 53% of the 47 patients there was a definite familial history, in 30% this was not so, and in 17% no history was obtained. No difference was noted between the 2 age-groups. Obesity appears to be definitely related to myocardial infarction.

This was observed especially in the younger age-group. The excessive use of tobacco appears to be of importance in the pathogenesis of coronary artery disease. The observations of excessive use of alcoholic beverages are not definite.

The clinical picture in the 21 patients under 41 years was compared with that of the 26 older patients. In each group 6 patients had the same premonitory symptoms. Myocardial infarction tends to be milder in younger individuals than in persons over the age of 41. The diagnosis of myocardial infarction may often be overlooked, since this condition is uncommon before the 40th year. An annual electrocardiogram is required for all Air Force personnel reaching the age of 40. Evidence of myocardial infarction was observed repeatedly on the initial tracing; yet no significant signs of cardiovascular disease could be elicited. No patient of the older age group had a temperature over 102.4°F (39°C) as compared with 102.2°F (39.1°C) in the younger group. The highest level was reached at from 36 to 72 hours after the onset of illness in both age-groups. Fifteen patients, 6 in the younger and 9 in the older age-group, were afebrile throughout their hospitalization.

Sedimentation rates were obtained in all cases, but this laboratory procedure appeared to be of limited value in both age-groups. The leucocyte counts did not increase as much in the younger patients, and they tended to return to normal at an earlier period. Serial electrocardiograms showing the characteristic changes of myocardial infarction are important in establishing the diagnosis. Eight patients (17%) died; 5 were in the older group (19%) and 3 in the younger group (14%).

Treatment of gonorrhœa.—(*Practitioner*, London, Sept. 1956).

There is no evidence, *in vitro* or *in vivo*, that strains of gonococci are becoming resistant to penicillin, which remains the drug of choice in the treatment of gonorrhœa. The dosage commonly employed is from 300,000

to 600,000 units of procaine penicillin in a single injection.

Penicillin by mouth is effective in the treatment of gonorrhœa and has given good results especially when administered with suitable buffering substances with the patient fasting. Divided doses may be given at intervals of one to three hours and provided that treatment is continued for fifteen hours it seems that the dosage required is little more than that which is effective by parenteral injection.

Streptomycin is effective in the treatment of gonorrhœa and there is no danger that it may mask syphilis. A single intramuscular injection of 1 g. in watery solution produces good results in most cases. Streptomycin-resistant gonorrhœa has been reported and there is evidence from Italy that it may be increasing (Chiarenza, 1954).

Chloramphenicol, chlortetracycline, oxytetracycline and erythromycin are all known to be effective. Chloramphenicol has been given with success by mouth: in two doses each of 0.25 g. with an interval of one hour (Brett, 1953); in single doses of 1 g. and of 2 g. (Barrett and Burton, 1953); and in single doses of 3 g. (Butler *et al.*, 1952). The results were good with all these methods but better with the larger dosage.

With oxytetracycline, Willcox (1954b) obtained good results by giving an initial dose of 1 g. by mouth followed by four doses each of 250 mg. given at intervals during the following twenty-four hours. Metzger, Marmell and Prigot (1954) gave tetracycline by mouth with successful results. The results with a total dosage of 1 g. were good, but not quite so good as those obtained with chlortetracycline in a comparable series. When the total dosage of tetracycline was increased to 1.5 g., given in three doses of 500 mg. at intervals of three hours, the results were considerably better. With erythromycin Gable and his colleagues (1953) obtained their best results by giving 2 g. by mouth in either single or divided doses.

The metastatic complications of gonorrhœa are, in general, resistant to

antibiotics. Admission to hospital is required for general measures which may include fever therapy. Iridocyclitis due to this cause is well controlled by topical cortisone which should be used in conjunction with general methods of treatment.

Gonococcal ophthalmia neonatorum responds well to frequent local instillation of pure penicillin in watery solution in a concentration of 1:10,000 and also to penicillin administered systemically. The condition should be regarded as an emergency and be treated in hospital.

Curative treatment of syphilis.—(*Practitioner*, Sept. 1956. Advances in treatment).

Penicillin remains the drug of choice in the treatment of syphilis in all its stages and there is no evidence that *treponema pallidum* has become resistant to it nor that it is likely to become so. It is now more and more generally accepted that penicillin alone is highly effective in the treatment of early syphilis and that the addition of other remedies adds nothing to its efficacy.

Willcox *et al* (1954) studied the replies to a questionnaire submitted to 277 major clinics for venereal diseases throughout the world and reported that 65 per cent of the clinics used penicillin alone in the treatment of early syphilis. Eighty-two per cent of the clinics used PAM as the preparation of choice. In most instances the total dosage was from 4.8 to 6 mega units and the duration of treatment varied from ten to fifteen days. In general, the same scheme of treatment was used for all stages of early syphilis, but there were some variations, particularly in the treatment of cases of secondary syphilis for which some preferred to give a large initial dose, such as 1.2 or 2.4 mega units, and to continue with smaller doses. Injections were given daily or at longer intervals of from two to seven days. Cutler *et al* (1955) studied the results of treatment of early syphilis with PAM in the venereal disease programme of the United States Public Health Service. They concluded that as little

as 300,000 units of PAM were effective in the treatment of cases of sero-negative primary syphilis. For sero-positive primary syphilis the optimum dosage appeared to be 2.4 mega units. In cases of secondary syphilis the best results were obtained with the highest dosage employed, namely 9.6 mega units.

The common practice in Great Britain is still to give 600,000 units of PAM intramuscularly daily for ten days and to use a similar dosage for all stages of early syphilis. The practice of giving a large, single dose initially, such as 2.4 mega units, is adopted by some and has much to recommend it in the treatment of patients who are unlikely to cooperate. An alternative method is to give a single large dose of benzathine penicillin intramuscularly. Smith *et al* (1954) have produced evidence to suggest that one dose of 2.5 mega units of this preparation is effective in the treatment of early syphilis in more than 90 per cent of cases. Unfortunately, the injection causes pain and its use should be limited to those patients who are unable or unlikely to attend for regular treatment.

The same dosage and method of administration are satisfactory for the treatment of late syphilis of the benign gummatous type, such as gummas of the skin, mucous membrane, bones and internal organs, and for late latent syphilis in which the patient shows positive serological tests but no signs of the disease.

Treatment of chancroid.—(*Practitioner*, Sept. 1956).

The disease is known to respond satisfactorily to sulphonamides, to streptomycin, to chloramphenicol and to the tetracycline group of drugs. If sulphonamides are used it may be necessary to continue treatment for ten or fourteen days or more. Asin (1952) treated a larger number of cases in Korea with streptomycin and found that 93 per cent of them responded to intramuscular injections of 1 g. daily for five days. Mendell *et al* (1954) used five methods of treatment as follows;—

(1) Streptomycin 1 g. intramuscularly daily for seven days.

(2) Sulphadiazine 1 g. four times daily for seven days.

(3) Streptomycin 1 g. daily for five days, followed by sulphadiazine for a further five days.

(4) Chlortetracycline 250 mg. four times a day for four days.

(5) Oxytetracycline 250 mg. four times a day for four days.

The four drugs were equally effective in the dosages used but the combination of streptomycin and sulphadiazine shortened the period of healing of the ulcers. Marmell and Prigot (1954) gave tetracycline, 1 g. daily, to each of five patients suffering from chancroid. The treatment was continued until the lesions healed. The total dosage varied from 10 g. to 21 g. and it seems reasonable to suppose that in most cases healing would have followed a smaller dosage. Paparella (1954) obtained excellent results with chlortetracycline by mouth. He gave 1 g. initially and then 250 to 500 mg. every six hours for three to five days. Ulcers healed in four to seven days but inflamed lymphatic glands took longer to subside. In view of the fact that sulphonamides and streptomycin appear to be just as effective as the tetracycline drugs, are less expensive and are likely, in the dosage required, to be less toxic, they must be regarded as the remedies of choice in these cases.

'Non-specific' urethritis.—(*Practitioner*, London, 9: 1956).

This disease, of which the cause is unknown, has attracted much interest in recent years because of its increasing incidence and the probability of its association with various forms of arthritis including the so-called Reiter's syndrome. The uncomplicated condition responds only fairly well to treatment, and resistant or relapsing cases are quite common. The combination of streptomycin, 1 g. intramuscularly, with sulphathiazole, 6 g. daily by mouth for five days (Lyll, 1953) gives good results in some cases. Oxytetracycline is perhaps the most effective

remedy although the results are not as good as those first described. Harkness (1953) gave 500 mg. six-hourly for four days and Willcox (1953) thought that results with this dosage were better than with 1 g. daily. Gartman and Leibovitz (1955), in a study of a large number of cases, found that in three out of five patients the symptoms and signs subsided spontaneously within eight weeks. Results of treatment with penicillin or with streptomycin were worse than those with no treatment. Chloramphenicol gave no better results than with no treatment. Chlortetracycline and oxytetracycline gave cure rates which were considerably better than the spontaneous cure rate. Clarke *et al* (1955) obtained good results with tetracycline by mouth; 250 mg. four times daily for five days. Willcox (1955a) also obtained good results with the same dosage maintained for six days. The results were less satisfactory in cases which had failed to respond to other methods of treatment. Willcox (1955b) obtained fairly good results with erythromycin, giving 6 g. over five days. The results were better than he had obtained earlier with 2.4 g. in six days.

Spiramycin, a new antibiotic produced in France from a new species of *Streptomyces ambofaciens*, has also given good results in the treatment of uncomplicated cases of this condition. The usual daily dosage for adults is 3 g. and the duration of treatment may be five days or more.

Cortisone in ulcerative colitis: final report on a therapeutic trial.—(*Brit. M.J.*, 1956, 2: 1041, *Int. Abst. Surg.*, July 1956).

The authors report a controlled therapeutic trial of cortisone in 210 patients with ulcerative colitis, 109 of whom received cortisone, and 101 a dummy preparation.

The diagnosis was established by history, character of the stools, sigmoidoscopy, barium enema, and the absence of known pathogens from the stools. In addition to the tablets, the general principles of treatment included a high protein and low residue diet, vitamins, the maintenance of

water and electrolyte balance, blood transfusions, antibiotics and sulphonamides, and rectal instillations. The dosage of cortisone ranged up to 100 milligrams a day for 6 weeks.

Two of every 5 patients on cortisone therapy were in clinical remission at the end 6 weeks of treatment, compared with less than 1 of every 6 patients receiving inert therapy. Cortisone-treated patients also fared better in relapses. Irrespective of the severity of the illness, the cortisone group did better than the control group. On sigmoidoscopy, the cortisone group contained three times as many patients with normal findings. This result was present to a lesser degree on X-ray examination.

The cortisone group had more pyogenic and eye complications, which suggested the use of penicillin and sulphonamides in combination with cortisone. Ileostomy was necessary in 9 patients of the cortisone group, compared with 15 patients of the control group. The mortality rate was 4.6% in the cortisone group and 10.9% in the control group.

By the end of 9 months from the trial period, cortisone-treated patients in their first attack maintained a clear-cut advantage over the corresponding control group, but the initial advantage enjoyed by the cortisone-treated relapsed patients was lost. At the end of the follow-up (more than 2 years), this same picture was present with a general deterioration. More than one-fifth of the original group of patients were treated surgically, and, of these, 31.8% were dead at the end of the follow-up period.

The authors conclude that cortisone is a valuable addition to the medical treatment of ulcerative colitis.

INDUSTRIAL MEDICINE

The insecticides, their hazard in industry and in the home: Part I. Chemistry and Pharmacology.—(T.J. Haley, *California Med.*, 84: 258-264, April 1956, San Francisco, via *J.A.M.A.*, 14-7-'56).

Chlorinated hydrocarbons and organic phosphates have come into wide

usage as insecticides. Chemical, pharmacological, and toxicological studies in a large number of wild and domesticated animals revealed that the chlorinated insecticides present problems if there is either acute or chronic exposure, whereas the problems associated with the organic phosphates develop only in the event of acute exposure. Chlorinated hydrocarbons accumulate in body fat depots and cause hepatic and renal damage while being metabolized and excreted. Organic phosphates destroy cholinesterase and produce effects related to overstimulation of the cholinergic branch of the autonomic nervous system. Barbiturates control the convulsions produced by the chlorinated hydrocarbons. Atropine blocks most of the effects of the organic phosphates. These compounds may be grouped in the following order of decreasing toxicity; tetraethyl pyrophosphate, hexaethyl tetra-phosphate, parathion, octamethyl pyrophosphoramide, ethyl-p-nitrophenyl thionobenzenephosphonate, aldrin, dieldrin, chlorophenothane, toxaphene, gamma benzene hexachloride, malathion, and chlordane.

The insecticides, their hazard in industry and in the home: Part II. Clinical Aspect.—(R. T. Johnstone, *California Med.*, 84: 265-268, April, 1956 San Francisco, via *J.A.M.A.*, 14-7-56).

The chlorinated hydrocarbons are the most widely used of all the insecticides. They are not only toxic to insects but also to man. If the exposure is mild, a feeling of fulness of the head and dizziness or drowsiness are to be expected. An increased exposure results in headache and lethargy or even stupor and coma. In the stage of coma, choreic or athetotic movements or convulsive seizures may appear. The effect of the insecticides thus consists of narcosis and, in addition, of hyper-excitability of the central nervous system. Ingestion of these insecticides produces these conditions also, but the onset is often more rapid and the gastrointestinal symptoms more violent. Diagnosis rests on an adequate history. Func-

tional studies of the liver and kidneys must be carried out. Treatment varies with the route of absorption and degree of intoxication. If the insecticide was ingested, gastric lavage is indicated as early as possible, followed by purging with magnesium sulphate. In the early stages and if the history indicates that exposure has been mild, oral administration of barbiturates is indicated. If the signs indicate an impending convulsive state, intravenous administration of large doses of barbiturates is the treatment of choice.

The symptoms of poisoning caused by organic phosphates, the other important group of insecticides, are headache and dizziness followed by abdominal cramps, diarrhoea, and sometimes involuntary defecation and urination. Constriction of the throat and chest becomes severe and alarming. The patient perspires profusely, cannot focus his vision, and if he attempts to walk he may stagger or fall. Coma may set in with convulsions and Cheyne-Stokes respiration. The physical signs are primarily those of autonomic nervous system stimulation caused by cholinesterase inhibition. The blood pressure decreases in the early stages of intoxication and later becomes elevated. Perspiration, lacrimation, and salivation are present. One of the most characteristic signs consists of pinpoint non-reactive pupils. Miosis has been the cause of a number of airplane crashes in California among pilots engaged in spraying insecticides. If even the milder of the foregoing signs and symptoms appear in a person known to have been spraying with the insecticide within the previous 12 hours, a presumptive diagnosis of insecticide poisoning is justified. The early use of atropine is specific. Repeated doses of 2 to 4 mg. of atropine intravenously at 5 to 10 minute intervals are necessary until obvious improvement occurs. Then mild atropinization should be maintained for 40 to 60 hours. Agricultural users of organic phosphates should wear protective clothing. Shower baths should be taken at the end of the day's work.

Meticulous personal hygiene for all workers is essential. The organic phosphates should not be used at all in homes or in home gardens, but with regard to all other insecticides, the medical profession has an obligation to educate the nonindustrial community. Fewer than 10% of cases of insecticide poisoning observed by the author were of industrial origin. It would be advisable for county medical societies to distribute literature on the subject for physicians to keep in their reception rooms or send to patients. Educational literature should be supplied to school children to take home. Another suggestion is a more complete, intelligent labelling system on the bottled or packaged goods, exactly and simply defining the manner in which the insecticides can be safely used and under what conditions.

RADIOLOGY

Leukæmia and exposure to X-rays.—*(British Medical Journal, 22-9-1956).*

The potential leukæmogenic nature of ionizing radiations is once again emphasized in a recent report by Dr. Alice Stewart and her colleagues (*Lancet*, 2: 447, 1956) whose findings suggest that exposure of children to X-rays during their prenatal life may be an ætiological factor in the development of leukæmia in infancy and childhood. They studied the past histories of 547 children who had died from leukæmia or malignant disease in England before the age of 10 and during the years 1953 to 1955, comparing these with the histories of the same number of control children. They found an apparently significant excess of deaths from leukæmia, and also from other malignant diseases, among the children of mothers who had been subjected to X-ray examination of the abdomen during the relevant pregnancy. No similar excess of deaths was found among children who in the post-natal period had been subjected to diagnostic X-ray examination or to whom either sulphonamides or antibiotics had been administered.

The preliminary findings, however, certainly appear to justify the authors' contention that *prenatal irradiation may predispose children to the development of leukæmia or malignant disease during infancy and early childhood.*

The report of Dr. Stewart and her colleagues follows closely upon that made by M. Faber in August 1956 to the Fifth International Congress on Radiobiology, held in Stockholm on the preliminary results of a study of the frequency of either diagnostic or therapeutic exposure to X-rays in the histories of adult sufferers from various types of leukæmia. This work was based on the histories of cases of leukæmia recorded in the Danish Cancer Registry. In the belief that the incidence of chronic lymphatic leukæmia is not increased by exposure to X-rays, Faber noted the differences in the frequency of a history of exposure to therapeutic or diagnostic X-rays among patients with this form of leukæmia and those suffering from acute leukæmia or from chronic myeloid leukæmia. He found that a history of exposure to X-rays was given with significantly greater frequency by patients with acute leukæmia or with chronic myeloid leukæmia than by those with chronic lymphatic leukæmia.

These studies of Faber and of Stewart and her colleagues suggest for the first time that the comparatively low doses of X-rays received during diagnostic procedures may induce leukæmia. Prior to these publications evidence had accrued from other human studies that much larger doses of radiation than are used in X-ray diagnosis are leukæmogenic. The well-known facts from Hiroshima and Nagasaki have been supplemented by the results of a survey of the incidence of leukæmia among patients treated with X-rays for ankylosing spondylitis, as reported by W.M. Court Brown and J.D. Abbott (*Lancet*, 1: 1283, 1955) and recently more extensively by W. M. Court Brown and R. Doll in the report of the Medical Research Council's Committee on the *Hazards to Man of Nuclear and*

Allied Radiations in 1956. Further, C.L. Simpson and her colleagues (*Radiology*, 64 : 840, 1955) have reported an increased incidence of both leukaemia and cancer of the thyroid in children given mediastinal irradiation for thymic enlargement.

It can now be accepted without reserve that ionizing radiations can cause leukaemia in man. The nature of the relationship between the incidence of leukaemia and the dose of radiation and, consequently, an understanding of the scale of risks involved remain to be discovered. Court Brown and Doll thought that the possibility of very small doses of radiation having a leukæmogenic effect could not be ruled out; their further studies, as recently reported by Court Brown to the Sixth International Congress on Haematology at Boston in August 1956 gave added weight to the suggestion that over low ranges of dose there may be a simple proportional relationship between the incidence of leukaemia and the radiation dose. In such circumstances no threshold dose of radiation would exist. It may well be, however, that the fetus is more sensitive to the leukæmogenic effects of radiation than either the child or the adult.

The preliminary results reported by Faber and by Stewart and her colleagues are in keeping with the concept that low doses of radiation, such as are received during diagnostic procedures, may increase the probability of the development of leukaemia, but further studies will have to be undertaken to test this hypothesis and to establish it in a convincing manner or to repudiate it on sure grounds. In the meantime two precautionary steps can be taken. The first is to develop techniques of X-ray examination which will reduce as far as possible the amount of radiation received during any single exposure, and for this purpose more attention might well be paid to the use of image intensifiers. The second step was clearly stated by the Medical Research Council's Committee (1956) which concluded, so far as peace-time hazards were concerned, "that, as all such radiations are potentially dangerous, their use should be the subject of constant and close scrutiny, and that adequate justification should be required for their employment on however small a scale." The findings of Stewart and her colleagues reinforce this plea for "adequate justification" especially for an X-ray examination of the abdomen during pregnancy.

REVIEWS OF BOOKS

Modern Treatment Yearbook 1957—Edited by Sir CECIL WAKELEY Bt., K.B.E., O.B., LL.D., M.Ch., D.Sc., F.R.C.S., F.R.S.E., F.R.S.A., F.A.C.S. Senior Surgeon, King's College Hospital, Examiner in Surgery to the University of Cambridge. Editor of the "Medical Press." 312 pages with 24 plates and 23 figures. Published for the Medical Press by Bailliere, Tindall & Cox, Ltd., 7 and 8, Henrietta Street, London, W.C. 2. Price 25 sh.

In this yearbook there is presented to the general practitioner articles on subjects of everyday importance written by experts and giving up-to-date treatment of the many and varied con-

ditions with which the practitioner has to deal. Among the very interesting and useful chapters are 'Modern Views on Typhoid Fever' by Dr. Manson-Bahr; 'Treatment and Prognosis of Coronary Disease' by Dr. J. G. M. Hamilton; 'Back Ache in Women' by Dr. Stanley A. Bond; 'Diabetes in the Elderly' by Dr. S. C. Dyke; 'The Mechanism and Treatment of Shock' by Dr. Ian Aird; 'Modern Views on Toxaemia of Pregnancy' by Dr. Cordon Lennon; 'Amoebiasis' by Dr. Lindsay Lamb; 'Management of Osteo-Arthritis' by Kenneth Stone and 'Leprosy' by Dr. R. G. Cochrane. Every one of these articles is well written and a few of them are illustrated with plates and

line drawings. The subjects are treated in a modern manner and the book contains very useful information. We recommend the book to every general practitioner. U.K.R.

Radiology of the Alimentary Tract in Infancy—By ROY ASTELY, M.B., M.R.C.S., D.M.R., Radiologist, the Children's Hospital, Birmingham, Lecturer in Radiology, University of Birmingham, Pp. 287. M/s. Edward Arnold (Publishers) Ltd. London. Distributors: M/s. Orient Longmans Private Ltd., 36A, Mount Road, Madras 2. Price 50 sh.

In recent years the value of radiological examinations of the alimentary tract in infancy has become more generally realized. Its application has increased in frequency and therefore, a book of the type under review is very welcome. The book is divided into 7 parts. The first deals with the oesophagus, the second with the diaphragm, the third with the stomach the fourth with the duodenum, the fifth with the small intestine and peritoneum, the sixth with the colon. The seventh part deals with the liver and biliary tract and other structures. The book is primarily written for the radiologist and radiologist-trainee. The various chapters are well written and beautifully illustrated with radiographs. Many chapters conclude with illustrative case histories chosen to emphasize points that have been made in the text. References are given at the end of each chapter which makes it very useful. The book is very well printed and the get up is very nice. We recommend the book to all those interested in radiology and diseases of children. U.K.R.

An Atlas of Anatomy—By J. BOILEAU GRANT, M.C., M.B., Ch.B., F.R.C.S.E., Professor of Anatomy in the University of Toronto. 1956, Fourth Edition, Pp. xii + 554 with 714 illustrations (many in colour) in 634 figs. Bailliere Tindall & Cox, Ltd., 7 & 8, Henrietta Street, London, W.C. 2. Price 120 sh. net.

This is a collection of illustrations

depicting the structures of the human body, region by region, in much the same order as the student displays them during dissection. The upper limbs, the abdomen, the perineum, the pelvis, the lower limbs, the vertebrae, the thorax, the head and neck and the cranial nerves are all depicted. Most of these specimens are in the Anatomy Museum of the University of Toronto. Emphasis on the salient points seen in the illustrations and the naming of the various structures in the illustrations are made. These will enable the students to follow the illustrations very carefully and with benefit. Many of the drawings are coloured and illustrative. The book will be very useful to students studying anatomy during their under-graduate or post graduate courses of study. The get-up and printing are very nice. We recommend the book to all students of anatomy. U.K.R.

Whitla's Dictionary of Medical Treatment—By R. S. ALLISON, V.R.D., M.D., F.R.C.P., D.P.M. and T. H. CROZIER, M.D., B.Sc., F.R.C.P. and 26 other contributors. Pp. 14+854. Bailliere Tindall & Cox, Ltd., 7 & 8, Henrietta Street, London, W.C. 2. Price 52/6d net.

This popular Dictionary is now in its 9th edition and maintains the excellence of the previous editions. Sir William Whitla, the original author of this book, was a well known figure in the medical world of his days and the writings from his pen bore the stamp of authority. The present edition which is the result of collaboration by 26 eminent medical men has been entirely re-written and marks a departure from previous custom in that surgical, gynaecological and eye, ear, nose and throat topics have been omitted, the scope being confined to medical therapeutics only. As a result more space has been devoted to such important aspects of medical treatment as industrial and tropical diseases, physical methods, mental disorders and radio-active isotopes. The book has been written for the general practitioners and for the

young doctor about to enter upon his first hospital appointment. It gives a clear and succinct account of medical therapeutics and keeps abreast of contemporary medical practice. In the various articles emphasis has been laid on the management of common medical problems and well tried methods of treatment have been included. The contributors to this issue are well known medical men who have contributed considerably to the advancement of medical knowledge.

The articles dealing with "Care of the Aged," "Anæmia," "Antibiotics," "Blood Transfusion," "Cardiac Arrhythmias," "Cardiac Disease," "Coronary Thrombosis," "Diabetes Mellitus," "Epilepsy," "Industrial Diseases," "Mental Backwardness," "Neurosyphilis," "Poisoning," "Psychoneuroses," "Radio-active Isotopes," "Tuberculosis," and "Uræmia" are all well written and contain helpful information. There are very useful appendices on Diabetic Diets, Reducing Diets, Peptic Ulcer Diets, Low Protein Diets, High Calorie Diets, High Protein Diets and a very exhaustive index. The book is well printed and the get-up is very good. We recommend the book to all medical practitioners.

U.K.R.

Drugs in Current Use—1956—By WALTER MODELL, M.D., N.A.C.P., Associate Professor, Clinical Pharmacology, Cornell University Medical College. Pp. 150. Springer Publishing Company, Inc. New York, N.Y. Sole Distributors in India: M/s. Kothari Book Depot, Bombay-12. Price Rs. 10.

This book contains an alphabetical list of drugs that are in common use, giving in a concise statement, the pharmacological characteristics of each of the drugs, its major uses, its physical properties and actions, both therapeutic and toxic, methods of administration, dosage and specific antidotes against poisoning wherever these are available. The drugs are described under their official names wherever these have been established. The metric system of measures is used in the text but tables for conversion

to the Apothecary system of measures are included. The book will be very useful to practitioners.

U.K.R.

New Burma Road—

We have received a little booklet called "New Burma Road" published by the W.H.O. It tells the story of Burma's efforts, with international assistance, to raise the levels of health and well being among her 19 million people. Mr. Norman Cliff, the well-known journalist, is the author. It makes interesting reading. There are illustrations depicting malaria and how it was tackled, interesting accounts of tuberculosis and how it was tackled and the work done with regard to Maternity and Child Health. How rural health is tackled is also described. The book furnishes interesting reading. Copies of the book-let can be had of:—Public Information Unit, W.H.O. Regional Office for S.E. Asia, Patiala House, Princess Park, New Delhi.

Indian Journal of Public Health—

We welcome to the ranks of Indian Medical Journalism this new publication. It is published by the Indian Public Health Association, 110 Chittaranjan Avenue, Calcutta 12 and is issued quarterly. The Editor is Dr. B. C. Das Gupta who is very well known in India. The Associate Editor is Dr. K. S. Viswanathan an equally well known figure. It has an Editorial Board of eminent medical men and women. Among the interesting articles in the first issue are those on "The Problem of Rural Health in India" by Dr. K. C. K. E. Raja, and "History of Medical Education in India" by Dr. S. C. Seal. It also contains sections on News and Notes, Reports and Reviews and Association News. The annual subscription is Rs. 7/8/-. The periodical is very well printed and nicely got-up. We wish this new journal all success.

Health Education—A Selected Bibliography—Prepared by the W.H.O. Pp. 46. Distributors: M/s. Orient Longmans Private Ltd., 36 A, Mount Road, Madras 2. Price 2sh.

This is the second occasion on which the UNESCO and the W.H.O. have collaborated to make an annotated bibliography of health education. The previous one was published by the UNESCO in 1951. The present issue is devoted to descriptive literature only. There are sections on Health Education, Methods and Techniques, Training, Evaluation of Programmes and materials and a list of periodicals of Health Educators. The book will be of interest to all readers.

Punjab Medical Journal: Special number on Cardiovascular and Respiratory Diseases—Part I & II. November 1956 and January 1957. Sodali Road, Jullunder City. Price Rs. 4/-

The Cardiovascular and Respiratory Disease number of the Punjab Medical Journal contains many useful articles. Among them must be mentioned those on "Diagnosis and Treatment of Essential Hypertension" by Dr. Turner; "Modern Trends in Cardiovascular Surgery" by Drs. Wahi and Malhotra; "Coronary Dilators" by Drs. Singh and Arora. There are also many other useful articles on other aspects of cardiovascular diseases. We are sure the readers will find this special number very useful.

U.K.R.

The Care of the Expectant Mother—By JOSEPHINE BARNES, M.A., D.M. (Oxon), M.R.C.P., (Lon.), F.R.C.S. (Eng.), F.R.C.O.G., Assistant Obstetrician and Gynaecologist, Charing Cross Hospital and Elizabeth Garrett Anderson Hospital, and Surgeon, Marie Curie Hospital, London. Pages 270; Published on 15th January 1957 by Messrs. Pitman Medical Publishing Co., Ltd., 45, New Oxford Street, London, W.C.1. Price 30 shillings net.

This beautifully illustrated and exceedingly well-got up book provides a fund of practical and valuable information relating to every aspect of pregnancy. Divided into 3 sections, this instructive book deals respectively with normal pregnancy, abnormal pregnancy and its early diagnosis and the diseases complicating pregnancy;

it is therefore a very practical and useful guide to all those who undertake the management of pregnancy. Much of the information contained in this book is based on the routine teaching given to medical students and pupil midwives in lectures, antenatal clinics and antenatal ward rounds. So it is necessarily simple and yet very comprehensive and informing. In India where medical relief in non-urban areas is very defective and persons with specialist qualifications in obstetrics and gynaecology are comparatively few even in urban areas, an increasing number of G.P.s. will necessarily be undertaking the care of patients during pregnancy and child birth with poor or no help from qualified midwives and nurses. We consider that this book, which is complete in every sense lays down the minimum standard of care and attention with details to be observed in normal cases and indicates sufficiently clearly those abnormalities and diseases requiring treatment either at home or in hospital. The procedures to be observed are also indicated in broad outline. The author is an obstetric specialist at a London teaching hospital and is the wife of a general practitioner and we are also told that she is the mother of three children. Needless to add that she is thus particularly well-qualified to write a book of this type. She has furnished a very welcome list of useful reference books at the end of important chapters for special study by those interested. The illustrations and X-ray pictures are all exceedingly well-done.

T.N.S.R.

Instructions for Diabetics—Published by Messrs. Indra Laboratories, 127, Mahatma Gandhi Road, Bombay 1. Pages 63.

This small hand book which is stated to be in its third edition, and to have been prepared under the guidance of Dr. S. S. Ajaonkar contains much useful information both theoretical and practical for diabetics who wish to lead regulated lives following a strict regimen of diet as per instructions of their physicians. The many treatises and pamphlets on the subject pub-

lished in western countries contain information on diets, most of which are not applicable to Indian conditions, customs and habits of life. The publishers of this hand-book have therefore, attempted to remedy this defect by giving tables of food values of all Indian foodstuffs and have also provided diet samples for Indian vegetarian and non-vegetarian diabetics. The booklet thus will be a desirable and useful addition to the literature for diabetics primarily and also for their medical attendants. The publishers would add to the value of this useful booklet by greater attention to proof reading in future editions. T.N.S.R.

CORRESPONDENCE

To The Editor, The ANTISEPTIC, Madras.
Sir,

As the result of an assault with an iron rod on the head, a person got his parietal bones fractured at their postero-medial angles. He was immediately attended to: under Pentothal sodium (I.V.) the broken pieces of bone were removed and the area explored through an incision in the scalp. X-Ray taken the same evening showed fracture of the inner table, which was depressed about $\frac{1}{2}$ ". Further interference was not allowed at the time, as the condition of the patient was not very satisfactory. He remained semi-conscious for a few days and his vision was defective for a month. The patient received Terramycin, Coagulen, Vit. C, Vit. K, Hamatinics, Vit. B₁₂ and Vit. B Complex. In two months he was quite fit and returned to work.

Four months have elapsed since the assault, and he feels practically all right, though the recent X-ray still shows the depressed fracture.

There has been no giddiness nor headache for the last two months, and no paresis, paralysis or convulsions at any time. Mental faculties and capacity are quite normal. Physical state seems alright too, though he has not yet dared to his normal limits. Obviously, suitable adjustment has

already taken place in the cranial cavity, and we have given up the idea of further interference.

I would, however, like to have expert opinion on the following points:

1. Is there any chance of the irritative symptoms or other complications appearing in the future?

2. Can the operation for the lifting up of the depressed bone be safely left out?

Mandalay,
(Burma)

(Sd.) R. D. Soni.

M.B., B.S., F.R.H.S., etc.

Reply

Opinion

(1) There is a fair chance of irritative symptoms appearing in the future in the form of focal convulsions.

(2) If there is definite evidence of a depression in the bone which is likely to press on the cortex it is wiser to elevate the bone. More important than elevation of the depressed bone is the necessity for excision of any scar and partly diseased areas of the brain which are likely to act as epileptic foci. Such a scar is caused by the depressed fragment of bone tearing the dura and injuring the cerebral cortex.

(Sd.) B. Ramamurthi,
M.S., F.R.C.S. (E), F.I.C.S.

BOOKS RECEIVED

Synopsis of Children's Diseases—By JOHN RENDLE SHORT, 2 edition. 632 pp. John Wright & Sons Ltd., The Stonebridge Press, Bath Road, Bristol 4. Price 35/8 d.

Indo-American Technical Co-operation 1952-56—United States Information Service, Mount Road, Madras 2.

"The Maharashtra Medical Journal"—Special Number on Paediatrics. Part I, Vol. IV. No. 1, April '57. 53/8, Narayan Peth, Poona City. Rs. 2/-

NEWS AND NOTES

Practice of Paediatrics

The UNICEF allocated 38,000 dollars for expansion of facilities for training physicians in social and clinical paediatrics in Madras State. The grant will pay for the supply of technical equipment to the Madras Medical College and Hospital, the Egmore Children's Hospital, the Kasturba Hospital and six selected Child Welfare Centres and for 8 Fellowships for training paediatricians at Madras to qualify them for senior teaching posts in other States.

The Madras Government will bear the cost of upgrading and increasing the teaching staff of the Paediatrics Department of the Madras Medical College and adding a paediatrics wing to the Hospital.

More Financial Assistance

The UNICEF has allotted \$ 131000 for assistance to the training aspects of the India Government's five-year tuberculosis control programme in addition to the 387000 dollars already given; they have allotted 16500 dollars for goitre control and 383000 dollars for school children's feeding. It will cover the cost of shipping 8,500 tons of skimmed milk-powder which the United States will give India as a gift.

Medical and Public Health Schemes

The Inter-State Seminar on Community Development at Kodaikanal, recommended one Primary Health Centre and three maternity sub-centres as essential for every Community Development and N.E.S. block; and suitable accommodation for the centres and for their health personnel; also one jeep for each block.

There was unanimity about the urgency of population control and family planning; but opinion was divided regarding the use of contraceptives. The ultimate target should be the establishment of family planning clinics both in urban and rural areas; a beginning to be made by using urban hospitals and village health centres and their staff for starting the scheme.

Safe water supplies, sanitary latrines and urinals and soakage pits will receive priority.

Health committees, will be found where Gram Panchayats exist.

The integration of Medical and Public Health Departments was desirable.

Inter-State Seminars will be useful for discussing these problems and for further planning.

Dr. C. J. T. Pinto, Surgeon at K.E.M. Hospital and Paediatric Surgeon at the Wadia Children's Hospital in Bombay, selected for an one-year fellowship for higher studies in U.S.A. under the I.F. programme of Lederle Laboratories has left for the United States.

The Eleventh Quadrennial Congress of the International Council of Nurses will be held in Rome, Italy from May 27 to June 1st, '57. About 3000 nurses from 60 countries are expected to attend this conference, when various aspects of nursing education and nursing service will be discussed.

Enquiries may be addressed either to the General Secretary, Trained Nurses Association of India, 28, Alipur Road, Delhi 8, or to the Headquarters of the International Council of Nurses at 1, Dean Trench Street, Westminster, London, S.W. 1, England.

L.T.M. Examination

The three months' course for the L.T.M., open to medical men only, will begin from the 15th July, 1957. Application in the prescribed form should reach the Director, School of Tropical Medicine, Calcutta by the 14th May, 1957.

Amendment to Homœopathic Act

No Removal of Names from Register

Section 18 (3) of the Bombay Homœopathic Act, 1951 may be amended so as to permit the continuance of the names of homœopathic practitioners registered in Part C of the register even if they do not pass the third and the final examination of the diploma of L.C.E.H., till they dis-

appear in the normal course as in the case of the practitioners enlisted under Section 18 of the Bombay Medical Practitioners' Act, 1938. Homœopathic practitioners passing this examination,

will be transferred from Part C to Part A of the register.

The amending bill has been published in the Bombay Government Gazette of September 20, 1956.

PREPARATIONS AND INVENTIONS

Amersol

Messrs. Frank W. Horner Limited of Montreal, Canada have lately introduced a new product "Amersol" for the control of Obesity. This product has been logically designed to meet the many-sided effective requirements of the obese such as would decrease appetite, stimulate the patient mentally and physically, prevent avitaminosis due to restricted diet, reduce boredom, raise morale, and also be relatively non-toxic with no unpleasant side effects.

The motive agent in Amersol is *d-amphetamine* in combination with multivitamins and carboxymethyl cellulose (a water-binding agent). It is the *d-isomer form* which has no appreciable effect on blood pressure either in normotensives or hypotensives. Also, the appetite depressant action is concentrated in the *d-form*. Amersol is not a quick acting agent but it does give results provided the patient willingly co-operates with his doctor in the matter of food.

Obesity is often neglected. It is, a serious threat to health, predisposing to diabetes, cardiovascular diseases and shortening the life span of the individual. In pregnancy, obesity may predispose to complications like prolonged labour and toxæmia. Amersol, if it proves effective, may go a long way, in relieving this abnormal health condition.

'Acalo'

Marketed under the trade name 'Acalo,' Phenaglycodol, Lilly claims to be one of the new mild tranquilizing drugs, to calm anxiety states in patients without affecting their mental alertness, sensitivity of perception or dexterity. Chemically 'Acalo' is 2-*p*-chlorophenyl-3-methyl 1-2, 3-butanol. It is claimed that clinically it will be a good adjuvant for patients

suffering from a wide range of clinical disorders involving emotional disturbances. 'Acalo' is said to be relatively free from undesirable side-effects. Its low toxicity and its relative freedom from the production of euphoria, tolerance and physical dependence make it suitable for prolonged treatment.

Each turquoise and white pulvule contains 300 mg. of 'Acalo'. For most patients 1 pulvule *t.d.s.* will suffice. It is supplied in bottles of 20's and 50's. Apply to:—M/s. Eli Lilly and Company of India Inc., 88-c, Parbhadevi Road, Bombay 28.

Ambrasynth (Lepetit)

M/s. Ranbaxy & Co., have pleasure in announcing the introduction of a new preparation Ambrasynth combining two most efficacious broad-spectrum antibiotics is the best possible ratio supplemented by Vitamins of the B complex group, C & K.

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It is indicated in infections of the digestive tract and the hepatobiliary system, the urinary tract, the respiratory system and generalized septic infections.

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1. SELLING, L.S.: J.A.M.A. 157: 1594 (April 30) 1955.
2. BORRUS, J.C.: J.A.M.A. 157: 1596 (April 30) 1955.

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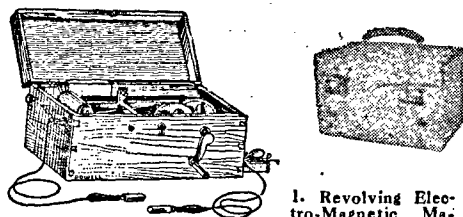
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Sulphanilamide 1000 6-0	500 3-6	Chloromycetin Kap	11-4;	Liq 10-8	Pot. Citras 2-8;	Antipar 3oz.	4-2
Guinadinine 1000 9-4	500 4-15	I. M. 1 Gr 8-14;	2 Gr 14-12		Ext. Ergot 4 oz,	2-4, lb.	7-8
Chloramphenicol 12 cap 3-10	100 29-8	Aureomycin 8 cap		17-12	Yeast Tab. 7 gr	100 1-4	1000 4-8
P.A.S. 1000 18-8;	500 9-8	Terramycin	8	17-12	Combiotic ½ gr.		1-6 1gr. 2-12
Ephedrine Hyd. ½ gr	1000 4-0	Quinine B.G. 44-12;	Howard 58-0		Calc. Ostelin 15cc	3-3	6A 3-0
Riboflavin 5mg 100 1-4	1000 7-8	" Sulp. oz. 3-0;	Howard 5-12 oz		" B12 15 cc.		5-6
" 10mg 100 1-6	1000 9-8	" Tab 2 gr 2-4	5 gr 4-8 100		Celln 100 mg	100	3-4
	2 5 10 USP	" 1000BDH 2 gr.	20-8; 5gr 40-12		Omnamycin 2-2;	Omacillin 1	
Liver B12 10cc	1-1 1-8 1-12	Hexamina tab.	100 1-8		Hype Syringes naked,	each in box	
" B12 Folic Acid 10cc.	3-12	Quin. Bihyd. 100 x	10gr x 2cc		2 5 10 20 50cc.		
" B-Complex 10cc. 0-8;	forte 1-5	Ind. BDH B.W.			A.G. Jap. Sep 0-14	1-2 1-10 2-0 3-8	
Vit. A 10A 2-6;	50A 11-12	Ind. 20-15	33-8		Record 3-0	4-0 4-8 6-8 12-8	
" B-Comp 2cc x 25A	4-2100A 16-0	8-12 15-0	5gr x 1cc 100 amp		LuerLockBD	8-8 9-0 11-12 16-0 32-8	
" oral 4oz.	2-8	Aminophyllin 10 cc.	50 8-3;	10 2-4	Jap Sep 1-8	2-4 2-12 4-8 6-8	
" B1 100mg 10cc 0-14;	50x2cc 8-0	Calcium Gluconate 10% 100amp			Re. 1-0 more for slide nozzle.		
" B1 & B6 10 cc. 50 mg.	3-0	50x10cc Italy 7-8;	5cc 7-0;	10cc 9-0	M. Case Jap 2cc 2-2	5cc 3-2 10cc 4-2	
" B6 10cc. 50mg 2-6	100mg 3-10	" Sandoz 5x10cc	5-8 10x5cc 8-12		Ind. 1-2 1-10 2-4 2-12 4-10		
" B12 10cc. 100 mg 2-6;		" with Vit C 10x5cc	10-12		Lint 3-0;	Cotton 1-14	
" 200mg 4-10; 500mg x 5cc.	4-8	" 5x10 cc 6-4;	50x5cc 49-0		Needles Stainless Steel :		
" 1000 mg x 5cc.	8-14	Distill Water 100 amp	2cc 2-12		Eng. 3-4 Down 4-4	doz Record	
" C 2cc 10A 1-2	50A 5-0	5cc 3-8	10cc 4-8		" 3-8	" 4-8	" All Glass
" C 5 cc 10 A 2-0;	50 A 8-8	Emetine Hyd ½ gr 50A	22-4	12A 6-0	USA 5-0;	Jap 1-8;	B.D. 11-8
" D2 6x1cc	1-4	Emetine 1 gr 12A		10-0	Thermometers ½ min.	Nicks 2-12	
" E 6A 1-10; 10 cc.	1-8	Irgapryn 6A 7-6;	60A 88-0		Zeal Eng USA Jap. Ger. Flat		
" K 10A 1-4;	100A 10-0	Milk with Iodine 5 cc 100,	7-0		28-12 18-0	16-8 10-0 8-12 11-0	
" AD 6 Amp. 2-4; 10 cc.	2-4	Progesterone 10mg 50 9-4	10 2-0		Saline app. 300 7-8	500cc 8-8	
" AD TAB 100 1-8; 1000 11-0	11-0	25 mg 2-4;	50 mg 4-0		Abs. Gauge 20yd 3-0	Erkometer 72-0	
" ADE 100 6-0; 500 27-12	27-12	10 cc 25 mg 2-2	10 mg 1-6		Ear or Glycerine Metal Syringe		
" B Complex 100 1-0; 1000 5-2	5-2	Liver Ext. TCF 10cc 2-6	B&C 3-4		3oz 4-8	4oz. 5-8	
" " forte 100 1-8; 1000 11-4	11-4	Normal Saline 100A	5cc 4-8		F.L. or d 1-8	Sup. 2-12 doz.	
" " S.forte 100 2-8 1000 18-8	18-8	Santonine M&B 3-8;	os. 26-0		" Crocodyl finish	5-12	"
" B1 10 mg 100 1-6; 1000 4-12	4-12	Redoxon 2cc 5 1-14;	50 16-0		Stethoscope B.D. 25-8;	Ger 9-8	
" 25 mg 100 1-10;		Redoxon 5x5cc 3-4;	25x5cc 15-0		Wall Thermometer Jap.	2-0	
" 100 mg 5-14 50mg x 100 2-10	2-10	Testosterone Prop. 10Amp. 1cc			Rubber Gloves Sup.	pair 2-12	
" C 50 mg 100 1-6; 1000 5-8	5-8	" 10mg 2-2; 25 mg 3-12;	50mg 3-4		Artery Forcep 2-4	Scissors 1-8	
" C 100mg 100 1-8; 1000 11-4	11-4	" 25mg 50 12-0 50mg 50A	24-0		Scalpel 1-0	Probe 0-6	
" E 10 mg 25 1-6; 100 3-0	3-0	" 10cc 25 mg. 2-12; 50 mg 4-12			Suture Needles St.C.&H.C.6;	2-8	
Folic Acid 15mg 10cc	2-8	Aminophyllin 100 1-4;	500 4-0		Scalpel Blades 6 Eng. Pkt. 1-12		
Atabrin Bayer 3 gr 25 A.	7-4	Aspirin Eng. 5-4; 1000 Ind.	3-6		" " Handle	3-12	
Berlin 10cc 50mg							

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for staphylococcal infections

COLLOSOL MANGANESE

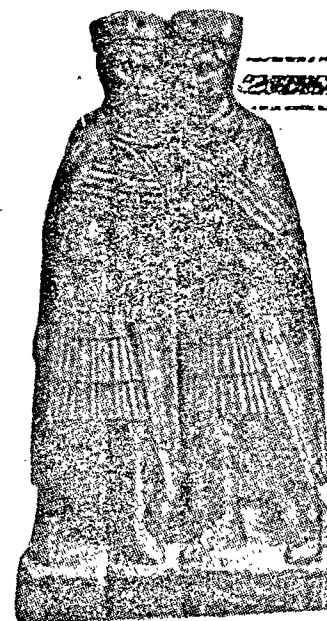
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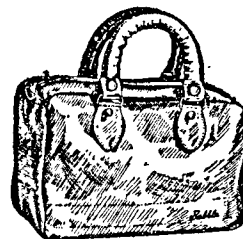
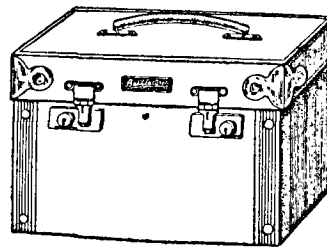
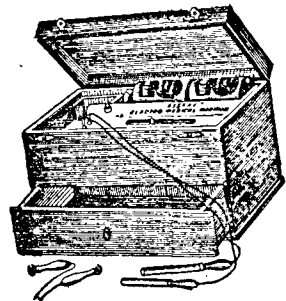


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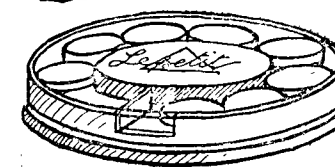
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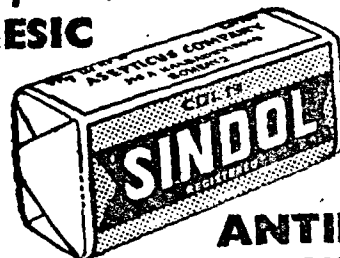


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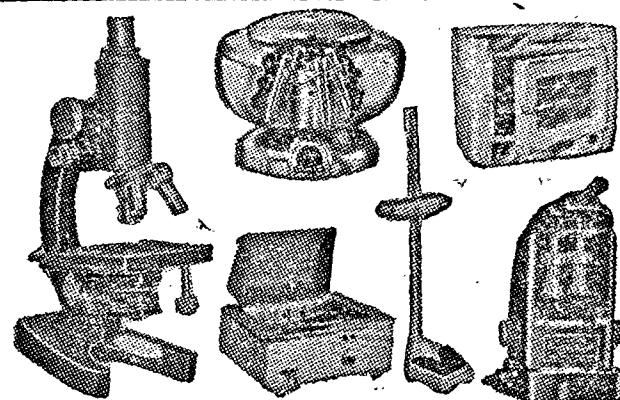
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do 20 lac RIT		1-28
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Vitamin B complex imported 10cc. Forte		1-20
Vitamin B1 100mgm. 10 cc. imported		0-80
B12 do ho		2-40
Vitamin B12 200 mg 10cc 4-40, 5cc		5-20
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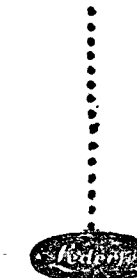
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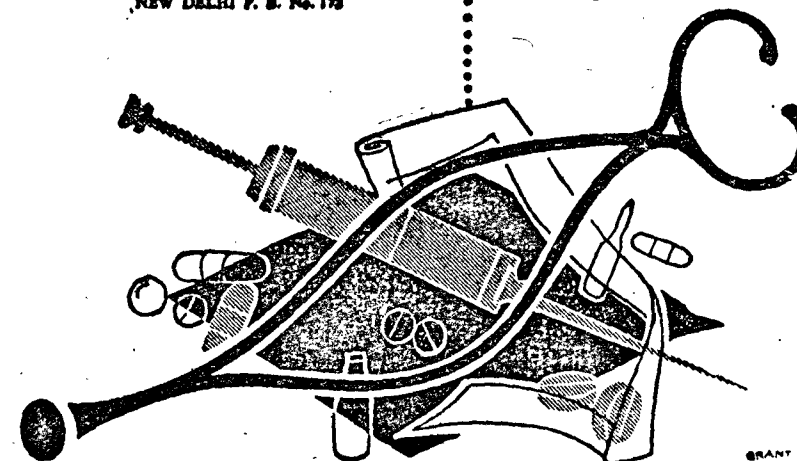
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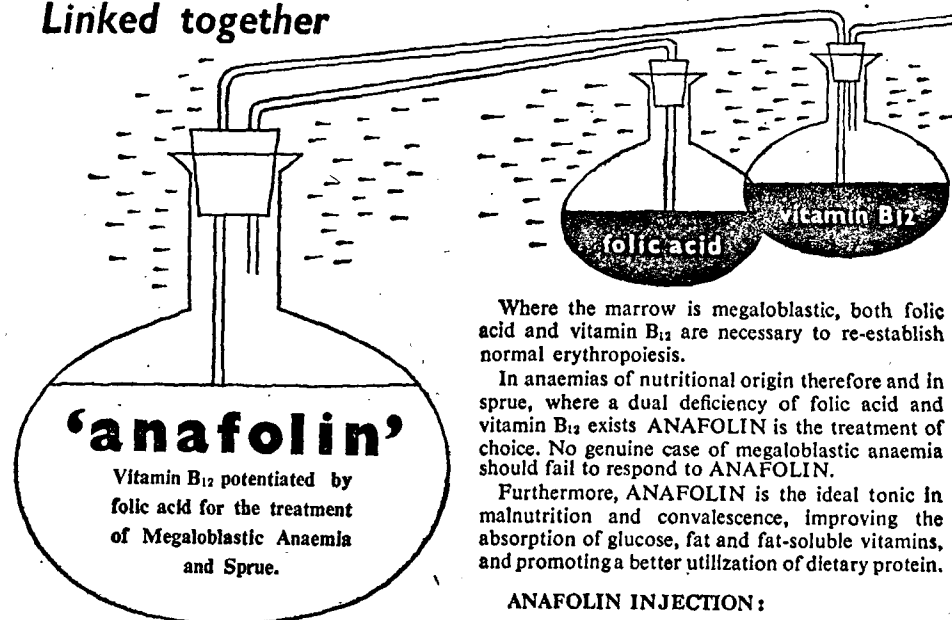
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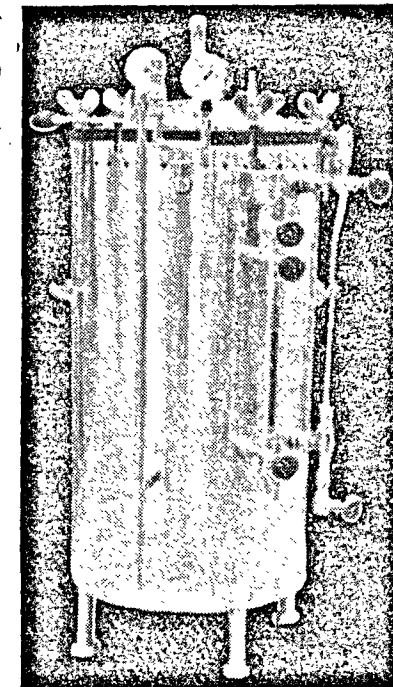
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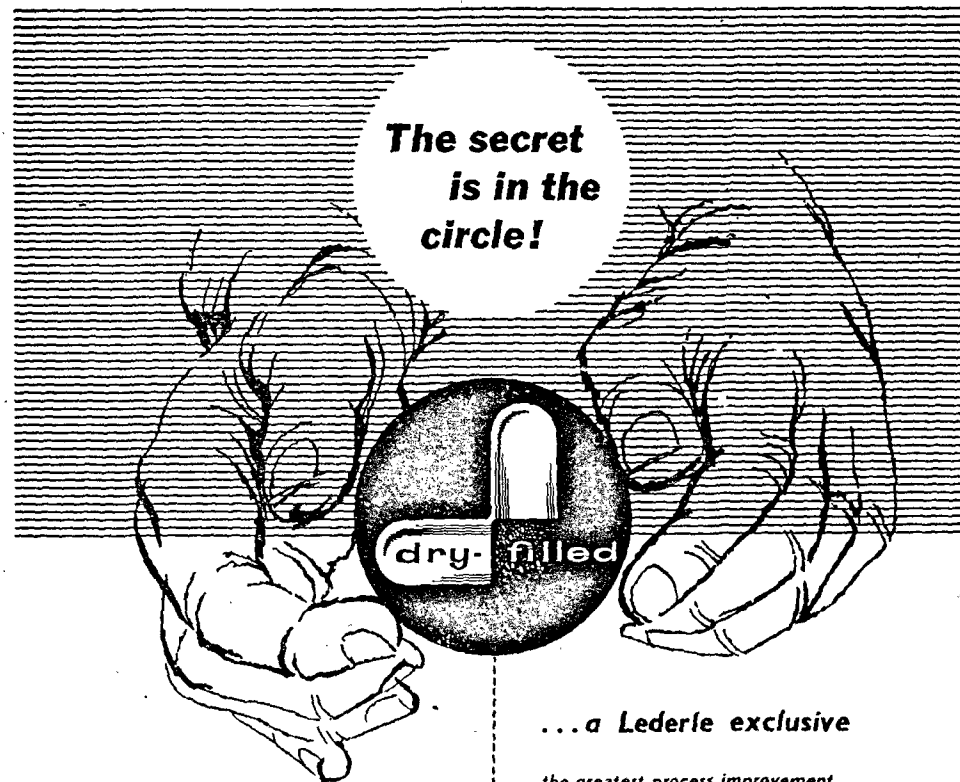
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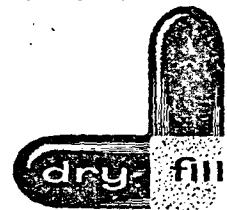


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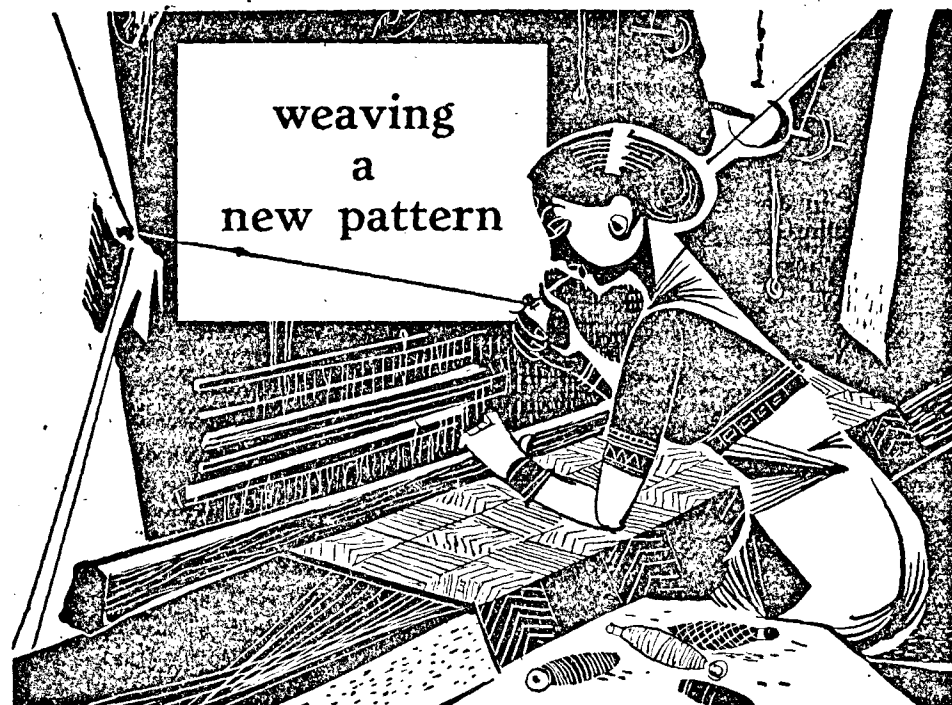
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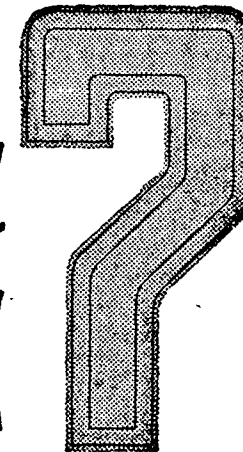
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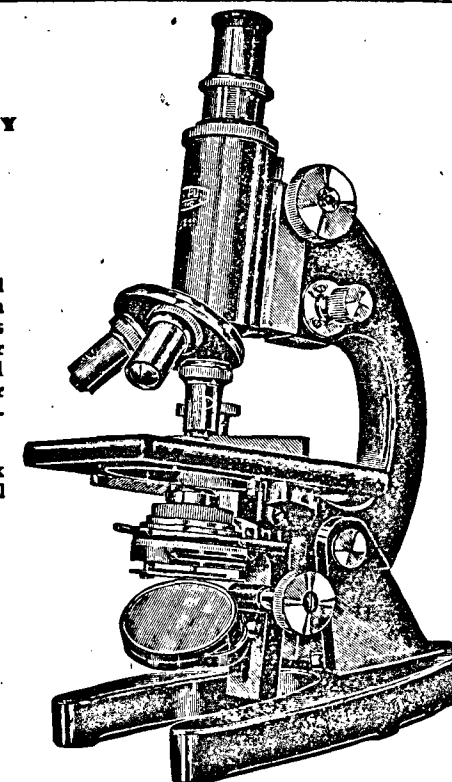
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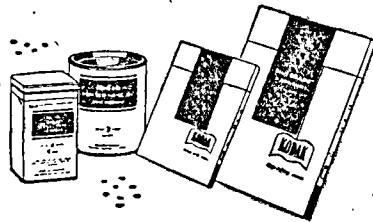
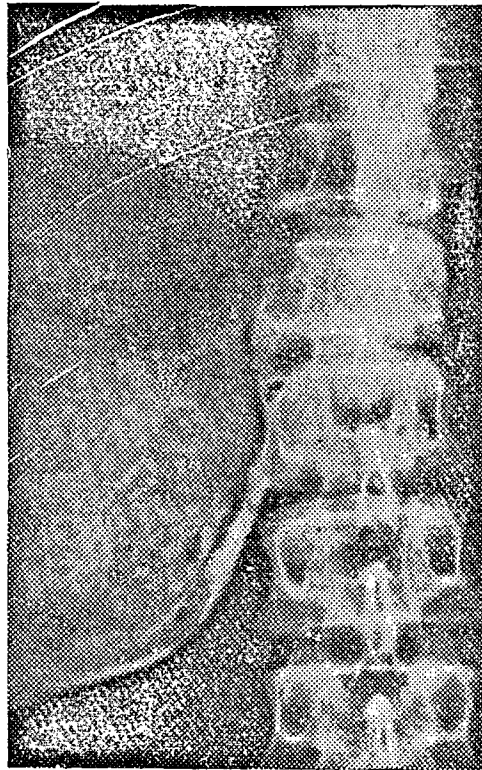


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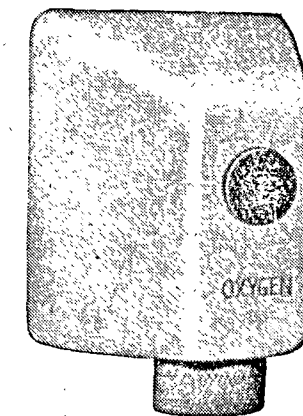
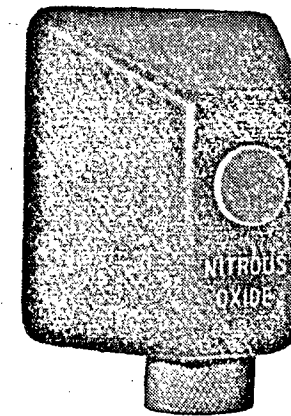
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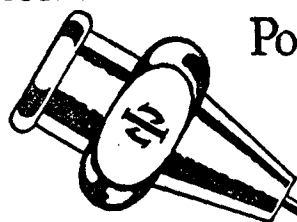
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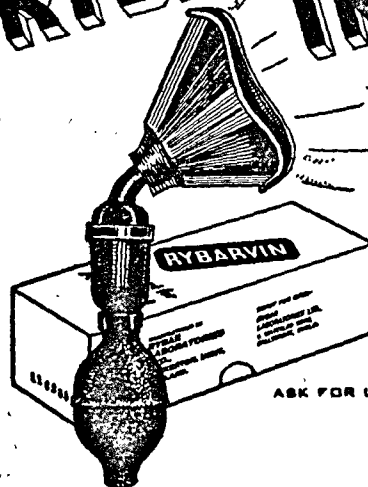
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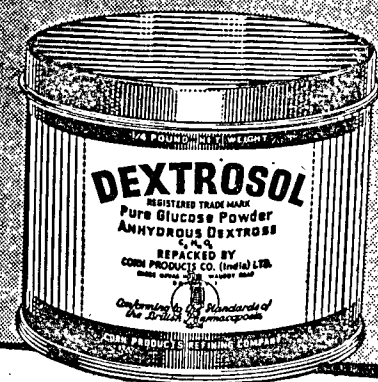


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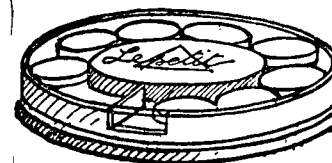
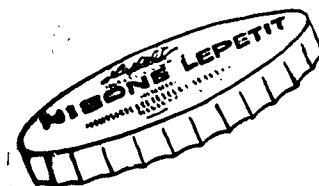


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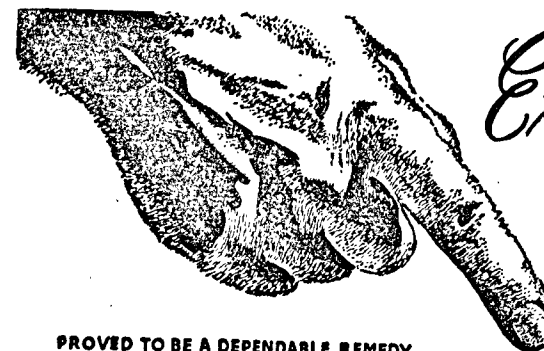
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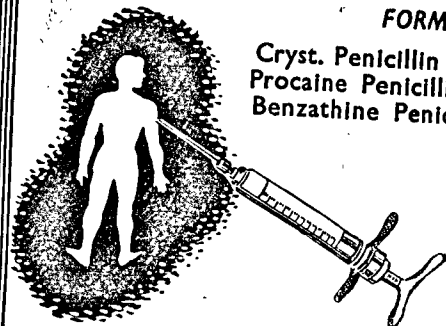
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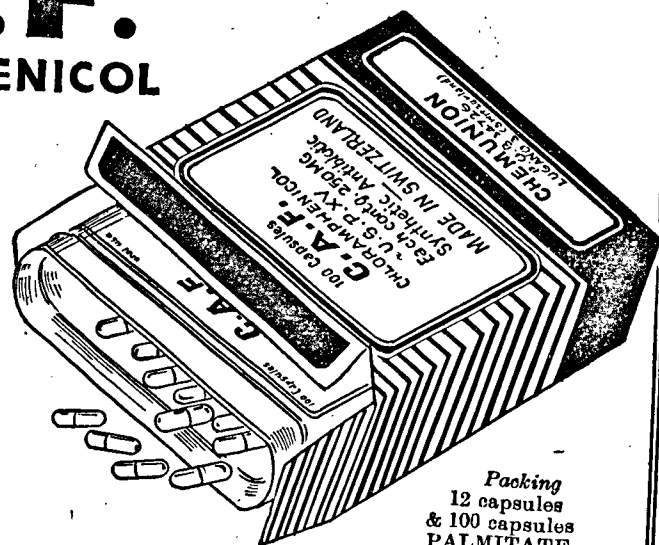
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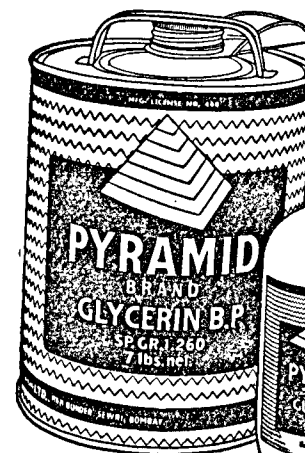


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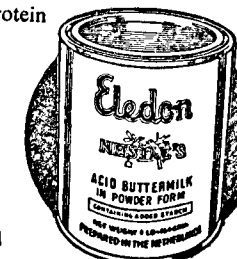
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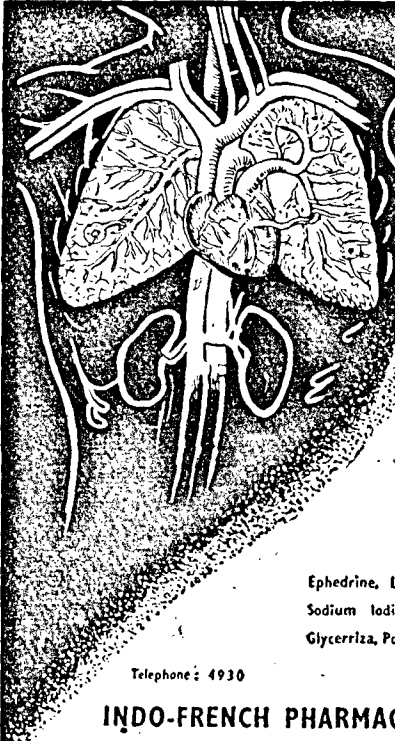
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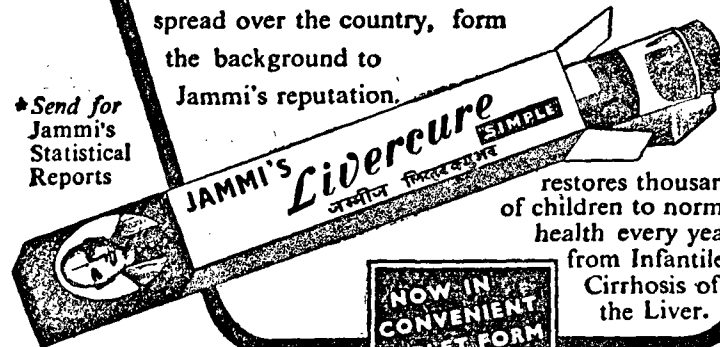
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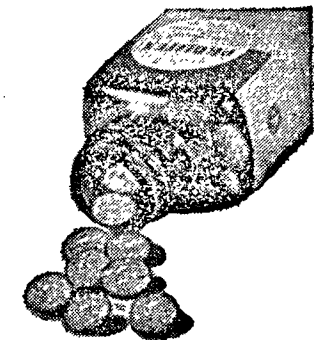
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SIMPLICITY OF MEDICATION PROLONGED ACTION WITHOUT ANY UNTOWARD SIDE EFFECTS. FREE FROM NARCOTICS, ANTIHISTAMINICS OR ANY HABIT-FORMING DRUGS.

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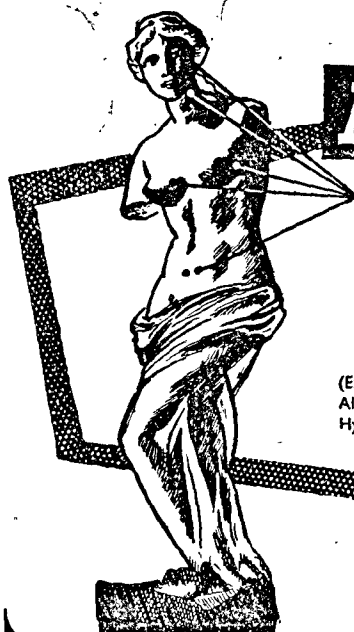
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Calcium-Sandoz
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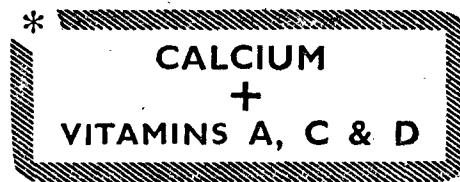
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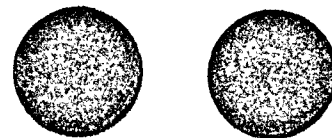
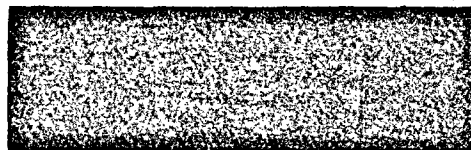
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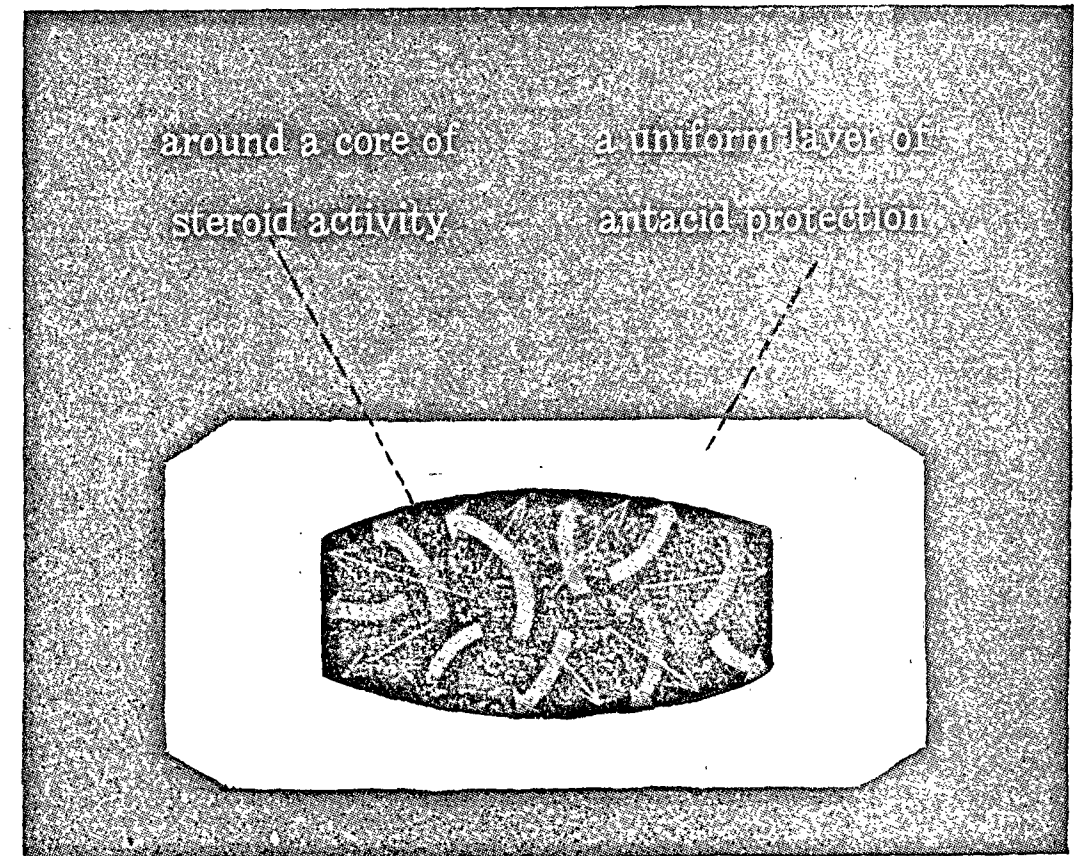
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Each 30 ml. represents:—

Vitamin A (from 2.4 ml. of Shark Liver Oil approx.)	25,000 I.U.
Vitamin D	5,000 I.U.
Saccharated Oxide of Iron	3.55 G. (55 gr.*)
Hypophosphites of Lime,	
Sodium & Potassium B.P.C.	0.8 G. (12½ gr.*)
Vitamin B ₁ B.P.	3 mg.
Vitamin B ₂ (Riboflavin B.P.)	2 mg.
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Copper & Manganese	Traces.
Palatable base enriched with flavoured Malt Extract	q.s.

* Approximate apothecary equivalent

Bottles of 454 Gms. (1 lb. approx.)

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in Alembic.

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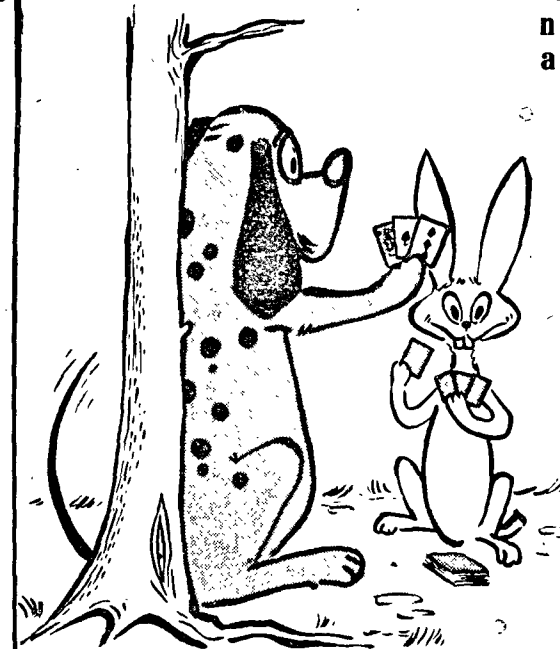
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psychosomatic-plegic
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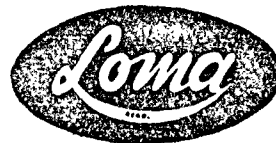
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DOUBLE-ACTIONED.

ALUCIDOL is the trademark for a combination in tablet form of Aluminium Hydroxide Gel and Aluminium Glycinate. This synergistic combination has been adopted for immediate and delayed action.

THE GREAT ADVANTAGE of ALUCIDOL is that the tablets dissolve within seconds in a glass of water to make a milky solution with a peppermint taste, thus increasing 10,000 times the surface of absorption.

INDICATIONS

- Hyperacidity
- Gastro-intestinal ulcers
- Gastritis
- Hyperchlorhydric dyspepsia

PRESENTATION

Vial of 20 tablets containing each 300 mg. of Aluminium Glycinate, and 300 mg. of Aluminium Hydroxide gel.

DOSAGE

One tablet twice a day after meals in half a glass of water or as required.

Literature from;

FRANCO-INDIAN UNITED LABORATORIES,
Bapnu Ghar, Hornby Vellard, BOMBAY 18.

Dalda—its role in nutrition

MCCARRISON in one of his addresses remarked: "The general dietetic error lies not in quantity, but in quality." Faulty nutrition is no doubt common in this country, but it is not so much lack of food as lack of the right kind of food, particularly vitamins and fats.

In a statistical survey of Vitamin A deficiency—judging by poor dark adaptation—more than half the children from working class homes in England were found to be deficient by Harris and Abbasy in 1939. Both in Africa and India, skin changes due to lack of Vitamin A were present in 80% of some groups of children (Nicholls, L-Indian Medical Gazette: 1933). This is also emphasised in Health Bulletin No. 23 (1956), issued by the Nutrition Research Laboratories, Coonoor. Vitamin A deficiency is the single factor responsible for a large number of nutritional deficiency diseases. The daily allowances for an adult are in the neighbourhood of 3,000 to 4,000 International Units of Vitamin A.

Vitamin A is found in only a very few foods, of which the most common are eggs, milk and butter, and for that reason it is important to realise that their Vitamin A content is not constant, but depends on the diet of the hens and cows. Besides, these animal foods are expensive and beyond the reach of many. Therefore, Fitzgerald Moore, in a practical discussion of the whole problem, concludes that the only hope of a solution is to reinforce local vegetable oils and fats with Vitamin A concentrates. As is well known, the Food Fortification Sub-

Committee of the Indian Council of Medical Research thought on the same lines, and recommended that 700 International Units of Vitamin A should be added to every ounce of Vanaspati. This recommendation was accepted by the Government and to Dalda we add 700 International Units of Vitamin A in addition to 56 International Units of Vitamin D.

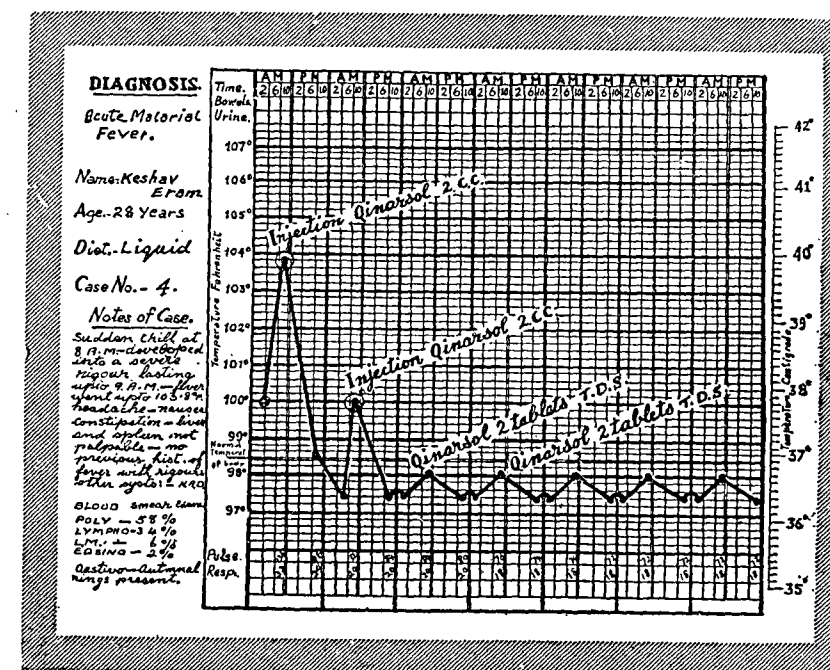
Fat must be included in ordinary diets—because of its high calorific value and its protein-sparing action. But we have no exact knowledge of the quantity required. It is probably advisable that not less than 45-60 grams (1½-2 oz.) should be consumed daily. Most diets in India are very low in fat.

Dalda is a cooking fat made from pure vegetable oils according to strict Government specifications. It is manufactured from ordinary edible oils of everyday use by refining and hydrogenating them. Seven hundred International Units of Vitamin A and 56 International Units of Vitamin D are then added to every ounce—which is as much as good quality ghee contains. Dalda is easily digested and utilised by the body on account of its low melting point. The standards of quality are so high that Dalda compares favourably with its other counterparts such as "shortening" and "margarine" used extensively in the United States, England and other European countries. Each ounce of Dalda yields 250 calories, as much as 1 ounce of any good quality ghee and over twice as much as an ounce of wheat or rice. Dalda is, therefore, a very valuable addition to the average Indian diet.



HVM. 311-23

THE TEMPERATURE CHART REPRESENTS A TYPICAL CASE OF MALARIA TREATED WITH QINARSOL



IN ALL FEBRILE CONDITIONS DUE TO INFLUENZA, COLDS, MALARIA & CATARRH

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ORAL - LIQUID

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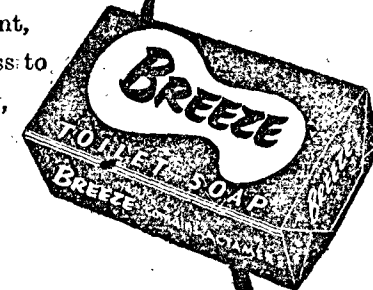
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BREEZETHE TOILET SOAP
WITH ACTAMER

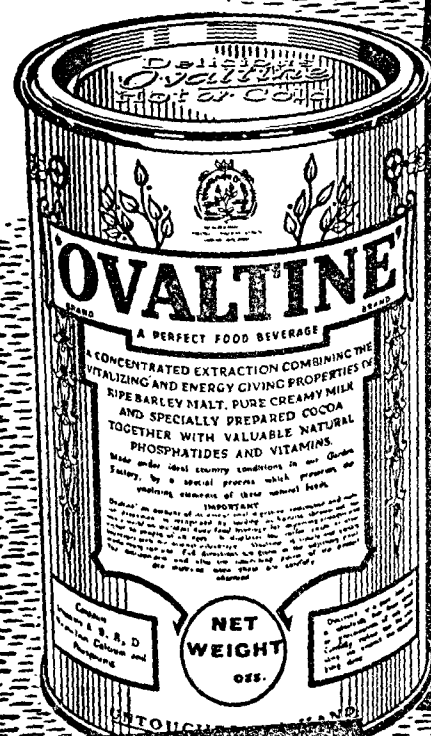
BREEZE Toilet Soap is a mild, attractively perfumed soap possessing exceptional antiseptic and deodorant qualities. It contains Monsanto's new bacteriostat ACTAMER (2.2 thiobis, 4.6 dichlorophenol). 'Actamer' clings to the skin — it resists removal through washing with soap and water — and thus provides prolonged protection against bacteria. It even attacks bacteria resident on the skin, including the "gram positive cocci" said to cause secondary skin infections. 'Actamer' is a known and tested bacteriostat, officially approved by the American Medical Association and listed in the United States Pharmacopœia (15th Revision).

BREEZE Toilet Soap with 'Actamer' is non-irritant, non-toxic and harmless to the skin. Used regularly, it promotes a clearer, healthier complexion.

**BREEZE**

—costs so much less
than other soaps
in its class

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by the
medical
profession
all over
the world



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NERVOUS DISORDERS

Countless physicians recommend 'Ovaltine' to soothe the nerves, to promote sound sleep, and to help to remedy the general malnutrition that so often accompanies nervous disorders.

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the most potent antipruritic
and anti-inflammatory
agent known
plus antibiotic action against
secondary bacterial
invaders



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Squibb Fluorocortisone Acetate with Spectrocin (Squibb Neomycin-Gramicidin)

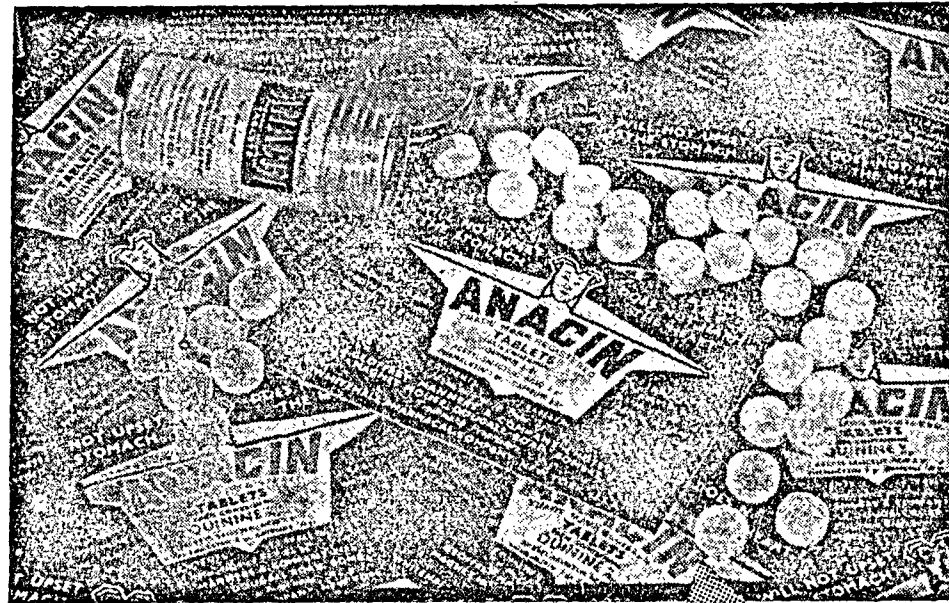
Florinef-S Ointment, 0.1% (ophthalmic)
3.5 Gm. and (skin) 5 Gm. tubes

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SARABHAI CHEMICALS, BARODA
Manufacturers & Distributors of Squibb Products in India

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S.C.440



where PAIN is a symptom...

Therapy of the underlying causal condition is no doubt the prime consideration. However, when treatment of the basic disease does not or cannot afford prompt relief, 'ANACIN' will often alleviate the distress of pain and impart a sense of well-being.

'ANACIN' is a non-toxic and clinically dependable preparation, specially formulated to provide a prolonged period of analgesia with a single dose of 1 or 2 tablets.

Composition

Quinine 1 1/4 gr. Aspirin 3 gr.
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ANALGESIC TABLETS

as in
HEADACHE
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MUSCLE PAIN
NEURALGIA
NEURITIS
DYSMENORRHOEA
INFLUENZA

• Trade Mark

In piller-proof containers
of 22 tablets and packets
of 2 tablets each.

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for expectant and nursing mothers

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HORLICKS

Prescribed with confidence for over seventy years



*In anxiety
states . . .*

*. . . three-fold
effective
therapy*

Anxine Tablets provide the complete symptomatic treatment of anxiety states by improving mood and increasing confidence, by inducing gentle sedation and allaying anxiety, and by securing the optimal degree of muscular relaxation.

Although each of the three components of Anxine Tablets, dexamphetamine sulphate, cyclobarbitone and mephesisin, makes an

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Anxine Tablets are indicated in the treatment of anxiety states, psychoneuroses and psychosomatic disorders. Anxine will produce rapid improvement in cases where mental or emotional tension is an important factor, in depression and neurasthenia, and in those patients suffering from the many ill-defined anxieties and fears which can so profoundly and adversely affect general health.

ANXINE

Each tablet contains :—

DEXAMPHETAMINE SULPHATE

2.5 mg.

CYCLOBARBITONE

35 mg.

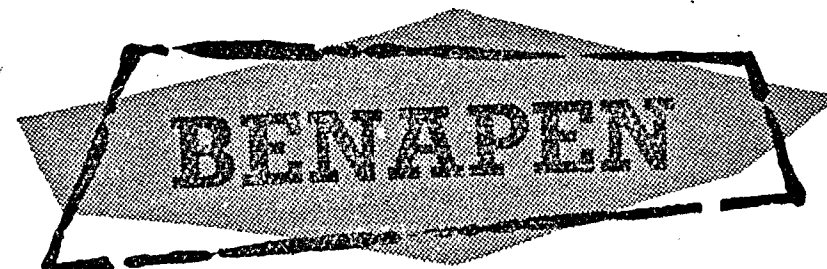
MEPHENESIN

120 mg.

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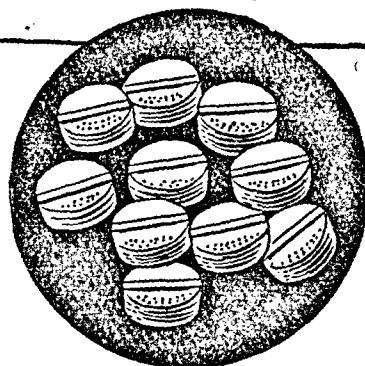
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Dispels headache

Disperses visual disturbances

Defeats nausea and vomiting

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'MIGRIL' contains ergotamine tartrate (2 mgm.), caffeine (100 mgm.) and cyclizine hydrochloride (50 mgm.) in each tablet. The inclusion of cyclizine hydrochloride not only eliminates the nausea and vomiting often associated with migraine but also enables larger and more effective doses of ergotamine to be administered.

'migril'

Ergotamine Compound (Compressed)

SINGLE TREATMENT PACK OF 4 TABLETS

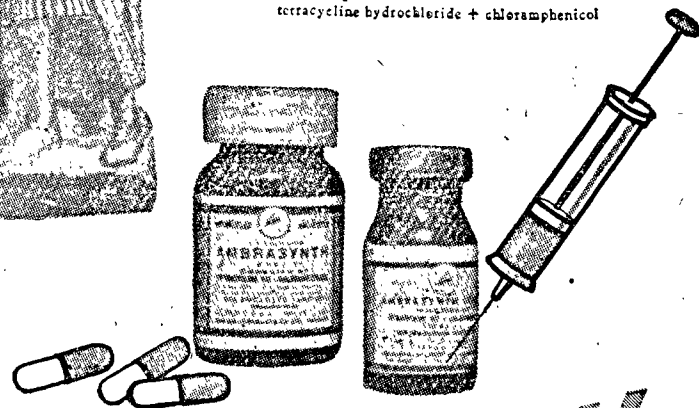


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preparation combining two
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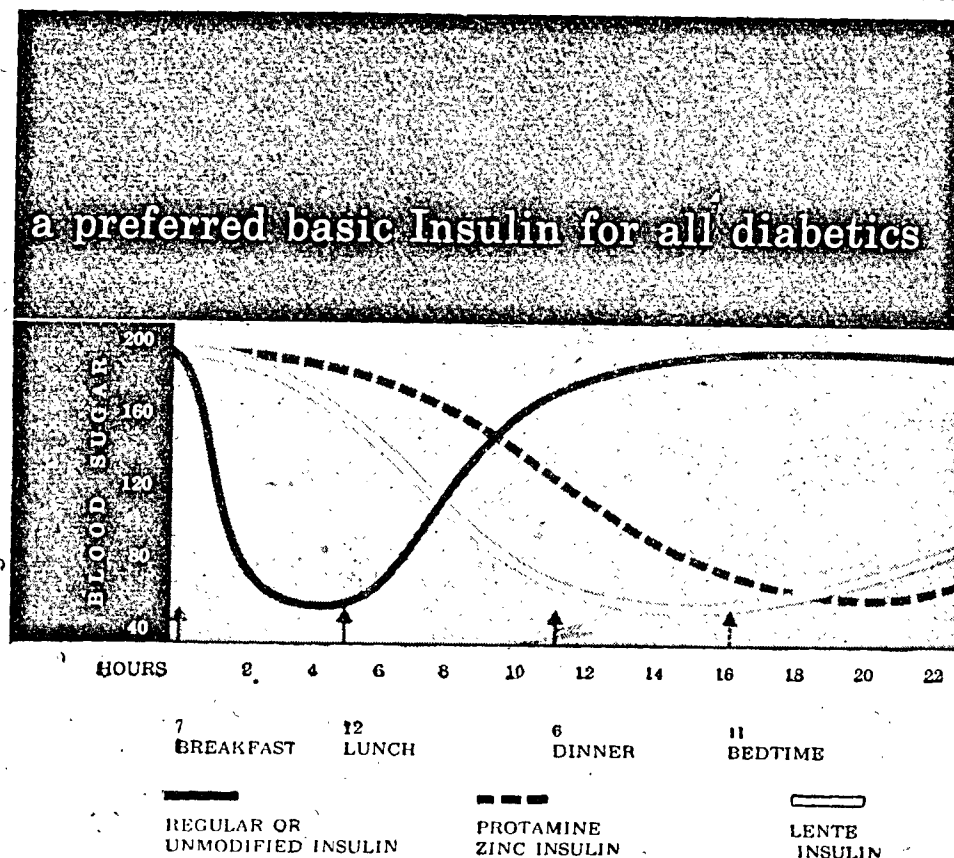
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NEW

With the ever-changing civilisation and environments, anxiety states and related illnesses are on the increase among our patients. Apart from anxiety as a part of neurosis or psychosis, there are a number of conditions and symptoms where anxiety is a contributing factor—to name but few—coronary heart disease, hypertension, peptic ulcer, asthma, neurodermatitis itching, nausea, and the symptom of "pain" of most illnesses. Until very recently, the problem of anxiety, agitation and tension and their consequences were handled either by drugs which were inadequate or by slow, laborious and expensive process of psychotherapy. The introduction of tranquilizing drugs marks a substantial advance in combating emotional and mental illness.

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PANEDIOL

(MEPROBAMATE)

the latest Tranquilizing drug with muscle relaxant properties

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Dicarbamate 0.4 gms. per tablet

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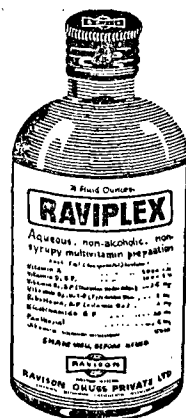
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One bottle serves all

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(Orange-Peach flavoured)

An aqueous, non-alcoholic, non-syrupy multivitamin preparation useful as a nutritional supplement both for prevention and cure of vitamin-deficiencies.



Each 5 ml. contains:

Vitamin A Palmitate, B. P.	5000 I.U.
Vitamin D ₂ , B. P.	1000 I.U.
Vitamin B ₁ , B. P. (Thiamine Hydrochloride)	3.5 mg.
Vitamin B ₆ , U.S.P. (Pyridoxine Hydrochloride)	1 mg.
Riboflavin, B. P. (Vitamin B ₂)	2 mg.
Nicotinamide, B. P.	20 mg.
Panthenol	5 mg.
Vitamin C, B. P. (Ascorbic Acid)	50 mg.

Dosage:

Daily Therapeutic Dose:

Infants: 1 to 2 teaspoonfuls

Children and adults: 2 to 3 teaspoonfuls

Daily Prophylactic Dose

Infants: $\frac{1}{2}$ teaspoonful

Children and adults: 1 teaspoonful

Supply:

In pilfer-proof bottles of 2 oz. and 4 oz.



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overnight relief of nasal congestion

The main purpose of nasal drops in such conditions as the Common Cold, Rhinitis and Sinusitis is to shrink the swollen membranes inside the nasal passages, enabling effortless breathing and ensuring proper drainage.

'Endrine' has been specially formulated to achieve these objectives. A few drops instilled in each nostril secure almost immediate relief of nasal congestion.



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NASAL COMPOUND



Available as 'Endrine' Original Formula (buff label) and also the Mild variety (green label) for children and adults where the nasal mucous membrane has become over sensitive.

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IN
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TOLBUTAMIDE

Successful results were obtained by oral administration of Tolbutamide in 82 patients at Mt. Sinai Hospital New York City.

Tolbutamide has no other pharmacological effects as far as it is known, apart from blood sugar lowering effect.

Literature on request.

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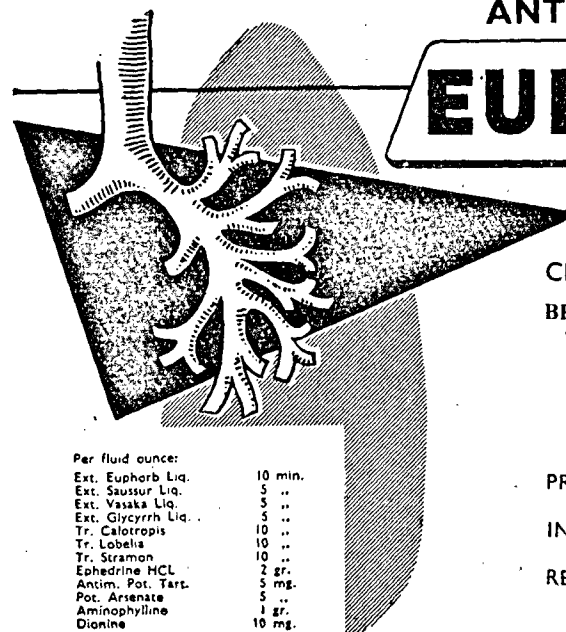
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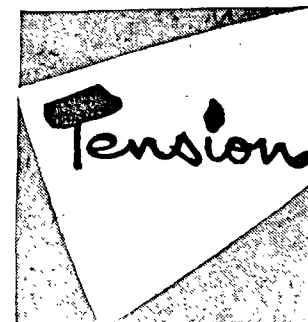
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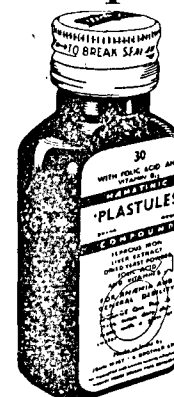


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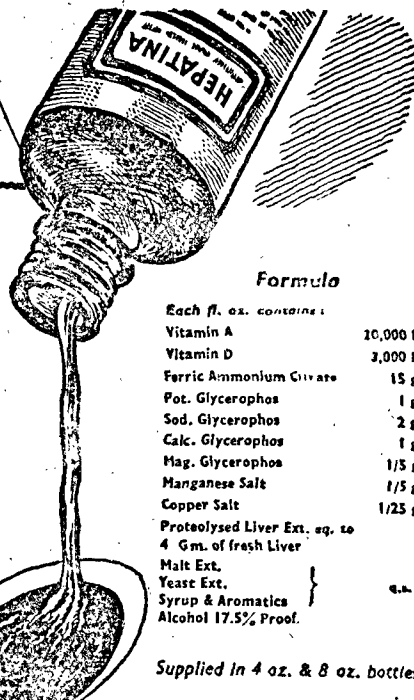
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Original Articles

A REVIEW OF CHEST DISEASES WITH ILLUSTRATIVE CASE HISTORIES

Lecture II*

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Professor of Medicine, Madras Medical College, Madras-3

Congenital cystic disease of the bronchi.—There is still a great deal of confusion regarding the diagnosis of congenital cystic disease of the lung. There are authors who would include even solid or fluid containing opaque cysts under the general heading of 'cystic lung.' It is obvious that such opaque cysts should be described by their specific names such as dermoid, nydatid etc., and not merely as 'cystic lung.'

Bronchiectasis is perhaps the commonest condition mistaken for cystic disease. X-ray pictures of pulmonary tuberculosis with multiple small cavities have sometimes been reported on as "infected cystic lung." The criteria of distinction between bronchiectasis and cystic lung have been laid down by Holmes-Sellers as follows:—

(1) The *origin* of bronchiectasis is inflammatory and degenerative, whereas that of cystic disease is developmental.

(2) The *distribution in the lung* tends to be basal in bronchiectasis and may be in any zone and is actually seen more frequently in the upper and middle zones in the case of cystic disease.

(3) The *associated bronchi* tend to be deformed and dilated in bronchiectasis and are approximately normal in cystic disease.

*The Maharajah of Travancore Curzon Endowment lecture delivered on 29th March '57.

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(4) Considering the *relation to sepsis* bronchiectasis follows infection whereas cystic disease precedes infection when this occurs. As a matter of fact, it is by no means essential that the cysts should become infected at all.

(5) *Histopathology* shows in bronchiectasis evidences of inflammation and destruction of normal tissues whereas in cystic disease it indicates an abnormal growth of normal tissues.

(6) *The X-ray appearances* in bronchiectasis may not be distinctive at all before the injection of lipiodol; in bronchograms irregular saccular blobs are seen at the end of clubbed bronchi. In cystic disease there are oval or smoothly-rounded fine annular shadows of distinctive appearance even before lipiodol is introduced.

Holmes-Sellors has made the very valuable further suggestion that the term "Congenital Cystic Disease of the *Bronchi*" would be a more suitable designation than the generally accepted term "Congenital Cystic Disease of the *Lung*." It is time that the suggestion is accepted and the description of the disease is given in text-books of medicine under Diseases of the bronchi rather than under Diseases of the lung as at present. There have been sufficient pathological studies to support the bronchial origin of these cysts. It has been firmly established that the lining of the cysts is made up of bronchial epithelium.

It has been argued that the diagnosis between cystic disease and bronchiectasis can be made only on a study of the histology of the resected specimen. I feel, however, that the diagnosis can and should be made on the clinical and radiological features. It is not always possible nor always necessary to insist on the histological diagnosis.

Koontz in 1924 referred to 108 cases reported in the literature up to that time. Holmes-Sellors in 1938 reported on a series of 32 cases and stated that by including them, the total can be made up to well over 400. He added, "This clearly does not represent anything approaching the number that must have been studied, but it does make it clear that the condition is not so rare that it should be looked on as a medical curiosity." I have seen over 150 cases of the condition and propose here to review 108 cases studied in great detail for the purpose of a paper read at the annual conference of the Association of Physicians, at Calcutta in 1954. The cases included by me under this heading have all answered the following radiological criteria which should be fulfilled to enable one to make a diagnosis of 'congenital cystic disease of the bronchi':—

(1) Solid or fluid-filled opaque cysts should be excluded.

(2) All inflammatory diseases of the lung parenchyma leading to cavitation should be excluded.

(3) There should be no evidence of atelectasis or fibrosis such as mediastinal shift which might have been the initial starting point for bronchial dilatation. It is, however, possible that the heart and mediastinal structures may be displaced to the side opposite to the lesion when the cyst is particularly large and exerts increased intrathoracic pressure.

(4) In congenital cystic disease the X-ray shows one or more air-containing cysts with a thin wall and no infiltration or atelectic opacity surrounding the cyst wall. The linear outlines of the cyst just stand out by themselves—soap bubbles even though there may be a large number of cysts of varying sizes. This appearance is in striking contrast to a constant finding of opaque areas of atelectasis, fibrosis or pneumonitis surrounding the dilated bronchi in cases of bronchiectasis.

All these features and still others to be mentioned later will be demonstrated with slides at the conclusion of this topic.

With infection of the cysts, the X-ray revealed a horizontal fluid-level inside the infected cyst but the inflammation never extended to the alveoli outside.

Seturaman, a boy aged 7, had three large cysts, one in the right lung and two in the left. About twice a year between 1948 and 1951, this patient sought admission into the Stanley Hospital for infection of one, two or all of the cysts on each of these occasions. The episodes were marked by a severe cough, temperature between 102°F. and 103°F. and a quick and complete response to penicillin. X-rays have shown a fluid-level in the cyst or cysts infected and disappearance of the fluid-level with the subsidence of clinical symptoms.

Another patient, whose X-ray picture will be presently shown, an adult aged 29, has a single large cyst. Here also the infection is seen to be contained within the cyst. This patient and his sister are both showing cysts in the right lung. In our series a mother and a daughter showing cysts in the right lower lobe are also included. Schenck in an exhaustive clinico-pathological study of the condition quotes cases appearing in father and son aged 40 and 9 respectively and necropsy findings on twin sisters both of whom showed small cavities and emphysematous blebs scattered throughout both lungs. These cases illustrate a possible hereditary influence on the causation of embryonic mal-development.

Another important feature of the condition which will be illustrated is that the pattern of honey-combing remains absolutely identical in X-ray pictures taken at long intervals. Table I shows the classification of the cases by sex, age, anatomical distribution and size. Although the maximum number of cases

at the time of diagnosis were in the age-group 21 to 40, it is quite possible that a congenital lesion remaining silent without the production of symptoms may really be recognized at any age in a routine X-ray. Respiratory symptoms complained of at an earlier age by the patient might have been treated symptomatically without the recognition of the basic lesions. It will be interesting to get some information with regard to the frequency of such silent cases during the course of the extensive mass X-ray studies that are now being conducted all over the world, including India.

TABLE I

Sex	No.	Age	No.	Side	No.	Size	No.
Male ...	79	Under 10 ...	5	Right ...	56	Small berry ...	35
Female ...	29	11-20 ...	23	Left ...	34	Medium ...	54
		21-40 ...	72	Bilateral	18	Solitary balloon	19
		Over 40 ...	8				

Symptoms and signs of acute respiratory catarrh were noticed in most cases. Thirtysix patients complained of hæmoptysis. In all cases the sedimentation rate was within normal limits during the asymptomatic period. In a certain number of cases, the patient was first seen with a history of difficulty in breathing and wheezing suggestive of a diagnosis of bronchial asthma. Cystic lung can be associated with intrinsic asthma much in the same way as bronchiectasis can be.

Six patients had spontaneous pneumothorax when first seen. In only one patient was the pneumothorax followed by effusion which was slightly turbid and revealed streptococci and pneumococci on culture. The fluid rapidly disappeared with sulphadiazine and penicillin. Usually spontaneous pneumothorax complicating congenital cystic disease remains a benign and dry pneumothorax while a rupture occurring in the course of tuberculosis proceeds rapidly to give rise to a hydro- or pyo-pneumothorax. The case cited above indicates the possibility of a hydro- or pyo-pneumothorax resulting from the rupture of a cyst that had recently been infected.

One of the patients with a balloon cyst had marked symptoms of pressure inside the affected side of the chest. A pneumothorax was induced for diagnostic purposes as a large balloon cyst can, in some instances, be differentiated from localized pneumothorax only by injecting air into the pleural cavity. In most cases, however, lung markings can be seen in the depths of a cyst but not in a pneumothorax.

TREATMENT:—It has been suggested that the ideal treatment is resection of the cyst-bearing segment of the lung. In several cases, however, resection is not possible either because

the cysts are bilateral or involve more than one lobe of a lung. Even in those cases where the abnormality is strictly confined to a lobe or segment of a lung, the need for a major surgical procedure as a routine measure is not quite convincing. The management of an episode of infection or of spontaneous rupture has always been extremely easy and the recovery complete leaving no permanent disability behind. Sometimes, however, the patient may rupture the lung repeatedly and that might be an indication for surgery.

Either the simpler procedure of promoting pleural adhesions by the introduction of a solution of silver nitrate into the pleural space or the more radical procedure of enucleation of the cyst or lobectomy may be undertaken according to the problems presented by the particular case. In infants and young children the lesion has been reported to be attended with grave dangers in the days prior to modern chemotherapy. Apart from recurrent episodes of spontaneous pneumothorax, severe pressure phenomena arising out of a balloon cyst may be an indication for surgical extirpation.

The question whether epithelial metaplasia taking place in congenital cysts could determine the occurrence of carcinoma of the bronchus as suggested by Womack and Graham requires a long-term study and the follow-up of a large series of cases. Definite proof of the existence of such a risk of malignancy would certainly support the undertaking of pulmonary resection in all possible cases.

Hydatid disease.—In a country with a predominantly rural population, it is not surprising that hydatid cysts are seen in practically every region of the country and every region of the body. Actually one sees more cases of hydatid cysts in the District hospitals than in the Madras City hospitals; this was my experience during my four years' stay at Madurai. It is not necessary to go into the life cycle of the tape-worm in which hydatid cysts form a phase.

The importance of thinking of the possibility of hydatid cysts in an opaque cyst seen in an X-ray of the chest arises out of the possible dangers that may arise by the cyst rupturing by itself, dying or being injured by procedures in the chest. The ideal treatment is undoubtedly surgical removal. Conservative therapy has been rightly condemned as a policy of despair. The *Casoni test* is certainly a very necessary and reliable procedure. But occasionally it has given undependable results. Perhaps the largest series of cases of pulmonary hydatid disease was the review of 478 cases reported in the Louis Barnett Hydatid Registry of the Royal Australasian College of Surgeons. I am sure that if we had a similar registry for the whole of India we will soon break their record.

Bronchogenic carcinoma.—It is impossible to say anything with regard to the exact incidence of bronchogenic carcinoma in South India. Fifteen years ago, when at one or two meetings of the General Hospital Clinical Society I suggested a possible diagnosis of bronchogenic carcinoma, an esteemed colleague remarked that bronchogenic carcinoma existed in my brain. To-day, however, we have advanced sufficiently to realize that it does exist in some people's lungs and occasionally even in their brains.

In the U.S.A. primary lung cancer accounts for 10% of the total cancer deaths and more than 20% of the cancer deaths among males between 45 and 70 years of age. Fraber in 1954 collected 1070 cases from 19 Californian hospitals. The diagnosis was not made prior to autopsy in over 600 (61%). If the diagnosis of such a large percentage could be made only on autopsy, in a country like the U.S.A. with all its modern medical organization and facilities for proper diagnosis, one can realize how impossible it must be to venture an opinion regarding the incidence of the disease in South India where even autopsies are not available.

Tobacco and carcinoma of the lung.—Thirteen separate studies from 6 different countries involving more than 5000 patients all point to a correlation between smoking and cancer of the lung. The association between smoking and cancer of the lung does not deny the significance of other factors. Individual predisposition although its true nature is not understood, is also of importance. Occupational exposures should also be remembered. The presence of a carcinogenic factor in cigarette smoke has been demonstrated with the help of a machine which smoked 60 cigarettes at a time by means of a small motor. Mice painted with the tar precipitated from the smoke showed epidermoid cancer of the skin in 44.4% of the animals used. However, only 56.5% of the 217 doctors working in the hospitals of Oxford were satisfied with the evidence linking carcinoma of the bronchus and smoking. But the proportion was more than five times higher among the non-smokers than among the smokers. Perhaps the smokers were persuaded by their fondness for tobacco to discount unpalatable evidence. Finally, all the data presented in these different studies showed the percentage of smokers among patients with lung cancer but no information is available regarding the proportion of smokers who developed lung cancer.

X-ray findings.—Rigler has classified the significant roentgenographic findings in 11 groups as follows:—(1) The appearance of a solitary pulmonary shadow not present in previous films, especially in an individual past middle age; (2) the demonstration of a peripheral pulmonary mass or nodule in the lung which shows an increase in size when compared to a previous film; (3) the

presence of calcification, barring compelling evidence to the contrary, should indicate that the lesion is not a malignant tumour; (4) notching or umbilication in the margin of the shadow appears so far, at least, to be characteristic of malignancy; (5) a change in the size and appearance of one hilus; (6) the demonstration over a period of time of the increasing character of the infiltrative process, and the demonstration of a nodular beaded character of the infiltration is highly significant; (7) in pneumonic lesions, the failure of an ordinary pneumonia to resolve, a nodular type of mass in the infiltration, or broncho-stenosis as demonstrated by laminagraphy, are considered indicative; (8) carcinomatous abscesses will usually show a protruding outer margin which extends well beyond the area of the cavity itself and, in the larger cavity, if the presence of masses within air pocket can be made out, it indicates tumour nodules growing within the cavity; (9) the presence of segmental, lobar, or unilateral emphysema, especially in the expiratory phase; (10) the presence of segmental, lobar, or unilateral atelectasis and (11) the demonstration of changes in the bronchial lumen by laminagraphy can also indicate the possibility of a carcinoma of the lung.

To a large extent the histopathologic structure can be anticipated by the appearance of the roentgenographic shadow. Thus, a hilar tumour with evidence of massive lymph node involvement is likely to be an anaplastic carcinoma; a peripheral tumour in a young woman an adeno-carcinoma; and a peripheral tumour, especially when cavitated and invading the chest wall in a man more than sixty a well-differentiated squamous cell carcinoma.

[Note:—The slides shown illustrated many of the types of radiological shadows described by Rigler].

As stated already, we can say nothing about the true incidence of bronchogenic carcinoma in South India but the cases illustrated definitely point to the existence here of every one of the pathological and radiological types of cancer seen in other parts of the world. Perhaps with better organization of thoracic surgery and with fuller cooperation from all the medical men around, it will be possible in five or ten years' time to provide more imposing data.

As in other countries, the right side showed a much more frequent involvement than the left side.

Except four cases which occurred in persons under forty, the others were all in older age groups.

No opinion can be offered regarding the relationship between smoking and bronchogenic carcinoma from our small series as only 7 out of 31 patients were regular smokers.

Early diagnosis.—The widely divergent radiological appearances that may be presented by lung cancer have been discussed. In an effort to discover cancer of the lung in its a symptomatic phase, a 70-millimeter X-ray survey of the chest of 1,867,201 persons of the cancer age, was made in Los Angeles County in the ten-month period ending 30th January '51. The suspicious cases were followed up with larger X-ray pictures and special investigations usually employed in the diagnosis of bronchogenic carcinoma. 144 cases of carcinoma, 28 of sarcoma, 5 of unspecified malignancy and 63 benign tumours were finally diagnosed. The cost for each proved bronchogenic carcinoma was 9625 dollars. It is obvious that such a procedure of Mass Miniature Radiography is most uneconomical in the detection of lung cancer. On the other hand, in cancer of the lung as with cancer elsewhere, early diagnosis is undoubtedly an essential requisite for cure. While Billroth did his first gastrectomy in 1881, the first pneumonectomy had to wait till 1933. Graham's first patient, a physician with lung cancer, was reported alive in 1950 but I have not been able to obtain further reference about his present condition.

The similarity in resectability rates throughout the various medical centres is most noteworthy. Less than 20% of the patients diagnosed are suitable for definitive surgery.

The proportion of bronchogenic carcinomas on exploration of obscure conditions is considerable. Johnson, Clagett and Good reporting on 384 patients with varied pulmonary lesions found 63 lung cancers by methods other than thoracotomy and 60 diagnosed only by thoracotomy. More than half of the patients in whom diagnosis could be established only by thoracotomy turned out to be cases of bronchogenic carcinoma. Thoracotomy should not be too long delayed with a presumptive clinical diagnosis of carcinoma. There is a much more frequent need for an exploratory thoracotomy than for an exploratory laparotomy. Considering all the above factors, the most fruitful procedure will be to obtain a small X-ray film on every case admitted into a general hospital and the proper follow-up with necessary investigations of every case presenting abnormal shadows. Chest Units charged with the function of these follow-up studies can certainly be expected to have a high index of suspicion of carcinoma. The advantages of such routine small X-ray films in every hospital admission with reference to the early diagnosis of tuberculosis has also been stressed by me in a recent issue of the *Indian Journal of Tuberculosis*. Further routine X-ray examinations of all patients attending the offices of general practitioners will also reveal many cases of lung tuberculosis and lung cancer at a cheaper cost than mass surveys.

Of the investigations usually employed for establishing the diagnosis of bronchogenic carcinoma, cytologic examination of the sputum and bronchial secretions appears to be the most simple and fruitful according to some reports. Clerf and Herbut report that in a series of 285 proven cases, 88·8% were diagnosed by cytologic study while only in 34·7% was bronchoscopic biopsy positive. There are many other reports in the literature where 55 to 92·5% of different groups of cases have been diagnosed by sputum examination. However, I must confess that in a special study carried out for a period of one year, we could obtain little help from the cytologic study of the sputum. Apparently the technique of preparing the material has to be improved.

Bronchoscopy is undoubtedly an essential procedure in the diagnosis of lung cancer. It is an easy procedure and where the tumour is visible, a biopsy can be readily obtained for examination. However, with lesions beyond bronchoscopic vision, the procedure cannot help. It is just in these latter cases that Herbut acclaims the superiority of cytologic studies.

A reliable indication of our being more cancer-conscious is the fact that in 1946 only 12 bronchoscopies were carried out in the General Hospital whereas in 1956 as many as 212 bronchoscopies were done.

Other procedures that are employed in suitable cases are tomography, bronchography, oesophagram to show pressure by enlarged mediastinal glands, biopsy of the deep non-palpable lymph nodes of the neck in the deep cervical area in the scalenus triangle and occasional aspiration biopsy.

The lung may be the seat of metastasis from primary tumours situated in other areas. In one series of 105 cases of pulmonary metastasis the site of the primary tumour was the genito-urinary system in 42, gastrointestinal tract in 11, lymphoblastoma in 9, skin in 9, respiratory tract in 5, soft tissues in 8, miscellaneous sites such as the adrenals, thyroid and bones in 9 and 'site unknown' in 12. In our series we have had a primary hepatoma producing first a pleural effusion and later deposits in the lung parenchyma; one from bones, 2 from the oesophagus and 3 from cancer of the cervix. With regard to the last it is worth noting that in the literature there is reference (a) to the lungs being the site of secondaries in 13·9% of all uterine carcinomas and (b) to a complete regression of the pulmonary metastases following androgen therapy.

Clinical features.—These have been classified into three groups: Tumour symptoms, infection symptoms and metastatic symptoms. (*Rosenblatt and Lisa*).

GROUP I. *Tumour symptoms*:—(a) Irritation; (b) ulceration; (c) obstruction; and (d) necrosis.

GROUP II. *Infection symptoms* :—(a) Upper respiratory ; (b) recurrent pneumonitis ; (c) lobar pneumonia ; (d) bronchiectatic ; and (e) pleuro-pericardial.

GROUP III. *Metastatic symptoms* :—(a) Pleuro-pulmonary ; (b) lymph node ; (c) central nervous system ; (d) peripheral nerves ; and (e) visceral.

Persistent cough with or without blood-stained sputum, the triad of fever, leukocytosis and anæmia, recurrent pneumonias involving the same lung and taking time to resolve, pain in the chest and pulmonary osteo-arthritis are important symptom-groups. Wheezing is a common presenting symptom and where the asthmatic wheeze is heard by the doctor and sometimes even felt by the patient unilaterally, it is good to remember that "All that wheezes is not Asthma." Every case of lung abscess in the elderly should be bronchoscoped to exclude a malignant origin of the trouble.

Atelectasis.—In discussing the pathogenesis of bronchiectasis the many ways in which bronchial occlusion may be caused have been enumerated. We have just now seen how bronchogenic carcinoma is a very important cause of atelectasis. I will have something to say shortly about foreign bodies producing atelectasis.

Now I wish to show you a few slides to illustrate how on occasions atelectasis is met with as part of various infections and inflammations. It is not always possible to decide on the true nature of the infection. In illnesses which clinically correspond to an influenzal respiratory catarrh, atelectasis usually of a very localized extent can occur. However, before deciding that the cause of the atelectasis is nothing more serious than a mere plug of mucus, it is essential to follow up the disappearance of the atelectasis and the re-expansion of the lung with serial X-rays. In the course of other virus infections, in aspiration bronchopneumonias and during attacks of asthma, localized areas of atelectasis are by no means uncommon.

Foreign bodies in the bronchi.—It is not generally recognised that the entry of foreign bodies into the bronchi is by no means uncommon. Chevalier Jackson has listed 1859 foreign bodies of widely differing nature which had been removed from the air passages in his famous clinic in Philadelphia. Another important error in relation to inhaled foreign bodies is the generally prevalent idea that an individual cannot overlook the entry of a foreign body into the bronchus as that should cause very pronounced difficulties. In many cases, a foreign body has been inhaled without the subject being aware of it in any way or the episode of distress which occurred at the time of the inhalation has been overlooked and forgotten.

When a foreign body gets past the larynx into the trachea, it produces a bout of cough which has been described as severe, paroxysmal, distressing, choking and so on by various writers. I feel that describing it as a "cough" to the patient when you are trying to elicit a history of inhaled foreign body perhaps quite some time back, is not sufficiently expressive. The English language to my knowledge does not contain a single word which is the equivalent of the Tamil (*Porai Yeral*) பொரி ஏரல் which means getting into wrong place and I would like to make a serious plea for including this word in the Oxford Dictionary. It certainly will not be the first Tamil word to be so absorbed into English vocabulary; e.g., referto 'catamaran' in the Oxford Dictionary.

The physical signs will depend on the nature of the foreign body, the degree of obstruction which entirely depends upon the size of the bronchus involved and Chevalier Jackson has described the stop-valve, the check-valve and the by-pass valve mechanisms with physical signs appropriate and different in each of them.

The following case history is of a typical case seen by me recently :—

G., child aged 3 years, took a handful of betelnut powder at 9-30 p.m. on 7-3-1957 and had a severe bout of *Porai Yeral*. Next day the child had a slight amount of discomfort and a slight rise of temperature. An X-ray film showed "nil abnormal." From the 9th to the 12th the temperature was higher, ranging from 100°F. to 103°F. There were definite physical signs of atelectasis which was confirmed by X-ray. On the 15th and again on the 21st bronchoscopy was done and the material removed. A picture taken on the 24th showed complete aeration of the left side.

The X-ray pictures of a similar case seen recently are included in the illustrations at the end of this paper.

Virus pneumonia.—This condition was formerly described as primary atypical pneumonia, but objection has been raised to this nomenclature because the condition is no longer primary in the sense of its cause being unknown. It is no longer atypical in that the symptoms and signs have now been formulated to correspond to an average pattern and finally, it is not strictly a pneumonia in its pathology.

The diagnosis is made largely on the mildness of the symptoms and signs as compared to a pneumococcal pneumonia, the absence of polymorphonuclear leucocytosis, the X-ray finding of a pneumonitis usually in the lower halves of the lung fields, more often in the medial than in the lateral aspect. The presence of cold agglutinins in titres over 1/32 is regarded as

confirmatory but by no means essential for a diagnosis. The exhibition of sulphonamides and penicillin does not hasten the process of resolution in this disease. The difficulty of conducting a definitive test in the chemotherapy of primary atypical pneumonia has been pointed out. In one study of 212 cases the author reported that the effects of chlortetracycline which had been claimed to act as a specific, were comparable to those of placebos indicating that the antibiotic did not influence the course of the disease.

The problem is really one of being sure of the diagnosis. On the one hand, it has to be differentiated from pulmonary tuberculosis and on the other, from bronchopneumonia, the result of aspiration of septic material from the upper respiratory passages. We have had cases where such aspiration bronchopneumonias have resulted from infection of the sinuses and peridental suppuration. Indeed, a writer in the *British Medical Journal*, 27th October 1951, discusses the clinical entity of primary atypical pneumonia and postulates that it is always a segmental aspirational infection rather than a viral one. The one constant clinical feature of all his cases was the anatomic localization of the disease by roentgenography to bronchopulmonary segments or sub-segments. Lateral films were essential for localization. Some degree of collapse within the lesion was frequent. A shift in the position of the inter-lobar fissures and crowding of the broncho-vascular pattern were usually the only signs of collapse. In some of our cases a temporary rise in the dome of the diaphragm has been noted as evidence of collapse. Lesions are principally in dependent bronchopulmonary segments and usually follow an upper respiratory tract infection in association with some severe physical exertion, both factors being considered conducive to aspirational infection. Postural drainage is often effective in promoting drainage and re-aeration of the affected segment. Chemotherapy can be considered of value in those cases in which a considerable element of infection is present.

Another situation where such pneumonitis may be seen is in connection with bronchial asthma. Transient opacities with or without signs of collapse have occurred during the paroxysms of bronchial asthma.

When a patch is seen in the lung, it is most important to obtain further evidence with regard to its bacteriological origin. It is totally wrong to consider any and every patch seen in an X-ray picture as necessarily of tuberculous origin and to start specific chemotherapy in great hurry, without establishing the diagnosis. There is absolutely no harm in waiting for a few days for carrying out all the necessary bacteriological investigations

and also for observing the evolution of the lesions. While it is undoubtedly serious to fail to make the diagnosis of pulmonary tuberculosis where it is present, it is equally wrong to dub a non-tuberculous lesion as tuberculous.

Abscess of the lung.—It is not necessary to remind you about the definition of an abscess and how particularly in the lung, it differs from tuberculous or bronchiectatic cavities. On our records we have 52 cases of lung abscess. The cases following bronchial embolism or, at any rate, proved to have been secondary to the inhalation of septic material from the upper respiratory passages have been only a small number of the total. The exact origin of the abscess is not therefore, easy to establish. We have to consider them as being meta-pneumonic in the absence of other obvious demonstrable cause. Two cases have followed tonsillectomy; two cases have occurred after electroconvulsive therapy for mental disorders and one case followed the entry of a fishbone into the oesophagus and its subsequent removal.

Regarding the distribution of abscesses in the lung, Maurice Davidson says:

“Although no hard and fast statement can be made, it may be said that, on the whole, the right lung is more frequently involved than the left and that the lower lobe is a more common situation than the upper lobe.” He quotes Lockwood's figures in a large series of cases where the right side was involved in 71.5% and the left side in 29%. In our series of 52 cases it has been right side in 62% and left side in 38%. While in Lockwood's series the upper lobes were involved in 35%, the lower lobe in 60% and the middle lobe in 5% our figures are rather different, the upper lobes being involved in a little over 50%, the lower lobe in 34 and the middle lobe in 15%. It will thus be seen that there is a larger incidence in the upper lobes and in the middle lobe in our series as compared to Lockwood's figures.

In a recent paper in the *Journal of the Indian Medical Association*, Sanghvi has analysed 40 cases and found the involvement of the right upper lobe and the right middle lobe to be more common than what is usually reported in the literature. A possible explanation for this has been suggested by him on an investigation of the posture during sleep of 500 patients of his hospital, 30% of whom were seen to be asleep in a posture very much rotated towards the prone position. The experiments of Quinn and Meyer in 1929 showed that lipiodol introduced into the nose during sleep flowed readily into the lungs and this has been held to support the theory that lung abscesses are due to the inhalation of infected material. Brock and others have done further work with much more precision. It is significant that when the patient lies on his back, the oil flows into the sub-apical (postero-

lateral) segment of the right upper lobe and into the apical (dorsal) segments of the lower lobes. When the subject lies on his side, the oil gravitates into some part of the axillary region of the dependent upper lobe. These areas are therefore, the commonest sites for the occurrence of a lung abscess as most pulmonary abscesses are caused by the inhalation of infected material during sleep or anaesthesia.

Most of our cases occurred between the ages of 11 and 40, there being an almost equal number of cases in each of the three decades. The streptococcus, staphylococcus, pneumococcus and micrococcus catarrhalis were the organisms grown in culture. Often more than one organism was grown from a case. The streptococcus was the organism most often grown. Bacillus coli was grown on two occasions and B. faecalis alkaligenes on one occasion.

The symptoms and the physical signs of the condition are well known. The physical signs before rupture will be largely those of any pneumonic consolidation and after rupture may vary with the condition of fullness or emptiness of the cavity at the time of the physical examination. Perhaps in no other disease can one have the situation of an examiner finding dullness on percussion with almost absent vocal fremitus, breath sounds and vocal resonance, say at 9 a.m. and the physical signs altering completely at 10 a.m., the resonance now being normal or tympanic, the vocal fremitus and vocal resonance being markedly increased, with W.P. present and the breathing becoming cavernous. This remarkable change in physical signs can be brought about in lung abscess by the patient turning over, the accumulated secretions pouring on to the mucous membrane of a healthy bronchus and provoking a severe paroxysm of cough which succeeds in bringing out a large amount of the typical malodorous three-layered sputum.

In the olden days we have seen the complications of empyema, the rupture of an abscess into a non-adherent pleural space, producing a pyo-pneumothorax and even the remote complication of a cerebral abscess. Today, however, the prognosis is very much better.

In the diagnosis of the condition, it is of course essential that it should be differentiated from other diseases which may be simulated such as an inter-lobar empyema, bronchiectasis and tuberculosis. But more than this, it is essential that a lung abscess should not be regarded as a primary disease until the important causes of bronchial occlusion such as foreign bodies and malignant growth have been carefully excluded. A bronchoscopy therefore is an absolutely essential investigation in every case of abscess of the lung.

TREATMENT:—The organisms usually cultured from the sputum from cases of lung abscess mentioned already, are all

sensitive to penicillin. Penicillin therefore, remains the drug of choice in the treatment of an acute lung abscess. It is usual to regard a case as falling within the category of "acute" for the first six weeks of the illness. It will be "subacute" for the next six weeks and "chronic" after that. In the treatment of the acute and the subacute varieties, particularly the former, penicillin therapy has proved extremely dependable. The dose should be 3 to 5 lakhs of Penicillin G, Sod. or Pot. every three hours, day and night for a minimum of five weeks. No compromise should be permitted on this dosage schedule. Sulphadiazine may be considered a useful addition for the first ten days of treatment. The usual precautions in the use of sulphonamides must of course be observed.

We have treated a few of these cases with tetracyclin and got good results. Although tetracyclin has the advantage of being given by mouth, there is no doubt it often upsets the digestive system although it seems to do so less than oxy- or chlorotetracyclin. As with bronchiectasis, considering the long duration of treatment, chloramphenicol is not considered a suitable drug to use. It has been our experience as well as of those reporting in recent literature, that the availability of these antibiotics has made it possible to cure acute lung abscess in a relatively short period of time, without the need for surgery. In most of the cases, evidence of clinical improvement as indicated by the loss of fever, reduction in pulse-rate and sputum volume, clearing of the foul smell in the expectoration, disappearance of the toxic, severely anaemic and anxious state, was observed in less than two weeks. The patient could then look after himself and have an interest in his food and surroundings. But as will be reported again in connection with pulmonary tuberculosis, it should be remembered that the time taken for clinical improvement is very much less than the time necessary to attain roentgenographic evidence of complete healing of the lung abscess. This has been termed the total cure time and may be anywhere between 60 and 120 days. It is absolutely essential that the patients must be watched with serial chest films until the lesion has completely disappeared, leaving behind only a thin scar. It is certainly advisable also that throughout this period the patient is confined to bed most of the time.

Supportive treatment in the way of good nursing care, nutrition, bronchoscopy and drainage and postural drainage based on the exact segmental location of the abscess will all undoubtedly shorten the total cure time.

Industrial lung diseases.—This aspect of respiratory diseases is perhaps the one that has been most neglected by Indian workers. Twenty years ago, it was glibly stated without any scientific support that there was no pneumokoniosis among the

miners in Kolar goldfields and other mines in India. Since then, there has been some evidence to show that exposure to industrial dusts must produce the same results in every part of the world.

The problem of free silica exposure and silicosis in mica miners of Bihar was investigated. Medical examinations were made of a representative sample of 329 miners including chest roentgenograms. The chemical nature of the rock dust as well as the degree of dustiness in the mining operations were determined. The rock dust to which the miners were exposed varied in its silica content from 11 to 67% with a median of 42%. The degree of dustiness varied from one occupation to another and was highest for pneumatic drilling alone with no dust control measures and lowest for wet drilling. Nodular and conglomerate silicosis was found in 34.1% of the miners and was directly associated with the degree of dustiness of the occupations as well as the duration of time that the miners had worked in these occupations. Pulmonary tuberculosis was found in 18.6% of the miners.

Bagasse is the term used for broken sugar-cane after the extraction of the sugar. This has been in extensive demand since the last war. Bagasse contains 5 to 7% of silica. The type of pneumokoniosis produced by this dust is called Bagassosis and has been reported in India. The clinical features appear to be more acute than in the other types of industrial diseases. It is believed that there is a factor of allergy involved in the response of the lungs to Bagasse.

However, the most severe type of pneumokoniosis is the one associated with the handling of Beryllium compounds. Originally, the manufacture of fluorescent lamps involved the exposure of the workers to a phospho-rescent powder, zinc beryllium manganese silicate. The resulting disease was sometimes very acute, producing considerable dyspnoea, and an X-ray appearance hardly distinguishable from miliary tuberculosis.

Pulmonary amoebiasis.—For a long time we have noted this clinical entity of a patient with signs and symptoms of respiratory inflammation including hæmoptysis with radiological abnormalities in the right lung, particularly at the base. In an article in *THE ANTISEPTIC* (July 1937) on "*Observations on Tuberculosis in Madras*" I made a reference to this and also how the clinical features including hæmoptysis and the opacity alike disappeared with emetine injections.

The exact pathology of the lesions which may involve the lung parenchyma or pleura or both has, I am afraid, not been completely worked out. A liver abscess may rupture into the lung and produce an inflammation which may even go on to abscess formation. If, at the time of rupture, pleural adhesions are not present, a state of pyo-pneumothorax can result. Pleural effusions containing serous fluid or the typical chocolate-coloured pus of amœbic infection, have been noted in certain cases.

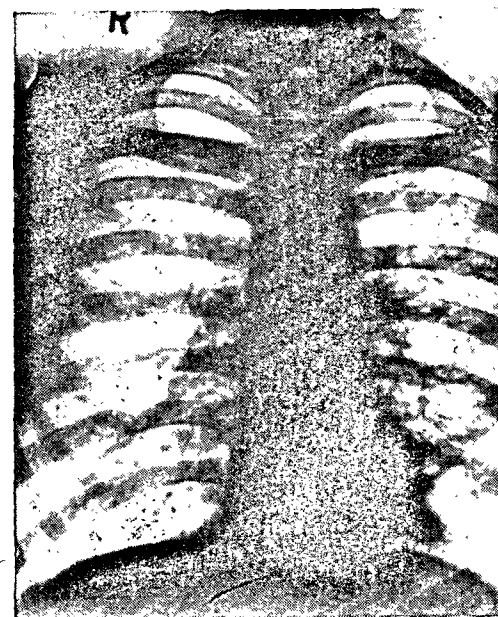


Fig. 1. Cystic Disease.

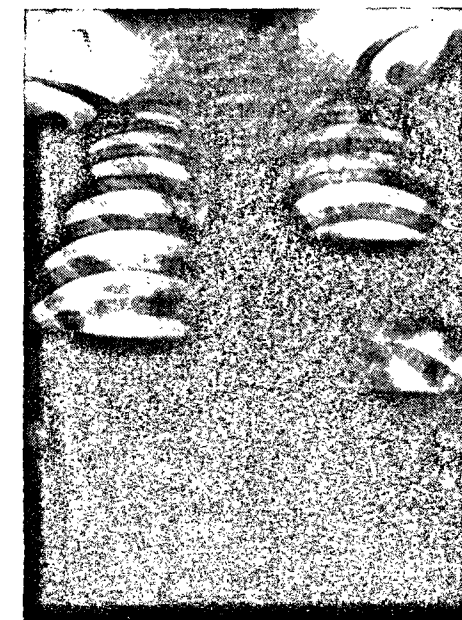


Fig. 2. Three cysts showing infection with fluid levels.

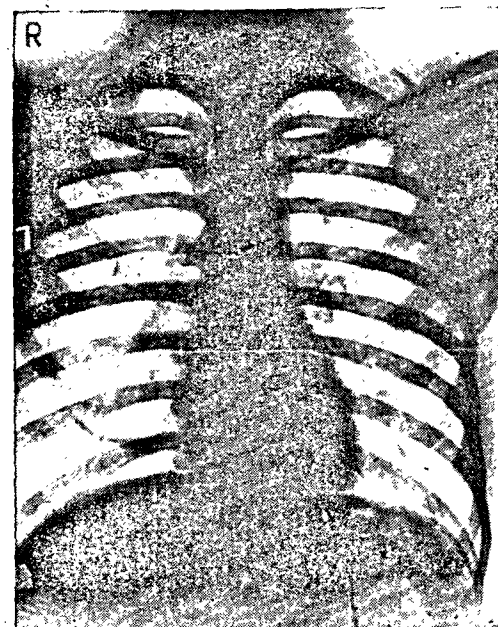


Fig. 3. Solitary cyst—right lower lobe with fluid level.

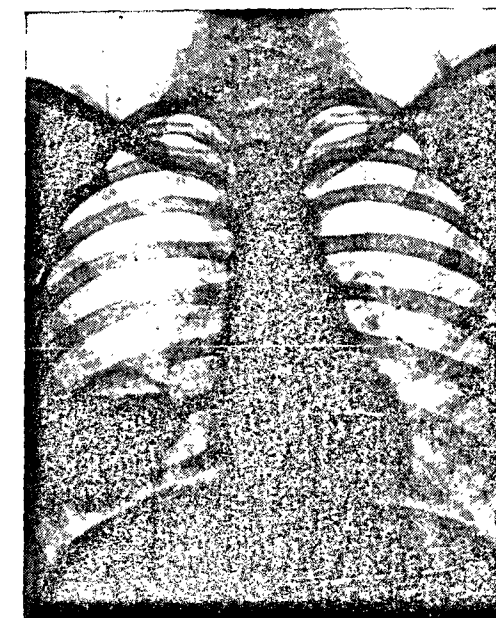


Fig. 4. Hydatid cyst—right lower lobe P.A. view.

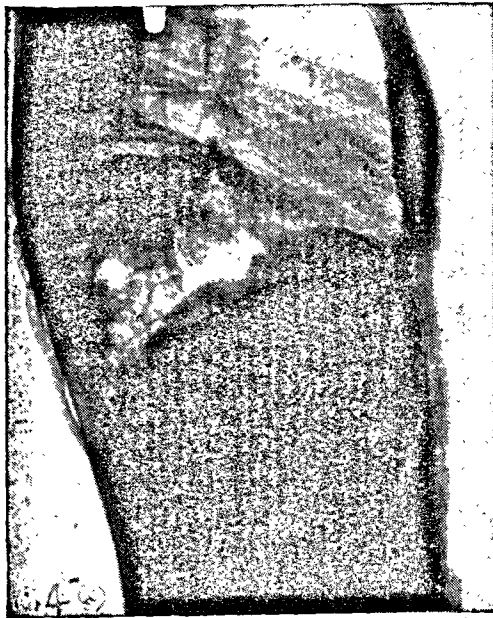


Fig. 4 (a). Hydatid cyst—right lower lobe, right lateral view.

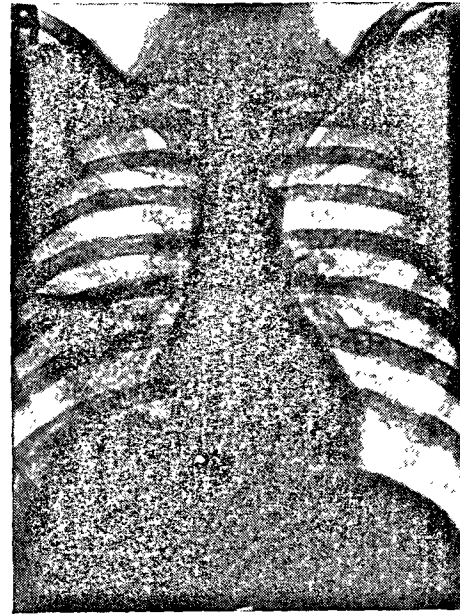


Fig. 5. Bronchogenic carcinoma with atelectasis, right middle lobe, P A. view.

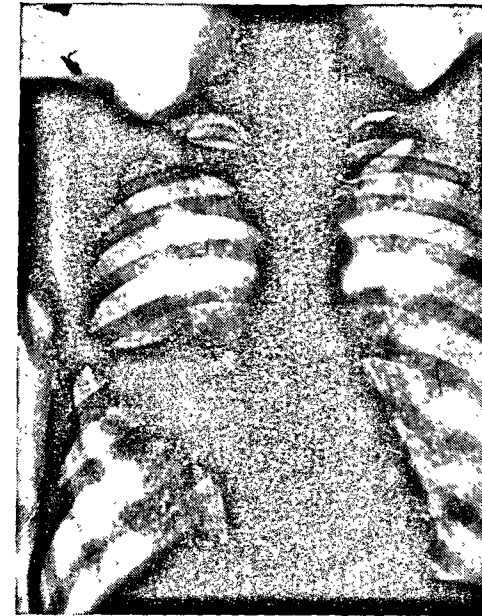


Fig. 7. Br. carcinoma simulating abscess.

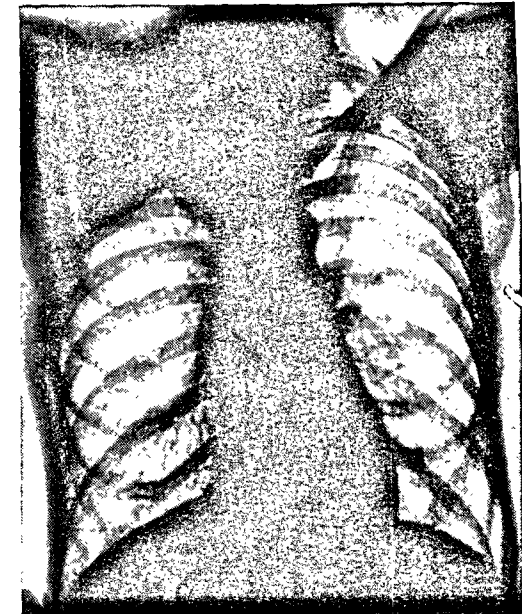


Fig. 8. Pancoast tumour, right upper lobe.



Fig. 5 (a). Bronchogenic carcinoma with atelectasis, right middle lobe, right lateral view.

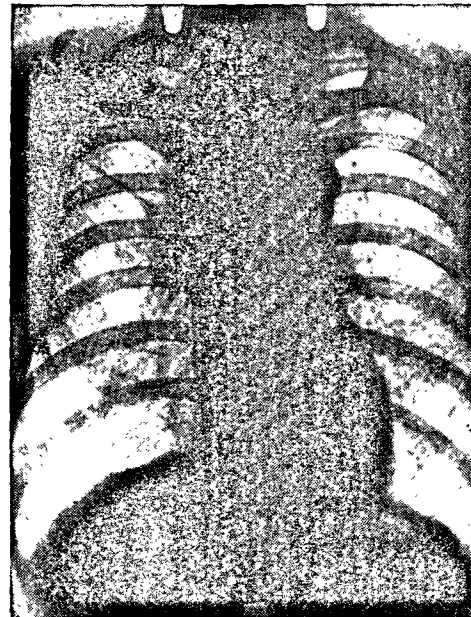


Fig. 6. Anaplastic carcinoma with marked mediastinal adenitis.



Fig. 9. Secondary deposit from pelvic cancer.

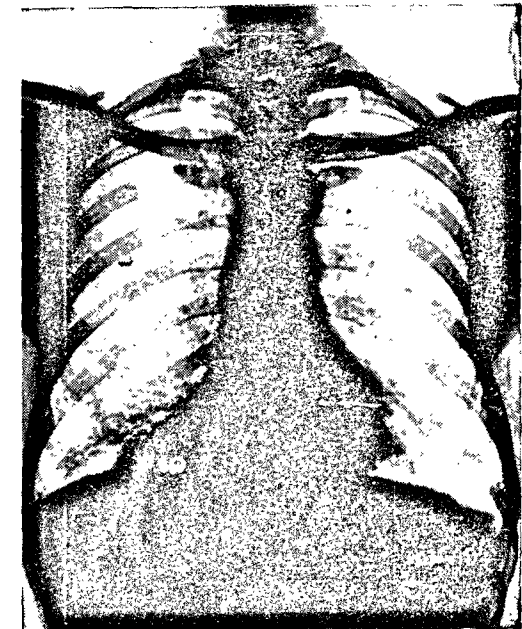


Fig. 10. Foreign body (paper clip), right lower lobe.

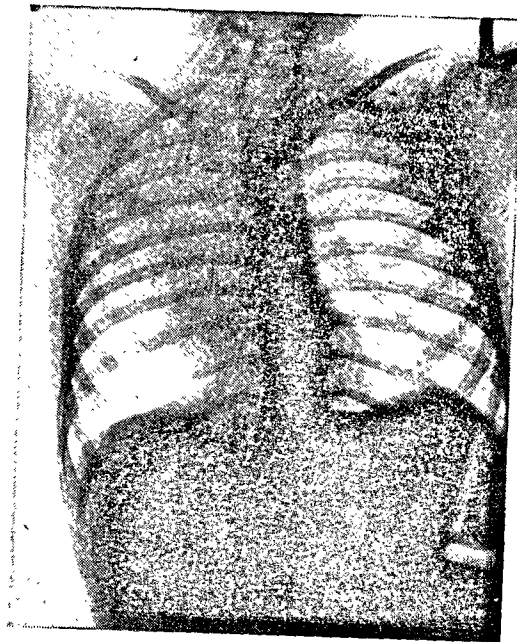


Fig. 11. Foreign body (betel nuts), right upper lobe.

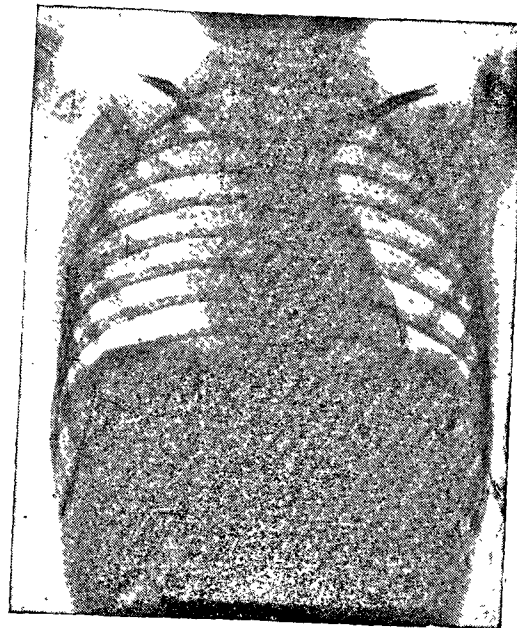


Fig. 11 (a). Foreign body (betel nuts), after bronchoscopic removal.

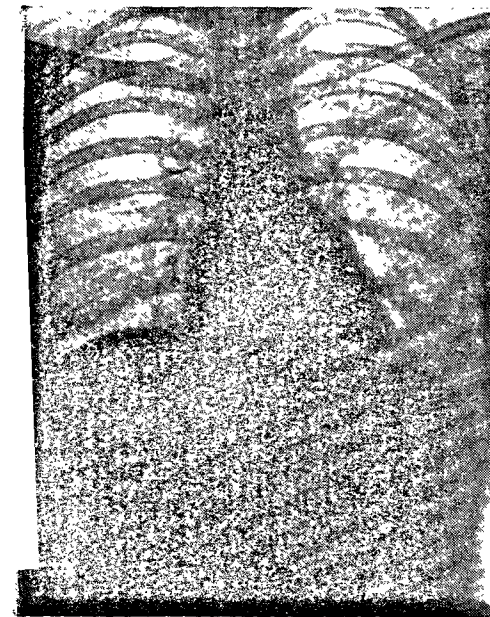


Fig. 13. Virus pneumonia, left infra clavicular region.

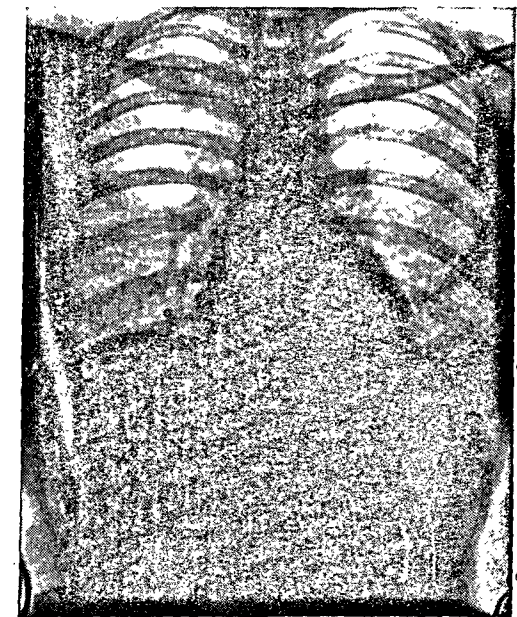


Fig. 13 (a). Virus pneumonia, clearing in twelve days.

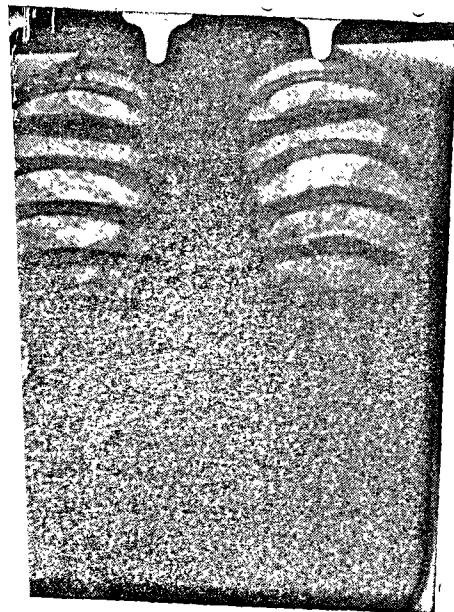


Fig. 12. Virus pneumonia, both bases.

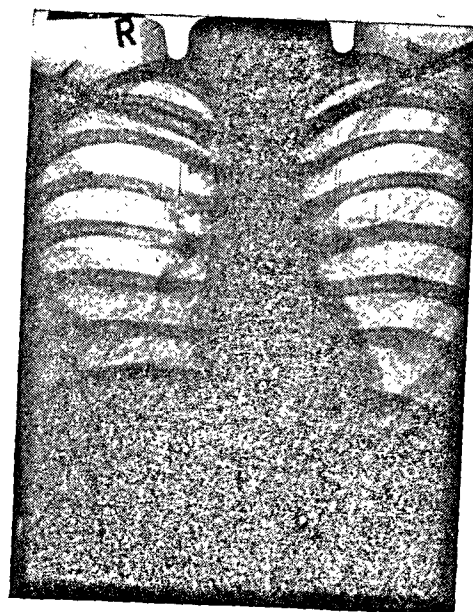


Fig. 12 (a). Virus pneumonia, clearing within 8 days.

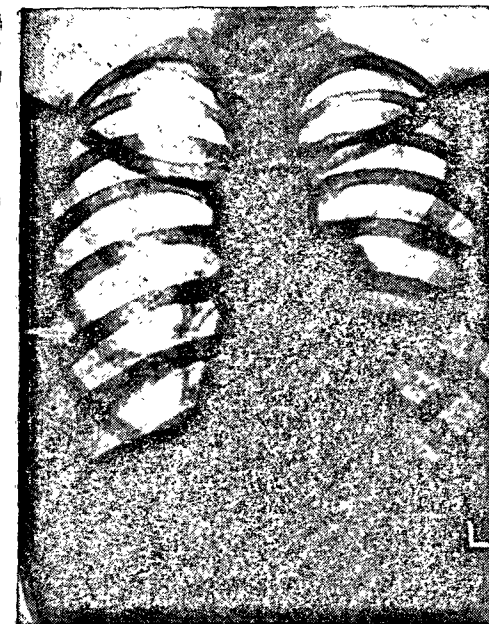


Fig. 14. Abscess lung, left upper lobe, P.A. view.



Fig. 14 (a). Abscess lung, left upper lobe, left lateral view.

MYOCARDIAL INFARCTION IN YOUNG MALES

Roth and Pepe observed 20 men between the ages of 32 and 40 years who had myocardial infarction due to atherosclerotic coronary artery disease. The clinical diagnosis in all of them was firmly established by a characteristic history; by the clinical aspects including increased sedimentation time, fever, and leukocytosis; and by characteristic electrocardiographic findings. Nineteen of the 20 were labourers or craftsmen, and 1 was a white collar worker. This predominance of manual labourers is in sharp contrast with other reports, which show a predominance of professional and managerial personnel among young patients with myocardial infarction. Fourteen of the 20 patients were heavy smokers, using between 40 and 100 cigarettes daily; 4 were moderate smokers, consuming 10 to 20 cigarettes daily; and only 2 did not smoke. This is a higher number of heavy smokers than would be found in a corresponding group of young men chosen at random. The alcohol-intake did not seem unusual in this group. Coronary artery disease or other vascular disease was present in the families of 10 of these patients.

Most of the patients had elevated blood cholesterol and uric acid levels and a decreased blood iodine level and basal metabolic rate. Seventeen were over-weight and 9 showed a heavy growth of hair, particularly on the chest and fingers. Only 2 showed hypertension, which improved greatly after their attack. None showed thyroid disease, diabetes, rheumatic heart disease, polycythemia, or familial hypercholesterolemia. Two had xanthelasma of the eyelids. Arcus senilis was present in 4. Eleven had their initial attack without warning; 9 had experienced angina pectoris on effort from 1 week to 9 years prior to their myocardial infarction. In 9 the attack came on while they were doing unusual work and in 2 while they were doing their usual work. In the remaining 9 the attack occurred while they were at rest. None of these 20 patients died, despite the fact that 1 developed cardiac failure and 2 had thrombophlebitis, 1 with a pulmonary infarct. All showed excellent functional recovery. Sixteen have returned to their previous or somewhat easier work. The incidence of coronary artery disease has increased in general and in young men particularly. Chest pain in young men therefore should be recognized as a possible indication of coronary artery disease.—(*Connecticut M. J.*, 21: 12-15, Jan. 1957; via *J.A.M.A.*, March 23, 1957).

PROPHYLAXIS OF ISONIAZID NEUROPATHY WITH PYRIDOXINE

During treatment of tuberculosis with isoniazid the most frequent and significant toxic reaction met with, has been the appearance of signs of injury to the peripheral nerves, chiefly numbness and tingling of the hands and feet, occasionally of more serious changes also. There is evidence in the literature that vitamin B₆ protects against nerve injury by isoniazid without interfering with its chemotherapeutic activity.

In the National Jewish Hospital in Denver, Vitamin B₆ is now administered as a routine in one dose of 25 mg. daily to those taking 8 mg. isoniazid per kg. bodyweight and 50 mg. daily to those taking more.

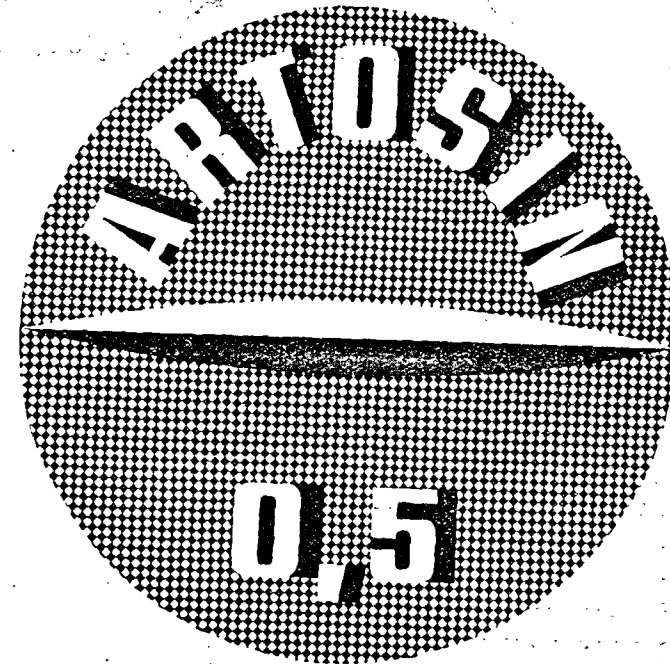
A study of 274 patients so treated for from 2 to 17 months showed nerve symptoms in only 11, and in 8 of these an increase in the dose of Vitamin B₆ administered, permitted the continuation of the isoniazid treatment without further neurological complications. Eight of the 11 patients were receiving isoniazid at the highest dosage, 16 mg. per kg. bodyweight daily.—(*New Eng. Jour. Med.*, 1956, 255: 118-122).

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systems which convey electricity to distant places, and (c) in industries and homes where low tension currents are used for various purposes.

The extent of injury from contact with an electric current depends on the interaction of several factors. Baldrige (1954) emphasizes the first six of the following seven:—

(1) *Voltage*:—Currents in excess of 1,000 volts are generally described as high tension and 1,00,000 volts are used to transmit electric power over long distances. Very high voltages of 20,000 to 2,00,000 are used in diathermy or deep X-ray therapy; but are not harmful to the body because of the frequency of oscillations at a million cycles a second. Low tension currents, 110 to 230 volts are generally utilized in the home and in industry, the former for lighting and for most household appliances, the latter for electric motors, ovens and for other special purposes. Fatal shocks have been reported with even 25 volts.

(2) *Amperage*: or the intensity of the current is computed by dividing voltage by resistance; but the resistance is frequently impossible to determine after an accident. Amperage of 70 to 80 milliamps with alternating current or of 200 to 250 milliamps with direct current is considered dangerous to man.

(3) *Type of current*:—In general, alternating currents of relatively low frequency are the most lethal. Alternating currents with such high frequency as 1,000,000 cycles are used safely in diathermy machines. Among the low voltage currents used in households, alternating currents of 110 or 220 volts are more dangerous than direct currents of the same voltage. The average cycles are 50 to 60 per second. Under the same voltage, direct current will be less dangerous than alternating current because with the latter it will be more difficult to shake off electric wire or get away from it. For various reasons, mainly considerations of economy, an A.C. supply at 220 volts is adopted in India and in other countries. The use of D.C. is restricted only to areas where it has special advantages or where it is essential, such as electroplating industry or for intermittent operation of heavy machinery or for electric traction in tramways, etc. With the disappearance of the electric tramways, the D.C. system in the Madras City is being rapidly changed over to the A.C. system.

(4) *Resistance*:—Skin and bone offer the greatest resistance and are therefore, most likely to be injured. The heavily callosed dry skin of the palms of a labourer might offer the greatest resistance from a million to two million ohms. Bone has a resistance of about 900,000 ohms, while mucosæ offer a resistance of about 2,000 ohms. Blood is said to be the best conductor in the body and it has been shown that most of the

current passes along the blood vessels. The skin resistance varies with its location, thickness, cleanliness and especially degree of moisture. "Sweating appreciably reduces resistance; the fall was estimated by Cardian to be from 30,000 ohms to 2,500 ohms; when the skin was moistened with water or saline there was a further fall to between 1,200 to 1,500 ohms. Furthermore, changes in the skin produced by the current decreased resistance to only 380 ohms, but, once burnt, the resistance of the skin rises and this may cause a break in the circuit. If however, the tissues are carbonized, conduction through them improves." (Polson, 1955).

There is less danger from 1000 volts with a dry contact than 110 volts with a wet.

(5) *The path of the current*:—No fatal cases are reported, regardless of the extent of local damage, in which the current passed from foot to foot. On the other hand, death usually occurs when currents traverse the chest or brain. *The point of entry* modifies the severity of the shock. Contact with the left hand and the left side of the body was observed in a large percentage of fatalities.

(6) *The duration of contact*:—In general, the severity of the disturbance is proportional to the duration of the flow of the current. Low tension might kill when contact is maintained for the space of minutes. Moreover, a low tension current is liable to cause the victim to grip the conductor, whereas high tension shocks are likely to throw the victim aside and the contact is lost immediately.

(7) *Factors pertaining to the victim*:—The general physical condition, the existence of mental distress, certain diseases notably cardiac disease, a state of surprise not anticipating a shock are also said to influence the effect of the passage of electricity through the body.

The mechanism of death.—*Immediate death*:—Might result from (a) vagal inhibition—(surprise cases); (b) ventricular fibrillation; (c) respiratory failure mostly from interference with the medullary centres, while there are a few who die of mechanical asphyxia when the current causes violent and prolonged convulsions.

Remote death is rare but might result from one or more complications of electrical injury, namely, burns, blunt force injuries, hæmorrhage, infection, neurological changes, gangrene or embolism.

Low tension currents seldom lead to any remote complication.

TREATMENT:—The essentials in treatment are:—

(1) To extricate the victim from the current (*vide infra*).

(2) To treat the apparent death instantly and continuously by artificial respiration. Remarkable success follows if this is adopted within 3 minutes of the accident. Recovery is unlikely when it is delayed for 20 minutes; yet those responsible for rescue attempts must be urged to accept defeat only when signs of death are unequivocal. The Board of Trade's instructions indicate that artificial respiration should be maintained for 4 hours at least. Maclachalen (quoted by *Glaister* 1947) believes that success may result after many hours of work in shifts apparently on a lifeless victim and says that of 479 cases in which breathing had stopped, 323 were restored to life by these methods.

The victim may be given cardiac and respiratory stimulants by injection and in cases of coma, lumbar puncture may be necessary.

Post-mortem appearances are chiefly:—(1) Electric burns, (2) blunt force injuries caused by a fall; } External

(3) Signs of shock; (4) signs of asphyxia. } Internal and non-specific

1. *Electric burns*:—Jellinek makes a distinction between "electric marks" and actual "burns" produced by a flash or by ignition of clothing (quoted by *Polson*, 1955). *Camps* (1956) describes three kinds of electrical burns, namely, (a) contact burns (b) spark burns and (c) flash burns.

In actual practice, it is found difficult to distinguish between an electric mark and a small electric burn. The mark may be seen as a slightly depressed brand which is gray or grayish yellow in colour or as pricked out spark mark while the burns may show varying degrees of severity with even actual cooking and charring of the skin and underlying tissues. Metallization or blackening of the skin surface may occur around the entrance of the current as a result of the volatilization of the metal of the electrode by the intense heat and the deposition of the metallic compounds that are formed.

The ability of an electric current to effect a burn on entering or leaving the body is dependent upon the temperature to which the tissues are raised by the heat produced by the current flow. Electric energy is transformed into heat which in sufficient quantity may produce the burns. The burning temperature is determined by the intensity of the current, the duration of its action and the resistance at any given point of contact. The formula by which the heating effect of a current is calculated ordinarily: $H = \frac{C^2 R}{4.187}$ in which H is gram calories per second, C is current in amperes and R is resistance in Ohms. (According to Ohm's law, $C = \frac{V}{R}$, or $V = CR$ and heat production in VC; Hence $H = CR \times C = C^2 R$).

The following possibilities may be considered and explained by the laws of physics:—

(a) With a current of a given voltage, the maximum temperature will be produced where the resistance is maximum along the path of the current and consequently the greatest burning effect will occur in the skin where the resistance is greatest i.e. at the points of *entrance* and *exit*. With a fixed V, C is diminished when R is increased and heat production or $C^2 R$ falls off in greater proportion.

(b) With high tension currents, the heat production is sufficient to produce a severe burn even when the skin is dry. With a high V, C becomes proportionately high and $C^2 R$ is sufficiently high to cause burns even when R is somewhat high.

(c) With low tension current, if the resistance is high as when the skin is dry, the amperage may not be sufficient to produce a serious shock or to effect a burn.

With low V, and high R, C becomes low and $C^2 R$ is correspondingly lowered.

(d) With low tension current, if the resistance is reduced as when the skin is moist, there may be sufficient amperage to produce a severe and even fatal shock without necessarily causing a skin burn especially if the contact is only for a brief interval.

With a low V and low R, C may be sufficient to produce a shock.

(e) With low tension current, flowing through a contact for sufficiently long period of time, heat production may cause a severe and deep burn, because the generation of heat bears a linear relationship to time.

(f) With low tension current, if the electric contact is diffuse as with a body submerged in a bath-tub full of water into which a live wire has fallen, the heat production may be insufficient to produce any burns at all, despite the fatal shocking effect of the current.

Heat production in terms of calories per cubic mm. of surface per second may be too low to produce a burn but yet C may be more than enough to paralyze respiration or circulation.

It is clear, therefore, that the electrical marks or burns are seen usually at the points of entrance and exit of the current. The lesion at the *point of entrance* is frequently located in the hand, often on the fingers, but depending on circumstances may occur in other places on the body. The current usually *emerges* from one or both of the lower extremities, or from an upper extremity opposite to the one through which it entered or from other locations depending on the circumstances and on how the body is grounded. The skin may be ruptured as though by a minute explosion or punctured by an emerging electric spark

with the production of a small carbonized hole. Marks may be absent especially at the exit in a certain percentage of fatal accidents. In certain cases multiple lesions are found in the region of the flexures where the current passes across the joints instead of around them. In high tension electrocution, in addition to entrance and exit burns, other electric burns may be produced at various points where the clothing is in contact with the skin. Occasionally the clothing is set on fire and flame burns are produced. However, electrothermal injuries should not be confused with the burns caused by contact with an object that has been rendered hot by short circuit. Contact with such a superheated conductor can cause severe and instantaneous burning even though no electrical flow takes place through the skin.

2. *Blunt force injuries* depend mainly on the height from which the victim falls and the place of the fall.

3. and (4) The appearances due to the shock and the asphyxia have no specificity and consist mostly of generalized congestion and cyanosis, some dilatation of heart and petechial hæmorrhages in the serous membrane.

Microscopic characteristics of the current marks although not specific for electric injuries are nevertheless helpful at times in establishing the diagnosis in a doubtful case. The heat generated at the points of entrance or exit may produce small circular vacuoles in the stratum corneum, a lesion that is most striking when it occurs in the thick horny layer of the skin of the fingers and palms or the soles of the feet. The vacuoles form in the sweat ducts probably as the result of steam production and expansion of those structures. A honey-comb or Swiss-cheese-like appearance is produced. The epidermis in the centre of the burned area may be denuded of its superficial layers. In the deeper layers of the epidermis there is elongation and palisading of the cells and nuclei and the distortion gives the epidermal cell pattern a whorled appearance. In some cases, the epidermis and corium are compressed, and the latter may assume a lilac colour when stained with hæmatoxylin and eosin. The cells and nuclei of the hair follicles and sweat glands may also show spindling distortion. Vesiculation of the epidermis and also charring of the skin and subcutaneous tissue may be found in some cases but the other changes are usually encountered in the margins of such charred and blistered areas (*Gonzales et al*, 1954). A detailed description of the neuropathological changes in fatal electrocution has been given by Critchley (1934).

Current marks can usually be distinguished from abrasions or post-mortem artefacts produced by artificial respiration, for the last two do not show any signs of burning. A distinction can also be made between current marks and post-mortem blisters, for the electric lesion splits the layers of the epidermis,

while the bullæ of decomposition separate the entire epidermis from the corium. The microscopic appearance of an electric burn does not establish that it was intravital, for similar lesions can be produced by the action of electricity on a dead body, and the electric lesions are not pathognomonic in as much as they can be simulated by the application of a red hot object to the skin. Nevertheless, the current marks are valuable criteria of electrocution when considered in connection with the circumstances of the case.

The medico-legal aspects.—Suicidal and homicidal cases are rare and can easily be distinguished by the circumstances. Investigation of accidental cases might be useful, especially when the question of compensation has to be faced.

Analysis of 24 cases autopsied between 1950 and 1955.—*Current*:—High tension current in 9 cases and low tension current in 15 cases (alternating or direct).

Place of occurrence:—Road-side, open field, railway track, M.E.S. Cabin: studio 9 cases; and well, residential houses and hotels: 15 cases.

Sex of the victim:—Males: 21 cases; females: 3 cases.

Age of the victim:—17 between the second and third decades of life; and 7 between the fourth and sixth decades of life.

Time of the year:—12 between April and July (hot months) the seasonal incidence is significant in that sweating and moist hands might have favoured shock.

Occupation at the time:—15 cases during work.

Wet hands or feet:—6 cases definitely known; no information about others.

CASES 1 and 2:—The history was that on 14-2-1950, two people were found dead in a house in Perambur when attempting to put a wet cloth on an iron wire after their bath in the morning.

CASE 6:—Hindu male, aged 25 years, while cleaning the vessels in the kitchen room of the House Surgeon's Quarters attached to the Government General Hospital, Madras, on 21-1-1952, fell down on opening a watertap and died immediately.

CASES 8 and 9:—A Hindu male, aged 25 years. While digging a well, a motor engine was used to pump out water from the well. The deceased felt some electric shock when he was removing the earth from this well, as a result of which he fell down and died on 29-9-'52.

A Hindu male, aged 50 years, died under the same circumstances in the same well.

Interval between accident and death:—20 reported as instantaneous; 1 delayed by a few hours; and in 3 no history was available.

Post-mortem findings.—*Non-specific*: (a) Generalized visceral congestion in all the 24 cases; (b) fluid or clotted blood in the heart chambers in 24 cases; (c) Tardieu's spots in 16 cases; and (d) food in the stomach in 17 cases.

External lesions:—(a) Current marks—not too typical, yellowish, punctate, elliptical or linear marks often described as abrasions, present in 12 cases; (b) burns, very marked, in 13 cases; (c) charring, in 2 cases, and (d) other injuries like lacerations, bruises, fractures present in 6 cases.

The distribution of the marks and burns showed the significant fact that the left hand or the left side of the body was involved in 16 of these cases. No injuries were present in 2 cases. Burns and blunt force injuries were both present in 2 cases where there was the history of a fall from a height after receiving the shock.

CASE 19:—A Hindu male, aged 30 years. It was alleged that the deceased an electrician, while connecting electric wires at 11-50 hrs. on 19-1-'55 at a height of 25 feet at one of the Studios in the Madras City slipped and had a fatal fall. Autopsy showed the presence of electric burns along with multiple blunt force injuries and hence electric shock was responsible for the fall and probably also for the death, though it is neither possible, nor necessary to give a categorical opinion about the cause of death.

TREATMENT:—8 cases were brought to the hospital for treatment, while 2 were seen first by local doctors. No mention is made in any of the cases whether artificial respiration was tried or not.

Conclusion.—It is clear from the above analysis that useful manpower is being lost to the country on account of electric accidents. The immediate management of accidents both by the lay and the medical people has not been successful in saving the life of any of the victims in Madras City. Most of the victims in this series appear to have been given up as dead before any treatment was given and in the few seen by doctors, there is no information whether artificial respiration was tried sufficiently long or not. Perhaps some of the above accidents could have been prevented if only the lay people had a little more knowledge about the prophylactic measures. Hence the following instructions are quoted on the management and prevention of accidents.

Management of an accident.—When a person is in contact with electricity, immediate steps should be taken to free him from the current. Very great precautions must be taken to prevent further accident; therefore, if the current cannot be switched off, the rescuers must be fully insulated before putting themselves in contact with the victim and the current which is

passing through his body. In the absence of rubber gloves, a thick dry garment rolled round the hands, or a long wooden handled brush should be employed for disengaging the body (Glaister, 1954). On no account should an attempt be made to pull away the victim from the conductor with bare hands (Sydney Smith, 1949). Dry clothing in many folds or a dry piece of wood should be used instead of bare hands (Lyons).

Prevention of accidents.—The following precautions are mentioned in Taylor's Principles and Practice of Medical Jurisprudence (1956):—

(1) Never touch any part of an electric lighting or heating apparatus with wet hands.

(2) Never handle any part of an electric lighting or heating apparatus while touching a water tap or pipes or any other metal which will make a good contact with earth.

(3) Fix electric fittings as far as possible away from water-fittings; use "string pull" switches wherever danger might exist and earth any apparatus.

Subramanyam says that the following precautions should be observed when using domestic electric appliances (Lyon's Medical Jurisprudence for India, 1953).

(1) Plug points which are below the height of a table should not be left open. The sockets should be closed by a plug or should somehow be made inaccessible to children who may insert their fingers into the holes.

(2) Hot plates have to be handled with greater care than electric heaters of other types. Metal utensils should be of such shapes as will not come in contact with the heating elements; their bottoms should be wiped dry so that liquids will not drip on the elements. When cooking on a hot plate, it is advisable to stand or sit on a wooden plank and not touch adjacent walls. If this is done the risk of electric shock will be reduced.

(3) It is advisable to use 3-pin plugs in connecting electrical appliances. The earth pin should be connected to the metallic casing of the appliance.

(4) Before replacing any fuse wire, the main must be switched off.

(5) While inserting a plug or a lamp into a socket disconnect the same. One should make sure that his hands are not wet. It will be better to hold the fitting with a piece of dry cloth.

Summary.—(1) The mechanism and the effects of electrocution are discussed. (2) A brief analysis of 24 cases of electric accidents in the Madras City is given. (3) The importance of the management and the prevention of such accidents is emphasized.

Acknowledgement.—I am deeply indebted to several authors and editors from whose books on Forensic Medicine, extracts have been freely used by me, some of which have not been specifically acknowledged in this article.

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SURGERY FOR COARCTATION OF THE AORTA

General application of surgical correction of coarctation of the aorta is justifiable, but only experienced surgeons should perform the operation.

The most common indications for surgery are hypertension and congestive heart failure. Aortograms should be made only when atypical lesions or serious associated defects are suspected. Associated lesions such as patent ductus arteriosus, aortic valve deformity with insufficiency or stenosis, and aneurysmal dilatation of intercostal arteries impair prognosis.

Mortality is greater among young and old patients than in the middle-aged group. In children under 1 year of age, fatalities increase if surgery is delayed even for a few days. Irreversible complications may also arise when surgery is deferred in older patients.

Total mortality among 1,601 patients with surgically treated aortic coarctations was 8.6%. Heart failure, shock, pulmonary oedema, and cardiac arrest or fibrillation were the most common causes of death. Careful preoperative investigation and avoidance of anoxia and acute hæmorrhage may help to reduce mortality.

Disruption of the anastomosis accounted for 28 of 125 deaths. Possibly, wound infections were responsible for 11 of these fatalities. Interrupted mattress sutures should not be attempted unless the surgeon is exceptionally capable. Direct suture of the arterial ends, rather than grafting, should usually be done. Subclavian aortic anastomoses should be avoided, if possible.

Hæmorrhage during surgery caused 16 deaths. Operating before excessive dilatation and thinning occur and meticulous care to avoid trauma will probably lessen this hazard.

Long-term results among 1,405 surviving patients were satisfactory in over 96%.—(*Dis. Chest*, 31: 468-78, 1957 via *Mod. Med.*, 15-6-1957).

MALPRACTICE may be defined as the failure on the part of a physician or dentist properly to perform the duty which devolves upon him in his professional relation to his patient; a failure which results in some injury to the patient. Thus, malpractice has two essential parts to it: first, that the physician fails to do his duty, the second, that definite injury to the patient is the result of his failure.—(*Current Medical Digest*).

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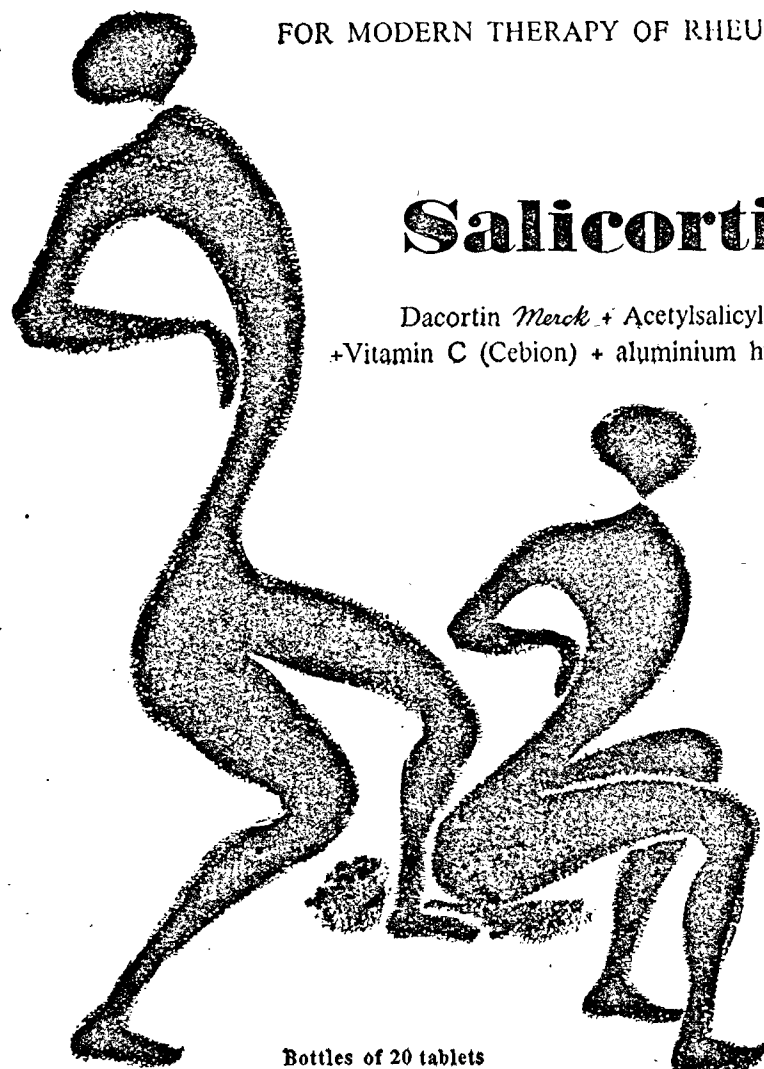
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SOME OBSERVATIONS IN CASES OF ANÆMIA IN BOMBAY*

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THE incidence of anæmia of various types is extremely common in general practice. In this paper, I have tried to correlate the clinical with the bio-chemical and hæmatological findings. No selection of the cases was ordinarily made and cases admitted primarily for anæmia were taken for study as far as possible. This series consists of 360 patients of whom 248 were males and 112 females, admitted in my unit at Sir J. J. Hospital and Sir H. N. Hospital, during the last few years.

TABLE I
Showing the Age Incidence

Age period	No. studied
Below 10 years	11
10 to 20 years	48
21 to 30 years	119
31 to 40 "	98
41 to 50 "	46
61 to 70 "	7
Over 70 "	7

As will be seen from Table I the incidence of anæmia was highest between the ages of 20 and 40. All patients below the age of 10 were from Sir H. N. Hospital in earlier years. As the hospital has now a separate children's department, there was no case in the present series in the last few years and so there were only 11 patients in the group below 10.

Occupation.—There was nothing of special significance as regards occupation in this series, as the number included labourers, clerks, students, housewives, domestic servants, hawkers, etc.

Diet.—The detailed history about diet in these cases revealed a diet inadequate in quality in the dyshæmopoietic group. It was very difficult to work out the exact dietetic intake, but the protein intake was definitely poor in most cases in this series.

Presenting symptoms.—The incidence of the presenting symptoms is shown in Table II (page 682).

General weakness and signs of exhaustion and fatigue were the most frequent complaints. Loss of weight varied from 2 to 40 pounds within 4 months. 71 patients complained of watery diarrhœa and three of fatty diarrhœa. The duration ranged from 1 to 6 months, while the total duration of other complaints was from one month to 2 years.

Past illness and history of probable aetiological factors.—The history was taken of each patient in order to find out the aetiological factors responsible for production of anæmia.

*Specially contributed to the ANTISEPTIC

A history of fever for more than a week within the last three months was elicited in 94 cases and a history of recent bleeding in 46. A history of syphilis was found in 18, and diarrhoea off and on for more than 2 months in 90 cases. Jaundice in the past was found in 10 cases. In none was there any history of either liver trouble or bone infection or radium therapy. Many of these patients had had some sort of treatment, outside, before they were admitted in the wards. 40 patients gave a history of similar complaints in the past.

Clinical findings.
—*Skin*:—A healthy complexion was

noted in 20% of the cases, a pale complexion in 52%, an yellowish complexion in ten per cent and an earthy complexion in 18% of cases. No definite correlation was possible between complexion and the type of deficiency. It was observed that the skin was normal inspite of a hæmoglobin value of less than 7 g., and the skin looked pale inspite of an Hb. value of over 12 g. in some cases.

Nails:—In 187 cases, the nails were pale, in 69 they were flat and pale, in 19 they were pale and spoon-shaped, while in 85 the nails looked normal pink. Correlation of the incidence of nail changes with the degree of anæmia, gave observations similar to those in skin to some extent.

Pigmentation:—It was observed in 113 cases in this group, mainly on the nail beds and in a few over the legs. In 5 cases, pigmentation was noted over the soft palate, tongue and buccal mucosa. The pigmentation was found mostly in A.M.-factor-deficient anæmias, and less frequently in pure iron-deficiency anæmias. Eighty per cent of the cases with pigmentation lacked the A.M.-factor.

TABLE II
Showing the Incidence of the Various Presenting Symptoms

Serial No.	Complaints	No. of cases	Approximate percentage incidence
1.	General weakness	257	74
2.	Fatigue and exhaustion	240	68
3.	Loss of appetite	181	52
4.	Loss of weight	140	40
5.	Stomatitis	100	28
6.	Diarrhoea	90	26
7.	Dyspnœa on exertion	87	25
8.	Oedema on feet	88	25
9.	Flatulence	78	22
10.	Giddiness	72	20
11.	General bodyache	60	17
12.	Glossitis and sore tongue	52	15
13.	Burning in throat	33	10
14.	Pain in calf and legs	20	6
15.	Burning in feet	18	5
16.	Mild dysphagia	14	4
17.	Heaviness in limbs	10	3
18.	Jaundice	2	0.6
19.	Paralysis of the inferior extremities	1	0.3

Some patients had multiple presenting complaints.

Oedema:—Swelling of the feet and/or face was one of the chief complaints on admission in 88 cases. It was observed that œdema was not directly related to the severity of the anæmia. In all these cases of œdema, renal and cardiac factors were ruled out. The causes of œdema were mainly hypoproteinæmia and in some avitaminosis. The correlation between œdema, anæmia and protein values will be found in Table IV on page 688.

Tongue:—Raw, glossy, sore tongue was observed in 91 cases and was mainly found in P.A.-factor-deficiency anæmias; only 4 cases with such a tongue had pure iron-deficiency anæmia.

Alimentary system:—62 cases showed mild or moderate liver enlargement, 58 showed splenic enlargement and 8 cases had ascites.

The cases having liver enlargement and/or splenic enlargement were further investigated in order to ascertain the exact cause in each of them. After ruling out amœbiasis, cirrhosis, Banti's disease, hæmolytic anæmia etc., there were still some cases where no definite cause of the liver or spleen enlargement could be found. Many of these cases had a high icterus index and an indirect positive Vanden-bergh reaction. Coomb's test was not done in these cases for lack of the required reagents. It is very likely that some of these cases might have been due to some atypical hæmolytic disorder. The exact cause of splenic enlargement in many such cases without a history of malaria or other causative factor was difficult to make out. The exact pathogenesis of hepatic and/or splenic enlargements in such cases of anæmia was not clear.

Cardiovascular system:—A critical examination of these cases for the presence of murmurs, revealed a hæmic murmur in 72 cases, which was best heard either at the pulmonary or mitral area. All severe cases of anæmia did not manifest a hæmic murmur and a hæmic murmur was often present even in cases with a moderate degree of anæmia. Hæmic murmur was found only in 30% of cases of severe anæmia where the R.B.C. was below 2 million per cmm., showing that the severity of the anæmia was not the sole cause in the production of such a murmur.

Central nervous system:—Eighteen patients complained of burning in the feet; 20 complained of heaviness in the limbs and 6 of pain in the calf-muscles. One patient with pernicious anæmia had signs of sub-acute-combined degeneration in this series.

After taking the history and carrying out the physical examination, the probable ætiological diagnosis was determined in each case. The cases were classified into four clinical categories:—(1) Dyshæmopoietic; (2) hæmorrhagic; (3) hæmolytic; and (4) an unclassified group with splenomegaly.

(1) *Dyshæmopoietic*:—Two hundred and sixtysix cases belonged to the dyshæmopoietic group.

It was not possible to find out the precise nature of the defect in each case in this group. In all these cases, more than one defect was often either in the intake or in the absorption. Eleven cases in this group were likely Addisonian pernicious anæmia; 47 cases belonged to nutritional megaloblastic anæmia; 138 were of normoblastic macrocytic anæmia, lacking in A.M. factor either with iron and/or other nutritional factors such as protein, vitamin B, C, etc.; 35 belonged to either nutritional iron deficiency microcytic anæmia or normocytic anæmia due to bone-marrow hypoplasia and other such factors. In 35 cases of this dys hæmopoietic group indices could not be done.

(2) *Haemorrhagic group*:—There were 49 cases in this group which included bleeding piles, menorrhagia, ankylostomiasis, delivery-bleeding etc. Ankylostomiasis was present in 18 patients, all of whom were from the poorer working class. The incidence of ankylostomiasis in the better class of people was less than 1·5% while it was 12% in the lower classes.

(3) *Haemolytic group*:—Two of the 34 cases in this group were due to primary acholuric jaundice and 12 were probably due to malaria. In the rest, no definite cause of hæmolysis could be fixed. Besides this group, the icterus index was more than 10 and the Vandenberg reaction indirect positive in the other 32 cases. No apparent cause could be traced. As Coomb's test could not be done in all these cases it is not possible to state whether some belonged to the auto-immunized hæmolytic group. In none of these cases were the warm or cold or acid agglutinin tests performed. The typing of various hæmoglobins and the detection of various anti-bodies in the blood serum were not carried out owing to lack of facilities. So it was not possible to specify the exact diagnosis in every case in this group. Even the cases of probable malaria as judged from the history and splenomegaly were not proved cases of malaria as none of them showed parasites in the blood. High icterus indices in some may be due to hæmolysis because of some error in the collection of blood specimens. Two cases of primary acholuric jaundice which were from the same family showed besides jaundice and splenomegaly, spherocytosis, increased fragility and the presence of gall stones.

Eleven cases had anæmia with splenomegaly without showing any definite signs of any hæmolytic disorder. Bone-marrow in these cases was either normal or hyperplastic and the peripheral blood showed microcytosis with hypochromia and pancytopenia. These cases could be grouped as either primary hyper-splenism or Banti's disorders. It was difficult in such cases to fix the specific diagnosis. Two cases in this group, where splenectomy was performed for doubtful hyper-splenism, later turned out to be cases of Banti's disease.

Hematological findings.—The cases were grouped as mild, moderate and severe according to the R.B.C. count. The cases having an R.B.C. count of below 2 millions per cmm., were labelled as *severe*, those with 2 to 4 millions as *moderate* and those with 4 to 5 millions as *mild* ones; 166 cases belonged to the severe type; 181 to the moderate and 13 to the mild type. The hæmoglobin values were determined by Sahli's hæmoglobinometer and were compared also with blood-iron findings in some cases. Hb below 5 g. was found in 161 cases, between 6 and 12 g. in 183 cases, and 12 to 15 g. in 16 cases.

INDICES:—All the absolute indices were ascertained in 322 cases and the cases were grouped accordingly.

Mean corpuscular volume (M.C.V.):—In 66 cases it was below 80 cubic microns; between 81 and 95 in 60; and above 95 in 196 cases. Thus about 63% cases belonged to the macrocytic, 20% to the normocytic and 21% to the microcytic groups.

Mean corpuscular hæmoglobin (M.C.H.):—In 108 cases, M.C.H. was below 27 μ (Micro-microgram); in 91 cases it was between 27-32 μ and in 123 cases it was between 32-57 μ . Thus 39% cases were hyperchromic, 28% normochromic and 35% hypochromic.

Mean corpuscular hæmoglobin concentration (M.C.H.C.):—In 174 cases, it was below 32%; in 148 it was between 32 to 38 per cent, which range was taken as normal saturation. Thus 56 per cent of cases had hypo-saturation.

The classification of anæmia on blood-findings is done on the basis of the above indices. It is customary at present to classify the cases on R.B.C. size and hæmoglobin saturation. This method does not give an exact idea of hæmoglobin in individual R.B.C. I personally feel that the laboratory classification of the anæmia should be such as to give a clear-cut picture of actual size of the R.B.Cs. and actual hæmoglobin content of R.B.Cs. and hæmoglobin concentration in blood. If all these data are available one gets a clear-cut picture of the type and characteristic of the particular case of anæmia. For these reasons, I suggest that all these anæmias should be classified, by taking all 3 indices together and in such an event, chromicity should be decided on the M.C.H. value and hæmoglobin saturation on the M.C.H.C. value.

There has often been considerable confusion in classifying these anæmias on the basis of these various indices, as often the chromicity of the R.B.Cs. is decided on iron-saturation by some, while others take M.C.H. as chromicity. If we take up the saturation index (M.C.H.C.) as chromicity then the term hyperchromic is misleading, if it is used in the literal sense because it implies over-saturation and over-coloration. Thus we cannot hold the hyperchromic anæmia if we consider the saturation as

its index because the R.B.C. cannot be over-saturated with hæmoglobin. For this reason, it is better to take M.C.H. as the corresponding appropriate index for chromicity. M.C.H.C. should not be used for classifying whether the anæmia is of the hyperchromic or the hypochromic type. Therapeutically, when one has to decide on the therapy to be given, it is not possible to get a very clear picture of the anæmia unless we take into consideration all the three indices for classification.

If this were done, one can avoid confusion and get a correct view of the existing type of anæmia, and the exact deficit. For example, when we take M.C.H. for chromicity when M.C.V. goes up twice the normal and if M.C.H. goes up $1\frac{1}{2}$ times normal, though the anæmia would be macrocytic hyperchromic, the iron-saturation will fall below normal, suggesting a deficit of iron for saturation. This stresses the importance of considering all the 3 indices together in every case of anæmia. In this article, as well as in my previous papers^{4,5}, I have taken all the 3 indices into account and the chromicity is based on M.C.H. while saturation is based on M.C.H.C. Thus we get about 8 common types of anæmia in practice. In this classification, the R.B.C. count has always been below 5 millions and so some anæmias which may be asserted as a proportionate reduction of hæmoglobin compared to normal or excessive R.B.C. are not included. In the present series, the anæmias are grouped as shown in following table:—

TABLE III
Showing the Grouping of the Anæmias with Indicated Therapy

Serial No.	Type of anæmia	Total cases	Incidence per cent. approx.	Indication of therapy required
1.	Normocytic, normochromic, normo-saturation type	43	14	Anti-megaloblastic factor or iron not indicated
2.	Normocytic, hypochromic, hypo-saturation type	21	7	Iron
3.	Microcytic, hypochromic, normo-saturation type	16	5	Iron
4.	Microcytic, hypochromic, hypo-saturation type	49	16	Iron
5.	Macrocytic, hyperchromic, normo-saturation type	96	30	Anti-megaloblastic factor
6.	Macrocytic, hyperchromic, hypo-saturation type	23	7	Anti-megaloblastic factor with iron
7.	Macrocytic, normochromic, hypo-saturation type	46	15	do.
8.	Macrocytic, hypochromic, hypo-saturation type	28	9	do.

It will be seen from the tabular statement on p. 686, that all the three indices are essential in classifying anæmias.

OTHER INDICES:—Other indices like volume-index, colour-index and saturation-index, were also calculated in all these cases and compared to the M.C.V., M.C.H. and M.C.H.C., but were often found to be erratic and unreliable. Absolute indices are far superior to the above three indices and the reason is obvious; these indices are calculated in comparison with something taken as normal standards and the normal standards of different nations show wide variations.

White blood-cell count:—This was done in each case to see whether a reduction in R.B.C. count affected the W.B.C. count. The results showed that every case of severe anæmia is not always associated with leucopænia.

Erythrocyte sedimentation rate:—In 70% of cases of anæmia of all types, the E.S.R. was normal after correction for packed cell volume, while it was slightly raised in 30%.

Vanden-berg reaction:—This was ascertained in 220 cases; it was negative in 80 cases; indirect positive in 114; delayed direct positive in 25 and immediate direct positive in one case.

Icterus index:—It was estimated in 220 cases and it was up to 5 units in 95 cases; between 5 and 10 units in 92; between 10 to 15 units in 24; and from 15 to 25 units in 8 cases.

The icterus index and Vanden-berg reaction were abnormal in 35% of cases, though the normocytic group consisted only of 15% of cases. As stated previously hæmolysis occurring in specimens of blood during transit to the laboratory may be responsible in some cases.

Stools examination:—Infection with *Ankylostoma duodenalis* was detected only in 18 cases, showing a low incidence as the majority in this series came from the middle class population. Forty patients harboured either ova of round worms or whip worms or amœbic cysts. Three per cent of the cases showed excessive fat in their stools.

Gastric analysis:—This was done in 219 cases. 60 cases had complete achlorhydria, 20 of these showing histamine-fast achlorhydria; 11 out of these were probably cases of pernicious anæmia as all of them had macrocytic anæmia with megaloblastic bone-marrow. They were all between 35 and 50 years of age. As the incidence of pernicious anæmia is very low in India, I put down these cases as probable rather than definite cases of pernicious anæmia as they could not be followed up. Seventy-two cases had a normal curve while in 17 there was hyperchlorhydria. One case of normoblastic microcytic anæmia had histamine-fast achlorhydria.

Myelogram :—Myelogram was taken in 284 cases in these series. The site of puncture was either the sternum, the lumbar spine or the iliac crest. A normoblastic picture was found in 216 cases, 61 of which showed a hypoplastic, normoblastic reaction, while 39 showed a hyperplastic, normoblastic reaction and the rest showed a normal reaction. Megaloblastic bone-marrow was found only in 58 cases. Normoblastic bone-marrow was found in 135 cases of macrocytic anæmia. 57 of these had had some kind of treatment prior to admission, while in the rest there was no definite history of specific treatment and still the bone-marrow showed a definitely normoblastic reaction. This cannot be easily explained as one would expect a megaloblastic picture in such cases. This is different to what one thinks it should be, as the patient with a macrocytic peripheral picture in the absence of any previous therapy usually shows a megaloblastic myelogram. The incidence of such normoblastic reaction in macrocytic anæmia has been reported by Jhatakia *et al*^{2,3} (1948). Such a non-megaloblastic reaction in macrocytic anæmia has also been reported by Darb¹ (1948). The incidence of non-megaloblastic macrocytic anæmia is quite high in the present series. Many of these cases of anæmia lacked both the A.M. factor and iron-deficiencies as revealed by the absolute indices. Is it possible that these dual deficiencies are influencing the bone-marrow picture? The exact mechanism and pathogenesis of such bone-marrow findings are not clear.

Plasma-proteins :—Plasma-protein estimations were carried out in 226 cases. The Kjeldhal micro-method with Nesslerization was used in this estimation. The relation between the R.B.C. count, the occurrence of œdema and the plasma-protein values were studied. It was found that the occurrence of œdema is not always according to the severity of the anæmia. Out of 99 with an R.B.C. count below 2·5 millions per cmm, œdema was present in 25 cases, while out of 53 with an R.B.C. count of over 2·5 millions per cmm, œdema was present only in 14 cases. The adjoining Table IV shows my findings.

The occurrence of œdema was related to plasma-protein in some but not in all cases. In 86 cases, where the total plasma-protein was below 5 g. % œdema was present in 54 cases, and in

TABLE IV				
The Incidence and Relation of Total Plasma-protein, Albumin and Globulin Values with Oedema and Anæmia				
Serial No.	Total plasma protein in gr.	Total No. of cases	Cases showing œdema	Cases showing no œdema
1	0—3	23	18	5
2	3—5	63	36	27
3	5—7	118	24	94
4	7—9	19	2	17
5	9—11	3	1	2
Total		226	81	145

32 cases inspite of low-protein values, there was no clinical œdema. It was also observed that 54 patients who had œdema, showed albumin-values below 4 g. per 100 cc. but all the cases with an albumin-value below 4 g. did not show clinical œdema.

An attempt was made to correlate the type of anæmia in the presence of hypoproteinæmia. Both macrocytic and microcytic types of anæmia were met with in this hypoproteinæmic group in the proportion of 84% and 16% respectively. In the light of the generally poor standard of nutrition among the majority, it was difficult to isolate cases where the anæmia may have been chiefly due to protein-deficiency.

Summary.—(1) The results of analysis of 360 cases of anæmia studied during the last few years, are given with reference to their clinical features, ætiology, types according to indices and laboratory-findings. (2) The important clinical ætiology in 75% of cases was defective nutrition at some stage, mainly in the intake of various factors. (3) The classification of anæmia cases by taking three indices together rather than two as is being customarily done at present is stressed. (4) The very common incidence of non-megaloblastic macrocytic anæmia is pointed out. (5) Various bio-chemical and other laboratory data are correlated with the clinical findings.

Acknowledgements.—My grateful thanks are due to Dr. B. B. Yodh and Dr. A. Karmally, Chiefs of my units at Sir H. N. Hospital and J. J. Hospital respectively for their kind co-operation, and for their suggestions and guidance through all these years. I thank the staff of the pathological departments of both these hospitals for their valuable help in carrying out various investigations. I thank the Superintendents of these two hospitals for their kind permission to publish this paper and the various registrars and house-men of both the hospitals for their help.

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FORCEPS DELIVERY CONTRAINDICATIONS

An unengaged head in almost all instances is considered to be a contra-indication for a forceps delivery. The risk to both mother and baby makes it unwarranted to attempt such a procedure. The lower the head is in the pelvis, the easier and safer will be the operation.

A knowledge of the type and size of the pelvis is important because it helps the operator rule out cephalopelvic disproportion, which is a contra-indication to a forceps delivery. Also it enables him to utilize the best available diameters for traction.....In pelves with a narrow transverse diameter throughout (anthropoid), also those with a male outlet (android), it must be decided whether or not to rotate an occiput posterior position to anterior before extraction. In some cases, with prominent ischial spines or a prominent coccyx, it is necessary to rotate a head which is in the direct occiput anterior position back to the anterior oblique.—(*via Current Medical Digest* May 1957).

CONGENITAL ANOMALIES OF THE ARM AND HAND

This report is based on a study of 166 children with congenital anomalies of the arm and hand. Webbing of the fingers or syndactylism accounted for 77 cases, or 47%. Ectrodactylia or congenital absence of one or more fingers was observed in 29 or 17% of the children, 12 of whom had absence of the thumb only. There were 13 children with polydactylism, 10 with brachydactylism, and 6 with cleft hand. The radius was absent in 10 and the ulna in 5 children. Most of the other classifications were represented by only a few cases. Hereditary transmission was observed only in syndactylism, polydactylism, clinodactylism (deviation of fingers), and in absence of thumbs. It was most frequent in those with syndactylism, in that the parents or grandparents of 16 of the 77 patients showed a similar deformity of the hand.

Syndactylism occurs once in from 1,000 to 3,000 births. In some cases a loose web extends only part way up the fingers; in others the union extends to the end of the fingers; and in some the fingers are so tightly joined together that it is difficult to recognize the mass as two fingers. In an occasional case the entire shaft has fused and there is a common tendon, as well as blood and nerve supply, for the two fingers. In a few rare cases the thumb and all of the fingers are fused into one mass. Syndactylism is frequently associated with ectrodactylia, hypodactylia, or deformities in other parts of the body. Forty-eight of the 77 children with syndactylism had other deformities, such as syndactylism of the toes, clubfoot, hare-lip, cleft palate, deformities of the hips and the ulna, and mongolism. As regards the surgical repair of syndactylism, some advise postponement to the age of 3 to 8 years. If the fingers are the same length and do not checkrein each other, there is little harm in waiting. But if the end of the 4th finger is joined to the end of the 5th finger at the same level, the 4th finger is checkreined so that the interphalangeal joints cannot move, and the finger develops a flexion deformity. In polydactylism the extra finger is removed for cosmetic reasons and to improve function. Sometimes it is difficult to decide which finger to remove. This is true in double thumbs. At times it is well to wait until the patient is older before removing the extra finger. Occasionally, the doctor delivering the baby will remove the extra finger or toe shortly after birth. This is usually an ill-advised procedure. Prostheses are useful in patients with congenital absence of part of the arm.—(*J.M.A. Georgia* 46: 5-8 Jan. 1957; via *J.A.M.A.*, April 6, 1957).

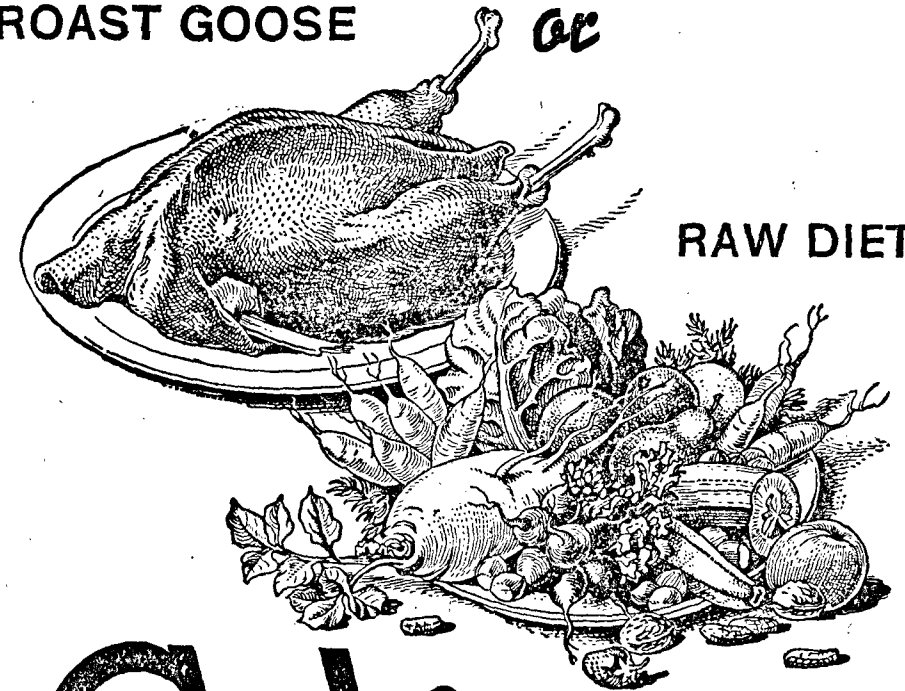
SURVIVAL AFTER PEPTIC ULCER HÆMORRHAGE

Prognosis after acute hæmorrhage due to peptic ulcer varies with age.

Mortality from initial hæmorrhage due to gastric or duodenal ulcer among 310 patients was found to be about twice as great in patients over 50 as in younger patients. Among those who survive the first hæmorrhage, risk of subsequent hæmorrhage does not vary significantly with age, but repeated hæmorrhages are more often fatal to old patients. Prognosis for medical management is poorest for patients over 50 years of age who have had multiple acute hæmorrhages.

Of patients who recover from the initial hæmorrhage without surgical treatment, about 45% will die, have other hæmorrhages, or have operations within five years. Among those who have 2 bleeding episodes, two-thirds will have a third hæmorrhage within five years of the second. Death rate is about the same for the first and subsequent hæmorrhages. Massive hæmorrhage from duodenal ulcer does not increase the risk of death from causes other than ulcer.—(*New England J. Med.*, 255: 973-978, 1956, via *Modern Medicine*, 1-2-1957).

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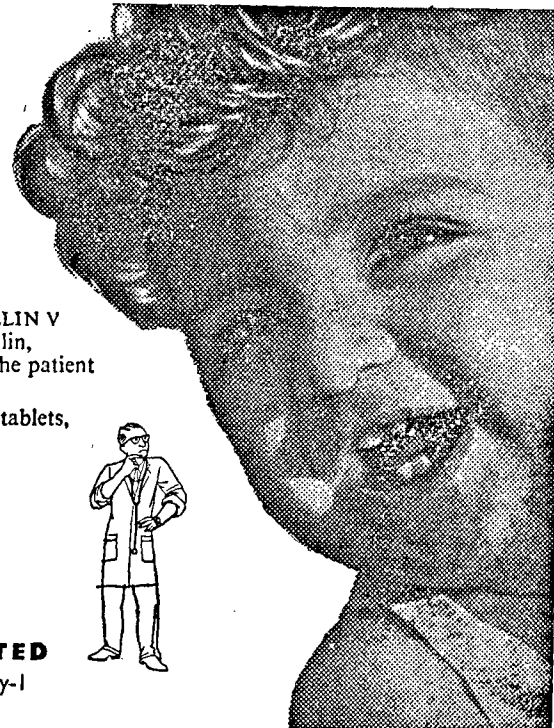
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PROBLEMS IN HYPERTENSION IN GENERAL PRACTICE*

R. D. PENDSE, M.B., B.S.
Poona

WHAT is normal blood pressure? At present, there is no conformity on this point. More confusion is added, by the failure to distinguish between average on the one hand, and normal on the other. The average of any measurement can be easily obtained by simple mathematical calculations, while normal figures are not so readily to be had, because they are the expressions of clinical experience gained in the practice of medicine. *Normal* is the clinical concept, while *Average* is a statistical concept. It is necessary to remember that departure from the average does not *per se* mean ill-health. In hypertension we are not concerned so much with the range of normal blood-pressure, as with the upper limits of normal blood-pressure. Master and his co-workers in reviewing the whole subject in their thought-provoking book—“*Normal Blood Pressure*,” have given the following figures:—

TABLE I
Showing the Upper Limits of Normal B.P.
in Healthy Subjects

Age period in years	Males		Females	
	Systo- lic	Diasto- lic	Systo- lic	Dias- tolic
35—39	160	100	150	98
50—54	176	106	180	108
60—64	190	110	190	110

(After Master et al)

These figures represent the upper limits of normal blood pressure in healthy subjects. In short, the above measurements are essentially an up-grading of the currently held upper limits of normal blood-pressure. They also take into consideration the variations in regard to age and sex. I personally find Master's yard-stick useful, for the figures are more in consonance with our experience in general practice. Normal blood-pressure has psychological variations, which on occasions, may approach hypertensive levels. The assessment of normal blood-pressure is a bed-side technique and though usually simple to carry out, it is quite possible that non-adherence to correct technique may give false readings. Since diagnosis rests mainly on the numerical findings, it is essential to follow strictly a uniform plan.

Problems in diagnosis.—In diagnosing hypertension, any rise above the upper limits of normal blood-pressure should be persistent, and not confined to the findings of one or two casual examinations. Diagnosing hypertension should not be based on a casual blood-pressure reading. By uncritical use, this instrument has done more harm than good. The terms ‘*Benign*’ and ‘*Malignant*,’ I think, are not happy ones. ‘*Benign*’ literally

* Paper read on the 2nd June 1957 at the 3rd Poona Congress.

Specially contributed to the ANTISEPTIC

means gentle, mild not severe. Benign hypertension may not be benign in its results, for it can also cause all the cerebral, cardiac, vascular and renal complications; since benign hypertension can also kill, it is in my opinion, a misnomer. As Loebb says in his *Text Book of Medicine*, it is benign, when the prognosis is over a period of years, and malignant when the course is over months. With modern treatment patients with the malignant type are known to have lived for a number of years and apparently it is no longer so malignant. It is also important to distinguish between hypertension and hypertensive disease. Hypertension by itself seldom causes any symptoms or signs. The pathological changes found in association with hypertension produce symptoms, signs, morbidity and ultimately death. With the onset of signs and symptoms, hypertension ceases to be mere hypertension; but it is hypertensive disease.

Having first diagnosed that the patient is suffering from hypertension, the second hurdle is to try to ascertain the cause. Fortunately for the diagnostician, but very unfortunately for the understanding of the subject of hypertension in over about 80 p.c. of cases, no cause can be found out, not only in general practice, but also in hospitals and by cardiologists, using all the modern exhaustive investigational aids at their command. This does not at all mean, that no investigations are necessary; on the other hand, some of the conditions causing hypertension are becoming radically curable and therefore, it is always essential to try to find out a cause, if possible. But the chances are remote because the ætiological factors in the causation of hypertension are still shrouded in mystery. Without going into the uncommon causes, I would mention a potent and not uncommon cause of hypertension met with in general practice: viz., genitourinary sepsis and allied lesions. The cause is many times remediable e.g., renal calculi, prostatic trouble, in which one can offer radical and complete cure for hypertension also. In general practice, psychological factors are exceedingly common, sometimes visible on the surface, many times buried deep down. Hypertension is only one of the manifestations of the disturbed mental poise; many other symptoms and signs of an autonomic nervous imbalance are quite evident. Systolic B-P is relatively more raised than the diastolic. With resolving of the conflicts, the hypertension also disappears. In general practice arteriosclerotic hypertension is quite common. This can be diagnosed by high pulse-pressure, high systolic pressure, low diastolic pressure, tortuous thickened arteries occurring in later age groups, enlarged aorta, and the heart not so enlarged as in essential hypertension. It is probably in these arteriosclerotic cases that hypertension is compensatory and many features can be satisfactorily explained by physical laws of hydro-dynamics of the conducting system.

II. Problems in our concept of hypertension.—As yet we do not know what causes hypertension in the majority of cases. Our diagnosis has to be 'essential hypertension.' The word "essential" is really a cloak to mask our ignorance. Without knowing the cause, it is very difficult to prevent a disease, or to effect a radical cure.

It is common experience that hypertension itself can exist without producing any signs or symptoms. The changes that are so frequently found in association with hypertension—pathological changes in vital structures like the brain, the heart, the kidney and the vessels—cause the symptoms, signs, morbidity and in the end death. We do not know what exactly induces these changes. Having seen the disastrous results, provoked by these pathological changes in a large number of hypertensive patients we are many times apt to designate these two, as cause and effect. But does such a relationship exist? *Firstly*, there is such enormous individual variations in the production of these pathological changes and *secondly* these changes show no definite relationship to the degree of hypertension or the length of its existence. We are ignorant as to what precipitates these complications, which occur quite frequently in hypertensive patients. But they occur also in normotensive and hypotensive patients and in other unrelated conditions. To my mind when two opposite conditions like hypertension and hypotension cause similar complications, any one of them by itself cannot furnish the complete answer. Probably, there is some common mechanism biochemical, hormonal, humoral or neural which decide the onset and severity of these complications. Sometimes the speed of evolution of these complications is so slow as to be stationary—on the other hand, in some patients without any obvious cause and without any marked departure in the height of blood-pressure, the course gets electrified so to speak and the complications follow in quick succession without even a slight respite. Why the tempo changes suddenly is a mystery. Our position in regard to the basic knowledge of hypertension is indeed lamentably poor but considerable research is going on and it is quite possible that in the near future, our knowledge will increase and rest upon sounder foundation.

III. Problems in prognosis.—It will therefore, be seen why prognosis in hypertension is such a difficult problem. The prognosis is almost unpredictable. Instances are not wanting of patients dying in a short time after their condition was found even by cardiologists to be satisfactory while patients who were considered to be in a bad state are known to have lived for 20 years and sometimes even to a ripe old age. We cannot predict when any one of our hypertensive patients will develop any of the

complications; and why? A patient has developed hemiplegia. How far and in what period would he recover, when he is likely to get a second attack, tomorrow, next week, next month, next year or after 25 years and then why? These are questions which confront us every day and few can answer any of them satisfactorily. As Geoffrey Bourne says, the blood-pressure reading alone is unreliable in 50% of cases. No great reliance should be placed on systolic level, because it is many times embarrassingly deceptive. Sex, age, weight, family history, dietetic habits, possibility of adjustments in life, personality make-up are all collectively helpful. Diastolic blood-pressure about 130 and above is always dangerous. Similarly, a malignant phase with eye changes is life-threatening, but fortunately it is exceedingly rare in general practice while it may be the reverse in hospitals. A rising gradient of blood-pressure over a period of time is more dangerous than a steady level. The onset of complications is determined, not so much by the actual height of the blood-pressure, but I think by the sudden changes in its level. Again among the hypertensive patients there are two distinct groups *viz.*, one is a safe group who, in spite of their raised blood-pressure and occasional symptoms and signs which are fleeting in nature, live for a number of years; the other group go down hill rapidly without much difference in the actual level of blood-pressure. It is necessary that we must have a fundamental knowledge which will help to distinguish the two groups. The problems of prognosis will be nearer solution, by shifting the emphasis from the actual height of the mercurial column, to the more vital appraisal of how the body is reacting to raised blood-pressure.

TREATMENT:—With the advent of the Ansolysin type of reliable drugs active by mouth, it is natural to consider whether they can be used as a routine early enough to prevent the disastrous complications. Hypertension itself cannot be prevented, obviously because it is yet not known what causes hypertension. Does the routine use of hypotensive drugs hold any hope of preventing, or prolonging the onset of the complications? In other words, should these drugs be used in treating patients with hypertension but without signs and symptoms? At a symposium held under the auspices of Ciba Foundation, the consensus of opinion appears to have been against such use, the reasons being that (i) in asymptomatic cases the course is usually over years and decades, (ii) the treatment has to be continued indefinitely, (iii) there are many hazards in such treatment, (iv) it cannot be ascertained at the end of the period whether the patient would not have survived without treatment.

Profs. Rosenheim and Macmitchell and Dr. Pereira were of the opinion that at present, there is no proof that such use,

improves prognosis. So at present there is no prospect of preventive treatment.

The use of the powerful ganglion-blocking drugs is definitely indicated when (i) the casual blood-pressure is Sys 250/Dias 130 or above and is persistent, (ii) in patients with congestive heart failure, (iii) in hypertensive encephalopathy, and (iv) in the malignant phase.

So these drugs should be reserved for an emergency and for severe cases. In mild cases, the general line of treatment and the use of the milder hypotensive drugs like Serpina and others are alone indicated.

Another controversial question is: when should we curtail materially the activities of the patient or confine him to bed? In this respect I feel many patients are unnecessarily condemned to a life of invalidism by the anxiety produced by the B-P readings. Probably they would be better off on their feet, exerting within their capacity. Body movements are necessary for vascular tone and collateral circulation. Here also the presence of or severity of signs and symptoms is more decisive than the height of the mercurial column. A hypertensive patient with a B-P 190/110 but with dyspnoea on exertion, a suffocating sensation at night or transient attacks of paresis, aphasia, diplopia, for instance, is in greater danger and needs active treatment more urgently than another mobile patient with a B-P of 220-120 but without signs and symptoms.

Another knotty question is: to what level should a raised blood-pressure be reduced? In the arteriosclerotic old hypertensives who form the large group in general practice, sudden substantial reduction is fraught with danger. Ganglion blocking-drugs are usually contraindicated in such cases. The raised systolic B-P. in these cases is compensatory to the hardening of the arteries. I think that, as a general rule, except in urgent cases like malignant hypertension and hypertensive encephalopathy for instance, the fall should not be abrupt. With due consideration to the age, sex and vascular status of the patient, the B-P level should be brought down somewhere nearer to the upper normal B-P level and to a level where the patient feels comfortable and free for most of the time from hypotensive symptoms like light-headedness, postural giddiness and floppiness in legs etc.

There can be no difference of opinion regarding the great importance in treatment, of prevention of anxiety neurosis and B-P-phobias in hypertensive patients. This by itself will go a great way in milder cases, while in the more serious ones it will form a very important part of other specific measures.

BLIGHTED TWIN: (REPORT OF THREE CASES)

The term "blighted twin" is used when one member of a twin pregnancy dies and is retained in utero while the other develops to a viable birth. The amniotic fluid of the blighted twin is absorbed, and the foetus becomes dried out and flattened; this is known as a "foetus compressus" or, if the process is carried on to a further degree, as a "foetus papyraceus." The author presents the histories of 3 pregnancies with a blighted twin. The first case concerned a gravida 6 who expected confinement on Oct. 26. The pregnancy had been apparently normal until 7 a.m. Oct. 1, when she experienced mild uterine cramps. At 9 30 a.m., she passed a macerated male foetus of about 4 months' development. The umbilical cord was wound tightly around the baby's neck, and this was probably the cause of death. Examination showed the presence in the uterus of another foetus with normal heart sounds. About noon the mother began to have active labour and at 2-30 p.m. delivered a premature male infant. There was a double placenta. One placenta appeared normal. The other was white, hard, and fibrotic. It apparently had been inactive for several months and had become completely fibrosed.

The second woman was admitted in active labour. The spontaneously delivered baby was a normal female infant. After a few minutes the placenta was presented, and it was followed by a small macerated foetus still enclosed in its amniotic sac. The third woman delivered a premature female infant spontaneously. A few minutes after the birth of the baby, the placenta appeared to be coming away, but when it was expelled it was found to be not the placenta of the first baby but a separate placenta with the sac intact containing a small macerated foetus that appeared to be of about 3 months' development. Most of the maternal surface of this placenta was covered with areas of infarction. A few minutes later the normal placenta of the first foetus was expelled. Investigators have noted episodes of vaginal bleeding, acute illness, sudden lower abdominal pain, or escape of amniotic fluid coincident with the estimated time of foetal death in multiple pregnancy. The presentation of a foetus papyraceus in front of the viable twin may confuse diagnosis during labour. Twin pregnancy should be suspected in cases of hydramnios, and spontaneous disappearance of hydramnios may be due to death of one foetus, as in the second of the reported cases. Rapid improvement in toxæmia may also be due to death of one twin, since the death of 1 twin and absorption of amniotic fluid reduces the intrauterine pressure and alleviates the placental anoxia.—(*Canad. M.A.J.*, 76: 216-218, Feb. 1, 1957 via *J.A.M.A.*, 27-4-1957)

METHOD FOR PREPARING CERVICAL SMEARS

Nieburgs, Beth el Hospital, Brooklyn, recommends the use of a modified menstrual tampon for cell collection and preparation of cervical smears to detect cervical carcinoma. Use of this inexpensive device may permit screening of the entire female population, since the tampon may easily be used for self-collection of cell material. However, the test should be done solely under medical supervision. The cone of cotton in a regular-size tampon is cut into 2 parts. The upper half is discarded and a piece of nylon sponge measuring $1\frac{1}{2}$ by $1\frac{1}{2}$ inch is substituted. The lower cotton cone is retained to support the sponge adjacent to the cervix. The tampon is introduced into the vagina and 2 strings, 1 attached to the cotton and 1 to the nylon sponge, are left protruding. After four to twenty-four hours, the tampon is removed, and the cotton is discarded. The nylon sponge is inserted into a small cardboard box which has glass slides on the top and bottom. With the box closed, the sponge is pulled out the open end, automatically making 2 smears. Smears were made with the tampon for 30 patients with known lesions of the cervix. Results were 100% accurate.—(*Obst. and Gynaec.*, 7: 10-14, 1956 via *Modern Medicine*, August 1, 1956).

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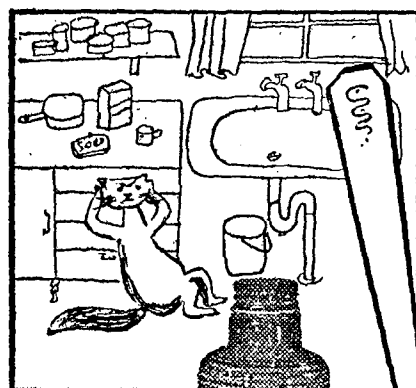
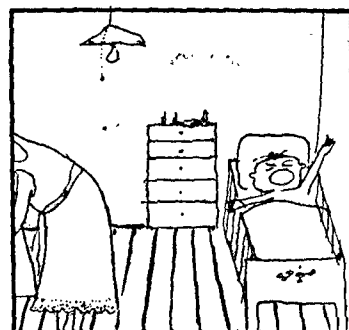
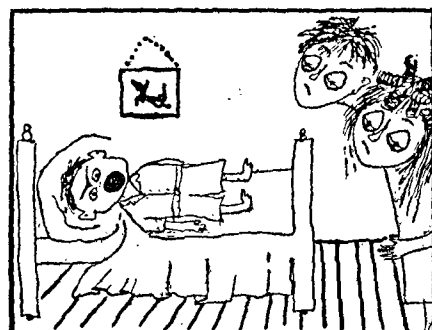
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SOME ASPECTS OF SKIN DISEASES IN THE RURAL AREAS *

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INDIA is mainly a rural country like most others in South-East Asia. Though stress has been laid on industrial medicine and dermatology in recent years, the problems of rural areas have been rather overlooked, if not entirely neglected; rural areas have certain special problems of their own. In this article, an attempt will be made to acquaint the readers with some aspects of skin diseases in the rural areas.

In the villages, people live by farming and growing food grains, cash crops, vegetables, fruits, and by dairy keeping and poultry farming. Sugar, tea and jute factories are also now coming up in rural areas, causing changes in the pattern of life. Then there are fishing villages where people depend on fishing for their living; so also are there mining villages in mining areas—coal, manganese etc. Moreover, villagers have taken to small scale cottage industries like weaving, basket work, toy-making etc., to supplement their income and also to utilize their spare time to advantage when there is no work in the farms. Rural areas have peculiar socio-economic problems e.g. illiteracy, ignorance, poverty and squalor. All these tend to produce superstitions which are very common amongst villagers. Poverty gives rise to mal-nutrition which, indeed, is very common amongst them. Poverty and sickness always go together in a vicious cycle. With the drive for literacy and community development, there is an impact of new methods on old conservative ways. There is, now, certainly a swing towards modernization and urbanization in rural areas. All these factors have to be taken into consideration when studying dermatological problems in these areas.

Unfortunately, the villages where 80% of India's population lives are poorly supplied with medical personnel. There are very few properly qualified doctors and nurses with the natural result that people are forced to seek the aid of quacks and charlatans. Besides, there are no specialists within easy reach. Quoting the example of my own hospital, the Skin Department of the Irwin Hospital caters to the need of a large population, living within a radius of at least two to four hundred miles all around.

So, what usually happens is that cases become far advanced or spoiled or complicated by the time they reach the distant

* Specially contributed to the ANTISEPTIC.

dermatologist. Cosmetic disfiguring and mutilation produced during this interval are often difficult to remedy.

Dermatitis and eczema.—Next to infections, dermatitis and eczema are the common dermatoses met with in the rural areas. Among farmers, the common causes of contact-eczemas are the irritant and sensitizing plants; in recent years, insecticides, fertilizers and cultivation machinery (tractors etc.) have been added to the farmer's equipment and with their increasing use, the incidence of dermatitis and eczema has certainly gone up. In tropical countries, infective eczemas (chiefly the post-traumatic) still form a big group. Infantile eczemas are somewhat rare; it may be due to the fact that children are breast-fed, mothers are careful about their diets while the children are still on the breast, and children do not play with plastic toys etc. Similarly neuro-dermatoses are rare because people are contented and free from the emotional stresses incidental to the faster tempo of urban life.

It is not possible to deal with the numerous kinds of plants in the villages and jungles in this paper. I will, just mention only a few of the common ones by way of illustration. Poison ivy (*Rhus toxicodendron*) must be familiar to everyone. In Hindustani, it is known as 'Bichhu buti' because it stings like a scorpion and produces severe dermatitis at the site of contact. The cashew tree (*Anacardia occidentalis*) is commonly grown in India, and its fruit is used as an aperitif; but the sap from the leaves and the bark contain Anacardole as their active ingredient which is an irritant and produces bullous dermatitis. Sometimes, the sap of the cashew nut is used as marking ink, and contact eczemas are common. Marking ink nut (*Semecarpus anacardium*) is more commonly employed for marking clothes sent out for washing. It causes sensitization, producing chemical eczema at the contact sites, usually the back of the neck. The castor plant belonging to the *Euphorbiaceae* causes severe dermatitis. The sap of the Fig plant is a phyto-photo-sensitizing agent and so also are Cajeput oil (from the *Eucalyptus* tree) and citrus peel. Contact with them tends to produce dermatitis followed by pigmentation. Circum-oral dermatitis is common amongst individuals who use the teeth for peeling oranges. Fig-packers tend to suffer from dermatitis. Parsnips make another photo-sensitizing group of plants (meadow-dermatitis) Ragweed (*Ambrosia artemisiifolia*) is a field weed, whose pollen and plant juices produce dermatitis.

Jute dermatitis and folliculitis are common in jute plantations and also in jute mills. On sugar-cane plantations, eczema is not usually seen. But in sugar factories, scaly and tylotic eczema of the palms, sometimes coupled with hyperkeratosis of nails are seen in workers who scrape the centrifuges and use large quantities of water.

Quite frequently, I have come across cases of eczema caused by the energetic use of highly alkaline soaps and those containing carbolic acid. Mustard oil is very frequently used by the Indian farmer for massaging the body and oiling the skin after a bath. Sometimes it is contaminated with irritant plants or fungi which often cause eczema. Moreover medicated and perfumed oils which are very popular produce contact eczema. Henna (*Lawsonia alba*) is harmless as a hair-dye.

Various kinds of fertilizers are used by the farmers. Phosphates are usually harmless; calcium cyanamide and nitrites can produce dermatitis. Manure made from cow-dung and farm refuse does not usually cause irritation.

The commonly used insecticides are pyrethrum flowers, derris, D.D.T. and dieldrine. Sensitization to them is rather uncommon. Derris powder produces scrotal dermatitis in derris factories. Citronella which is sometimes used as an insect repellent may produce eczema in susceptible individuals who develop a sensitivity to it.

Infections.—They form the biggest group in rural dermatoses. The common parasitic infestations peculiar to rural areas are:—

(a) *Harvest-itch* caused by the bug, *Leptus autumnalis*, which occurs in the autumn at the time of harvesting; these bugs attack the legs while walking through the grass or vegetation, and cause lesions which are irregular wheals and papules. Severe burning sensation is characteristic, beginning a few hours after the attack by the parasite.

(b) *Grain-itch* is caused by *Pediculoides ventriculosis*. It affects farm workers, porters and also people sleeping on new mattresses. The whole body is usually involved including the face and neck. Main lesions occur as papules, vesicles and wheals.

(c) *Water-itch* is caused by a mite, which is very common in the Assam tea plantations during the rainy season.

(d) *Copra-itch*, (e) *Cheese itch*, and (f) *pine-apple (Ananas) itch*, are all caused by mites. They occur in copra plantations, cheese-making industry and pine-apple plantations respectively. The lesions show-up as papules with blood-crusts on exposed areas.

(g) *Batata itch* is caused by the Batata louse (larva of *Trombiculum flui*) found in the grass. It causes itching on the legs. This louse can infest chickens and lizards.

(h) *Chiggers* is a parasite of grasses. It resembles the common flea, and affects the soles of the feet, especially the toes around the nails. It occurs mostly in Africa.

(i) *Cotton seed itch* is caused by an acarus found in cotton seed farms.

Besides the above parasitic infestations, pediculosis and scabies are the common ubiquitous parasitic affections which also occur in rural areas. Filariasis with the resultant elephantiasis of the legs and scrotum occurs in areas of Bengal, Assam and to a less extent in Bihar. In Northern India, Dracunculus (guinea-worm infestation) is quite often seen, usually in people who drink tank water, near places where they work. *Ankylostoma* (hookworm) itch occurs on the feet of villagers because they use the open fields for answering calls of nature and also walk bare-footed. Itching is produced when the mature ova penetrate the skin and enter the human body. Cutaneous manifestations of Schistosomiasis which are common in Egypt, Japan and China are not usually seen in India. Vesicant insects—Cantharides (*Euproctis crysorrhoea*) produce dermatitis by their hairs. Dermal leishmaniasis is a common problem in North Indian villages.

Bacterial infections.—Impetigo contagiosa and its different varieties occur frequently. Because of the poor state of nutrition of our villagers, it often takes on a severe form—Pyoderma gangrenosum, which may prove fatal if prompt medical aid is not available. Anthrax is seen in rural areas where hides are tanned. Vaccinia occurs in milkmen. Foot and mouth disease, Tularemia and Orf are rare in our country. The Goddess of small-pox (*Mata* in Hindi) is worshipped by the villagers and every diffuse skin eruption is considered to be some kind of small-pox. Stress should be laid on vaccination from time to time in order to prevent small-pox and the pock mark scarring resulting therefrom which is a cosmetic liability.

Fungus infections.—Two fungus conditions, common to rural areas, are:—the animal type of ringworm (*Trichophyton*) and actinomycosis. The former is more virulent than the common human varieties. It affects the beard (*Tinea barbae*), and exposed areas of the body (*Tinea corporis*). Farmers contract the infection from infected cattle. I may add that *Tinea pedis* is rather rare amongst villagers despite the fact that they go about bare-footed. In my experience, ringworm of the groin is also uncommon amongst them. It could be explained by the facts that they do not have lavatories and each one washes his or her clothes separately. Actinomycosis Madura is quite frequently met with in rural practice; the infection is caused by the contamination of simple wounds by the fungus because the wounds are not dressed hygienically. Madura foot is seen as a chronic swelling of the foot, suppuration and sinus formation with discharge containing, typical sulphur granules. Favus is uncommon in India.

Granulomas like syphilis, tuberculosis, yaws, leprosy and leishmaniasis are found both in rural and urban areas. The first two are ubiquitous but the last three are peculiar to certain areas of tropical countries e.g., yaws occurs only in South India, leprosy occurs all over the country but to a greater extent in the South and Eastern regions.

Malnutrition.—Poverty, religious bias in eating habits and common intestinal diseases produce several malnutrition syndromes particularly due to deficiencies of proteins and vitamins. Skin is the first and most obvious organ to demonstrate the results of malnutrition. Every one of you must be familiar with the features of Pellagra, Beri-beri, Ariboflavinosis, Phrynoderma, Kwashiorkor syndrome etc. Raising the standard of living of the people, educating them in the knowledge and properties of food articles will help to solve this difficult problem of malnutrition.

Because of the somewhat liberal use of arsenic and other heavy metals, by the numerous practitioners of indigenous medicine in rural areas erythrodermias and exfoliative dermatitis are frequently seen amongst the village-folk; since these practitioners rely on caustics 'to burn out' the roots of every skin disease, chemical burns and keloids usually result.

Fishermen.—Certain skin conditions are peculiar to them because of their occupation. Thus abrasions and lacerations are very common, which get secondarily infected with staphylococci producing chronic indurated swellings called 'Pigeons.' Stings and bites particularly by anemones may produce local reaction and sometimes generalized allergic reaction. Redfeed dermatitis due to putrefaction of fish; Erysipeloid and Weil's disease are peculiar to fishermen. The incidence of cancer of the skin is rather high amongst them because of constant exposure to sun and wind, the use of tar and contact with fish oils. Fishermen's skin is typical; it tends to age rapidly.

To sum up, the dermatological problems in rural areas are, largely in the nature of infections and traumatic dermatitis (Cf. allergic dermatitis, eczema) besides the several ubiquitous conditions which are common to urban and rural areas. Every medical man must familiarize himself with local conditions, and the indigenous diseases prevalent in tropical regions, as also with the habits, customs, superstitions and idiosyncrasies of the people. In rural practice, this is particularly important.

In rural areas, there is a great need for doctors and trained nurses, and for small hospitals or polyclinics. A beginning could be made by subsidising medical men who will settle down in rural areas; an initiative could be provided by making it compulsory for medical students to live and study in the villages as part of the curriculum. A very good example has been provided by the College of Nursing, New Delhi whose students are posted in villages for sometime to gain local knowledge and experience by coming in intimate contact with the rural folk. I see no reason why a similar scheme could not be started for medical students. There is a pressing need for giving more specialized education in skin diseases to our medical students and doctors.

MEDICAL ASPECTS OF BOXING, PARTICULARLY FROM A NEUROLOGICAL STANDPOINT

Critchley has observed 69 patients with chronic neurological disease due to boxing. Many of these showed evidences of punch-drunkenness, either early or well established. Chronic progressive traumatic encephalopathy of boxers is suggested by the author as an alternative name for the popular term "punch-drunkenness." Punch-drunkenness is more frequent among professionals than among amateurs and among second-rate or third-rate performers than in the intelligent scientific exponent with a championship title. It is rare in Negroes. Punch-drunken states have been found in fighters of all weights, but most characteristically in small men who had not been particular about the size of their opponents, having often taken on contestants heavier than themselves. There is a correlation between the degree of craniofacial marking and the intensity of the punch-drunken syndrome. The total number of bouts is important, as well as the number of occasions on which the boxers have been rendered unconscious. As a rule, gradual evolution of mental and physical anomalies marks the insidious onset of the encephalopathy. Among mental symptoms there is the slow appearance of a fatuous or euphoric dementia with emotional lability. The victim shows little insight into his condition. Speech and thought become progressively slower; memory, efficiency, and conduct deteriorate; and there may be mood-swings, intense irritability, and sometimes truculence leading to uninhibited violent behaviour. Simple fatuous cheerfulness is, however, the most prevailing mood, although sometimes there is depression with a paranoid colouring. The patient may complain of persistent dull headache, postural dizziness, deafness, poor vision, intolerance toward alcohol, unsteady gait, and shakiness. Occasionally periodic convulsions bring the victim to the doctor.

The condition popularly referred to as a "groggy state" is the result of severe battering sustained during a particular contest. The victim develops a mental confusion with subsequent amnesia, and an impairment in the speed and accuracy of his motor skill. In this state he makes feeble and poorly coordinated movements; his limbs are ataxic; and he is inefficient and vulnerable. An accumulation of groggy states probably leads to a permanent punch-drunken syndrome. Remitting cerebral concussion is suggested as an alternative term for groggy state. Minor nonspecific anomalies are common in the encephalogram of experienced boxers. Such findings are more frequent and more intense in those with punch-drunkenness. The electroencephalogram is a less sensitive index of punch-drunkenness than is the clinical evidence, for symptoms and signs may be present at a time when the electroencephalogram appears to be normal. A return to a normal state in a series of electroencephalograms taken in a particular patient cannot be regarded as a physiological, anatomic, or clinical recovery. —(*Brit. M.J.*, 1: 357-362, Feb. 16, 1957 via *J.A.M.A.*).

PREGNANCY PREDISPOSES TO HIATUS HERNIA

Increased intra-abdominal pressure during pregnancy may induce hiatus hernia in patients with anatomic hiatus weakness. Usually, such hernias occur late in pregnancy. In some instances, however, slight uterine enlargement coupled with nausea, vomiting, and straining due to constipation causes herniation as early as the fourth month. The hernias disappear after delivery. Incidence of hiatus hernia among 40 pregnant women, as revealed by radiographic study during the eighth month of gestation, was 17%, compared with an incidence of 5% in the general population. Hernia could not be demonstrated in any of these women during the early post-partum period. —(*Gastroenterol.*, 32: 479-482, 1957 via *Mod. Med.*, 15-6-'57).

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Cases and Comments

AN UNUSUAL CASE OF TYPE II NEPHRITIS

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AND

B. N. TANDON

INTRODUCTION.—It is not unusual to diagnose, some cases of primary kidney disease as cases of primary heart disease; and sometimes only a proper *post mortem* examination on the case will clinch the diagnosis. Here we are reporting such an unusual case which was admitted and treated several times as a case of congestive heart-failure due to rheumatic mitral valve disease. The development of hypertension and finally of uræmic symptoms led us to alter our diagnosis of the condition as primary kidney disease and this was later confirmed on *post mortem* examination.

The patient A.P., Hindu, male, age 26 years was admitted on February 19, 1953 with complaints of:—cough, breathlessness, and œdema of the feet, all of 15 days' duration.

Past history.—Pain in joints and jaundice one year ago.

On examination:—The patient showed general anasarca with cyanosis, dyspnoea and engorged neck veins; pulse rate 80 per minute; blood-pressure 124/78.

Circulatory system:—Apex beat in VIth space, anterior axillary line; forcible with no thrill; size of cardiac dullness moderately increased; soft systolic murmur in mitral area conducted towards axilla; heart sounds normal in all areas.

Respiratory system:—Signs of congestion present at the bases of both lungs.

Abdomen:—Fluid-thrill present; spleen 2 fingers below sub-costal margin and the liver was tender and enlarged to 5 fingers' breadth.

Investigation.—E.S.R. was 24 mm; E.C.G. showed left ventricular strain. He was treated as a case of C.H.F. due to rheumatic mitral valve disease and was discharged on March 23rd 1953, relieved of his symptoms.

Subsequently he was admitted thrice and was labelled with the same diagnosis and was relieved by the same line of treatment. His case was discussed also at the staff meeting and diagnosed as an unusual case of rheumatic heart disease.

On the 9th July 1956 he was admitted in our wards with complaints of pain in the right hypochondrium of 1½ months' duration; œdema over feet of 15 days' duration, and cough for the previous 4 days.

On examination:—The patient was an young man of average build with a pale look. He had general anasarca and marked

œdema of scrotum. He was dyspnoëic, cyanosed and had clubbing of fingers. His pulse was 100 per minute; blood-pressure 120/80 per minute; respiration was 34 per minute; and his temperature was 98·4°F.

Circulatory system:—The apex beat was heard in the Vth space, one inch lateral to the mid-clavicular line. It was forcible and there was no thrill. Percussion revealed moderate enlargement of the heart in all dimensions. In the mitral area both sounds were audible and of normal intensity. There was a harsh systolic murmur of grade (3) well-conducted towards the axilla. In the pulmonary area, the second sound was accentuated otherwise findings were normal in the remaining places.

Lungs:—Showed signs of congestion at both bases.

Abdomen:—The liver was enlarged and tender, the lower border was five fingers' breadth below the right subcostal margin. The upper border was in the sixth right intercostal space. The spleen was palpable, 2 fingers' breadth below the costal margin. Ascites was present.

Nervous system:—Normal.

Fundus examination:—Showed evidence of arteriosclerosis and healed hæmorrhages.

Laboratory investigations:—The urine was normal, with a Sp. gravity of 1014. The W.B.C. was 8,800 per cmm; P. 59%, L. 17% and E. 24%. Hb. was 8·4 g.%; R.B.C.S. were 2·8 million per cmm.; P.C.V. 31 cc.%; serum sodium was 155·5 m. eq. per litre; serum potassium 6·2; and serum chlorine 112·3 per litre. The blood urea was 120 mg. %.

The stools contained ova of ankylostome. E.C.G. report showed old infarct and left ventricular strain.

Progress in the hospital:—Teleradiogram showed a generalized enlargement of the heart.

The patient was treated as for congestive heart failure but his dyspnoea and anasarca increased and his blood-pressure went up from 140/70 to 180/100 mm. Hg.

He started diarrhœa, vomiting and mental symptoms, and developed marked suppression of urine which later went on to complete anuria. His blood-urea went up to 214 mg.% and the urea clearance test showed:—(1) Blood urea 214 mg.%; (2) urinary urea 650 mgm.%; (3) urine in 2 hours 4 cc.; (4) standard clearance 1·73 cc. and (5) renal efficiency 3·4 cc.

He was treated for uræmia but the condition steadily deteriorated. He also developed uræmic pericarditis. The blood urea went up to 260 mg. p.c. Ultimately he died of kidney failure on 4-8-1956.

Post-mortem findings.—*Internal examination*:—The autopsy revealed the body of an anæmic young man of average build, who had generalized anasarca, but most marked over the feet and abdomen. There was clubbing of the fingers. The external genitalia were normal except for the scrotal œdema.

1. *Lungs*:—The lungs were firm at places, and were reddish in colour with black mottling. The pulmonary arteries showed atheromatous patches.

2. *Heart*:—The heart was enlarged in all dimensions and showed evidence of old myocardial infarcts in two areas where the ventricular walls were thin, white and fibrous. The ventricular walls and papillary muscles were hypertrophied. The valves were normal except for the fact that the tricuspid showed shortened chordæ tendinæ, which were however not thickened. The coronary vessels showed no macroscopic evidence of atheroma. The pericardium was thickened, fibrosed and adherent. The pulmonary artery and aorta showed atheromatous changes.

3. *Abdomen*:—The abdomen revealed adhesions of the peritoneum to the surface of the liver. The peritoneal cavity contained 1500 cc. of a clear straw-coloured fluid.

(a) *Liver*:—The liver weighed slightly more than normal, and was firm in consistency with a finely, granular surface and slight nodularity. A few peritoneal adhesions were seen over the surface, the borders of the liver were irregular. The cut surface showed a nutmeg appearance; also nodules of varying sizes separated by bands of fibrous septa.

(b) *Spleen*:—The spleen was larger than normal, and had a thickened capsule and congested surface with somewhat prominent trabeculæ.

(c) *Kidneys*:—Both were slightly smaller than normal. The capsule was thickened and could be stripped off only with difficulty. The surface was coarsely granular, and the cortex was slightly narrowed. The cortico-medullary junction was fairly well-defined. The blood vessels were not prominent. The medulla was slightly congested. The pelvis showed a slight increase in fat.

Microscopic examination.—1. *Lungs*:—The lungs showed passive venous congestion with pulmonary sclerosis.

2. *Heart*:—The heart showed healed myocardial fibrosis, coronary atherosclerosis and cardiac hypertrophy. The pericardium was thickened, and collagenized.

3. *Liver*:—The liver showed passive congestion and cardiac cirrhosis.

4. *Spleen*:—The spleen showed passive venous congestion.

5. *Kidney*:—The kidneys showed type II nephritis with early acute pyelo-nephritis.

Discussion.—This case presented several points of interest. The harsh systolic murmur best heard in the mitral area suggested to many physicians the diagnosis of mitral regurgitation. During his last admission into the hospital the thickened arteries, the pale-look of the patient, the ophthalmoscopic examination, and his drowsy condition all suggested an investigation of the various renal functions; the abnormal findings of the investigation confirmed the clinical diagnosis of primary kidney disease. The enlarged size of the heart with normal blood-pressure was due to a fall of blood-pressure after coronary infarction in a case of secondary hypertension. Infarct was as described by E.C.G. findings. The kidney changes were primary, in our opinion and the cause of the harsh systolic murmur was in some way related to the calcified infarct, there being no evidence of mitral valve lesion on post-mortem examination. Harsh systolic murmur as a sign of rheumatic valve lesion should be viewed sceptically.

Acknowledgement.—We are grateful to Prof. B. B. Bhatia, M.D., F.R.C.P., Head of the Department of Medicine for permitting us to publish a report of this very interesting case which led to considerable difference of opinion and controversy among many physicians and which was finally clinched only on a post-mortem examination. We are thankful to Dr. R. M. L. Mehrotra for the post-mortem examination and the histopathological report thereon.

VAGINAL BLEEDING IN YOUNG GIRLS

Cause of abnormal vaginal bleeding in young girls is usually detectable by pelvic examination, including careful inspection of the external genitals, rectal palpation; and, in some cases, visualization of the vaginal vault through an endoscope. To detect foreign bodies and obstructions and to obtain vaginal smears, a cotton-tipped applicator moistened in sterile saline is rolled through the introitus while rectal examination is performed. The most useful laboratory studies for diagnosis of vaginal bleeding are blood count, urinalysis, basal metabolic rate, and cytologic examination of vaginal smears. Abnormal vaginal bleeding in adolescents is usually functional in origin, but hypometabolism, nutritional or psychic disturbances, blood dyscrasias, congenital abnormalities, pelvic infection, trauma, foreign bodies, and tumors may also be responsible.

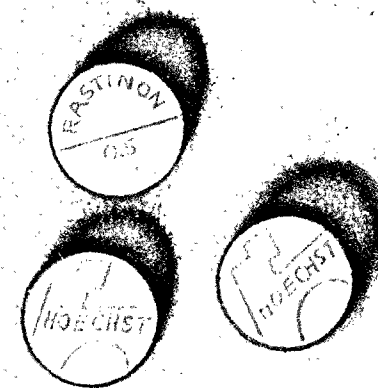
Treatment of functional uterine bleeding is supportive unless blood loss is excessive. Parenteral testosterone or oestrogens are of value as immediate therapy. Oestrogenic preparations given in amounts equivalent to 25 to 25 mg. of stilboesterol every six hours will control bleeding. Administration is continued in gradually diminishing doses to prevent withdrawal bleeding. Haemorrhage can also be stopped by intramuscular injection of 25 mg. of testosterone daily for three days.

For permanent correction of menorrhagia severe enough to require transfusion, the cycle is regulated by hormone administration for two or three months. If pretreatment vaginal smears show good cornification, oestrogen production is adequate and parenteral administration of 10 to 20 mg. of progesterone daily on the twentieth to the twenty-fifth days or 2 or 3 successive cycles will usually regulate the flow. If smears show little cornification, progesterone therapy should be supplemented with oestrogen administration. Dilatation and curettage are sometimes necessary when medical measures fail.—(*Pennsylvania M. J.*, 60:51-52, 1957 via *Modern Medicine*, April '1, 1957).

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A CASE OF RUPTURE OF THE UTERUS TREATED SUCCESSFULLY IN A RURAL HOSPITAL

S. R. SEN, M.B., D.P.H.,

M.O. I/c, Maynaguri Thana Health Centre, Jalpaiguri, W. Bengal

RUPTURE of the gravid uterus is a rare condition, its incidence being about 1 in 2000 in hospital and the mortality rate being about 50 p.c. when only the cases admitted in labour from outside with rupture are taken into consideration. Of course in modern times the mortality has decreased in well-equipped hospitals due to the use of the newer antibiotics and of better methods of resuscitation.

I am presenting below the report of such a case, admitted to this Thana Health Centre, where most modern facilities are not available.

The patient Mrs. J., aged about 30 years, came to this hospital on 12-3-'57 at 6 p.m. from a nearby village with a history of labour pains since morning and vaginal bleeding for 2 hours. This was her second pregnancy and she had had a caesarean section 3 years ago at Muzaffarpore. The details of the previous operation were not however, available.

On examination, the patient was found to be in an extreme degree of shock which could not be accounted for by the external bleeding. The pulse was running in character and could not be counted. Respiration was 52 per minute and the tongue was dry. The abdomen was extremely tender but the foetal parts were easily palpable through the abdominal wall. The foetal heart sounds were absent. One hand of the foetus was found prolapsed into the vagina. From the extreme degree of shock combined with vaginal bleeding, the easily palpable foetal parts per abdomen, and the prolapsed hand, a rupture of the uterus was diagnosed.

The patient was promptly resuscitated with morphine and intravenous infusion of "Plasmex." A laparotomy was performed under open ether anaesthesia. On opening the abdomen, rupture of a previous classical caesarean section scar was detected. The lower extremities and the trunk of the foetus along with the placenta were in the peritoneal cavity in a pool of blood. The foetus and the placenta were removed per abdomen and the uterine incision was closed in two layers of stitches an interrupted muscle layer of silk-worm gut, and a superficial sero-muscular layer of continuous chromic catgut.

The uterus was made to contract with an injection of $\frac{1}{2}$ cc. of pituitrin into its musculature. After mopping out the peritoneal cavity, the abdomen was closed in layers. The operation took about 28 minutes. After the operation, the pulse and general condition were found to be appreciably improved.

In the post-operative period, the patient was given intravenous infusions, warmth, circulatory stimulants and sedatives,

On the 3rd day after the operation, the patient developed abdominal distention which subsided after withdrawal of all feeds by mouth. Achromycin 100 mg. was given for 4 days every six hours followed by penicillin and streptomycin. Antianæmic treatment was also carried out. The stitches were removed on the 9th day and the patient discharged after another 8 days. The patient was advised to avoid pregnancy for at least 2 years and was definitely instructed to consult a specialist in her next pregnancy. Ligation of the tubes was not performed as she had only one living child and because it would have taken additional time and also increased the operative risk.

This case brings out the following points of importance *viz.*, (1) Rupture in a classical caesarean section scar is often silent in nature and the diagnosis must be made by careful observation and obstetrical examination; (2) modern methods of resuscitation are the most helpful adjuvants in the management of serious obstetrical complications like rupture of the uterus and (3) in extreme conditions a conservative treatment of suturing of the tear instead of a major operation like subtotal hysterectomy may have to be undertaken as a life-saving measure.

My grateful thanks are due to Dr. C. D. Torphy Civil Surgeon, Jalpaiguri; and to Dr. H. K. Indra, Deputy Director of Health Services, West Bengal for according permission to publish this case report.

A CASE OF CARCINOMA OF THE MALE BREAST

K. P. SEN GUPTA, M.B.,

M.O., L. M. Hospital, Asansol

CARCINOMA of the male breast is very rare, its incidence being 100 times less than that of the female breast; the reason is that the male breast does not undergo the physiological stress to which the female breast is normally subject. In the male the primary growth often remains small and insignificant. Frequently no notice is taken of the growth until ulceration starts and hence cases of carcinoma of the male breast go to the surgeon at a later stage than cases of carcinoma of the female. Since the male breast is small in size, the tumour transgresses its limits early and invades the pectoral muscles, the skin and the lymph nodes. This early spread together with the technical difficulty at operation of excising a sufficiently wide margin of healthy tissue from the thinly clad male thorax renders the prognosis more grave than in the female.

Case note.—A male, aged about 50 years was admitted into the hospital with a complaint of an old ulcer with bad smell on his left breast of about nine months' duration. To begin with a small nodule appeared by the side of the left nipple which ulcerated and gradually increased in size until the nipple was completely eaten away. There was a foul-smelling discharge

from the ulcer and pain along the left shoulder, left side of the chest and sometimes along the left arm. There was also occasional oedema of the left hand and forearm.

On examination the ulcer was found to be fungating with an everted margin and an unhealthy base. The surrounding skin over an area of about 1" radius was invaded by numerous metastatic nodules. The ulcer was adherent to the underlying muscle as tested by stretching the affected pectoral muscle, but was not fixed to the chest wall. Axillary lymph nodes were enlarged and hard all over their distribution. Neck glands were not palpable. Lungs were X-rayed but no evidence of malignant metastasis was visualised. *Blood count:* Hæmoglobin was 65%; R.B.C. 35,000,000/cmm; W.B.C. 9000/cmm. The urine was normal.

Notes of operation:—Radical mastectomy with a 4" circle of skin margin along with block dissection of the axillary glands was performed. While dissecting the axilla a few enlarged lymph nodes were found intimately adherent to the axillary vein. I made an attempt by painstaking dissection with the fingers and using blunt instruments but could not separate the adhesion from the wall of the vein. The vein was boldly exposed above and below the adherent mass and the mass was removed after ligating the vein at two ends. The axillary artery was free from such adhesions. As the skin could not be apposed for want of relaxation, skin-grafting was made by Thiar's method at the same sitting. The patient was discharged from hospital, and advised to have deep-X-ray therapy, after a fortnight.

Discussion.—In male, the breast substance is so little that the process of permeation has but a very short distance to travel before it reaches the fascial lymphatic plexus. Many surgeons when operating for carcinoma of the male breast ignore these considerations and perform an operation they would admit to be hopelessly inadequate in a female. Unless limited excision with extensive use of implanted radium tubes in the surrounding tissues is adopted, the operation in the male should be conducted on the same lines, as in the female. Adiposity facilitates the operation. It renders the elevation of skin flaps easier without any risk of including deep fascia within it. In males, subcutaneous fat is practically absent. In such patients the skin flap is necessarily thin, ill-nourished and owing to the absence of fat, the raising of the skin flap is really more difficult and delicate than in the female. Unless great care is taken during dissection there is every likelihood of including patches of the deep fascia. There is no such reserve of skin as a fat person (usually females) possesses and skin grafting is more likely to be necessary.

Summary.—1. A case of carcinoma of the male breast which is a rare condition is reported. 2. The difficulties of operation as compared with that in female is discussed.

Acknowledgement.—I express my sincere thanks to Dr. S. Goswami, Civil Surgeon, Burdwan for permitting me to publish this case report.

HETRAZAN IN TROPICAL EOSINOPHILIA

MOHAN LAL GAUR, L.M.P.,
Resident Medical Officer, P.O. Laharpur (Sitapur), U. P.

THE syndrome commonly known as "Tropical Eosinophilia" is widely prevalent in this country and has been reported from Ceylon, parts of Africa, the Philippines, Samoa and Southern U.S.A. The condition as we know in India, was described by Weingarten in 1943 but 3 years later Frimodt Moller and Barton reported 175 cases with similar findings and called it a pseudo-tuberculous condition associated with eosinophilia. Loeffler (1932-1936) in Switzerland reported cases with cough accompanied by eosinophilia and associated with transient pulmonary infiltration.

Although the diagnosis and treatment of the condition is comparatively simple, its aetiology is still obscure. Carter reported mites in the sputum in some of their cases but this has not been confirmed by others. Spirochaete have been reported by Shircore in Africa and in the faeces by Gantara and Lewis in Bombay. Chowdhry also found spirochaete in the sputum and in the bowel-mucus of some of his patients. Intestinal parasites and micro-filariae have been reported by different workers and Chowdhry found the incidence of such infestation to be no higher than that present in hospital patients suffering from other diseases. Aitken (1953) has brought forward some evidence to show that the causative agent may be a virus. On the other hand Chowdhry did not find any significant reactions during 6 months' observation, in 3 recipients given 250 cc. of blood from cases having marked eosinophilia with lung symptoms. This makes the possibility of a blood-borne bacterial or virus infection somewhat unlikely.

The paroxysmal attacks of cough, the transient pulmonary infiltration and eosinophilia are indicative of an allergic response to some antigen.

Weingarten and others gave arsenical preparations to their eosinophilic patients as specific and organic preparations have been used parenterally and orally.

The chief drawback to the use of arsenicals, is the relatively high incidence of untoward reactions, some of which are mild and transient and others severe, protracted and even fatal. Gastrointestinal reactions accompanied by nausea, vomiting, diarrhoea, headache and malaise, lasting from a few hours to several days are perhaps the commonest. Skin rashes from a mild erythema to severe exfoliative dermatitis are not uncommon, also encephalopathy and severe neurotoxicity ending fatally.

Due to these common toxic reactions of arsenic, a constant search for a safer drug to treat cases of eosinophilia has been in progress. Aureomycin was tried. Rao treated 3 cases with aureomycin and some amelioration was noticed. Bannerji reported good

results with Aureomycin in 3 out of 5 cases. Chowdhry reported in 16 cases of tropical eosinophilia treated with aureomycin with very encouraging results. A.C.T.H. and cortisone were tried by several workers with rapid remission of symptoms and a fall in the total eosinophil-count but a rapid relapse occurred after topping the treatment.

The possible part played by helminths in the causation of tropical eosinophilia has recently been stressed, with particular emphasis on ascariasis and *Waucheria* infestation. Since HETRAZAN (Diethylecarbazine Lederle) has been successfully used in controlling both ascariasis and filariasis, the drug was tried in tropical eosinophilia.

In one investigation by Gantara and Lewis the effect of Hetrazan in a dose of 13 mg. per kg. of body-weight was compared daily, for 4 days with the effect of Carbarson in the usual dose for 10 days on an equal number of cases. Quicker clinical relief and a fall in the total eosinophilia counts were observed in the Hetrazan series, than in those receiving Carbarson. The drug was found to be non-toxic and even minor side-effects were not noted. Desai treated 20 cases of eosinophilia with Hetrazan, and reported encouraging results in all without any side-effects. Very satisfactory results in a limited number of cases of eosinophilia treated with Hetrazan have also been recorded by Sivaraman.

Raheja used Hetrazan in 22 cases of eosinophilia and observed that the relief obtained with the drug was quicker and more effective than with Carbarson.

Chowdhry gave Hetrazan in a dose of 12 to 16 tablets (50 mg. each) for 7 to 10 days and found it effective in 10 out of 12 patients. In another series of 28 cases given 200 mg. of Hetrazan six hourly for 7 days and proportionately smaller doses to children he found a striking response in the majority of cases.

It is specially indicated in those cases where arsenic cannot be tolerated in any form or contraindicated.

Eosinophilia is a disease characterized by a feeling of malaise. Low temperature, dry spasmodic cough and leucocytosis with a high eosinophilia. There may be anorexia, general weakness and loss of weight. Cough is usually paroxysmal becoming worse at night. There may be asthmatic attacks in which expiration is usually prolonged and the sputum which is scanty and tenacious is brought out, only with great difficulty.

In my series of 17 clinical cases, all responded well to Hetrazan. Previously I used to treat such cases of eosinophilia with Soamin, Acetylarsan, and Carbarson both orally and parenterally and some of the cases developed side-effects like gastric intestinal disturbance and peripheral neuritis and exfoliative dermatitis. I have given up the use of these drugs, since

I began to use Hetrazan, the literature about which was kindly supplied by Messrs. Lederle & Co., (Private) Ltd. of Bombay.

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TREATMENT OF ACNE

P. KRISHNASWAMI, J.P.,

Treasurer, I.M.A., Madras Branch

MR. K., aged 23 years, male, college student, came to me full of "Acne" spots on the face on January 2nd 1957.

HISTORY:—He said, he had been suffering for the past 2 years and had tried all available drugs from all available systems of medicine, but found they were only increasing and disfiguring his face. He got very worried, and left it to take its own course to disappear.

Blood:—Hb. 90%, P. 63%, L. 23%, E. 12%, M. 2. Total R.B.C. 4.8 mill./c.cm. Total W.B.C. 5000/cm. **Urine:**—Nil particular. **Motion:**—Regular once a day; no exciting cause to be found either externally or internally—no oral sepsis.

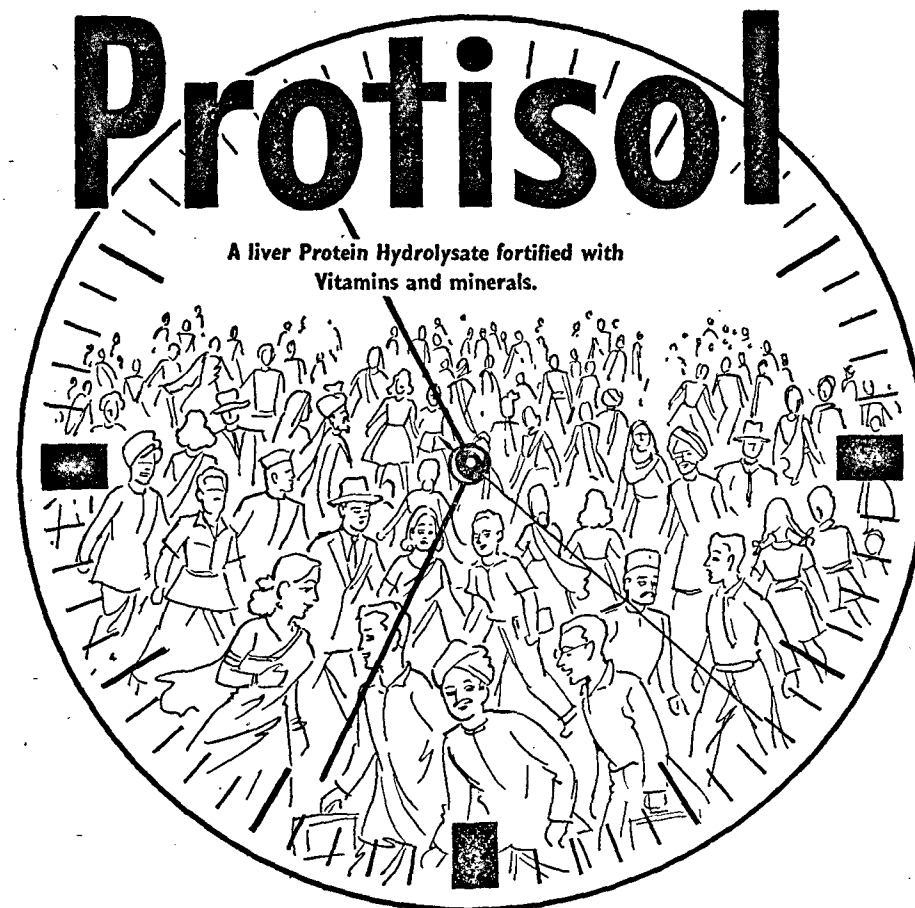
Habit:—Used to mixed diet—no chewing, no smoking, no alcohol. **Weight:**—100 lbs. steady for the last 3 years—plays no game—very quiet in every walk of life.

TREATMENT:—(1) Vitamin A 1000 units 1 cc. i.m., twice a week for 6 weeks. (2) Vit. B₁₂ 1000 mcg. i.m., once a week for 4 weeks, and (3) for local application:—(a) Hydrocortisone 1% to be applied while retiring to bed daily for 4 weeks; (b) calamine powder to be applied in day time; (c) no irritants, to the face for washing, like soap-nut etc.; (d) he was asked to use green gram dhall powder with sandalwood powder, combined with turmeric powder alone for washing the face. To his and every one's surprise the patient got cleared of his acne spots.

Diet:—He was asked to avoid fats and oils and carbohydrates; to eschew all spicy food and to take plenty of vegetables and greens.

Exercise:—He was asked to play some outdoor game every evening. After exercises, regulation in diet, and treatment given as above, he not only became healthy in all respects, but the 'acne' spots also cleared up making him feel happy and cheerful again.

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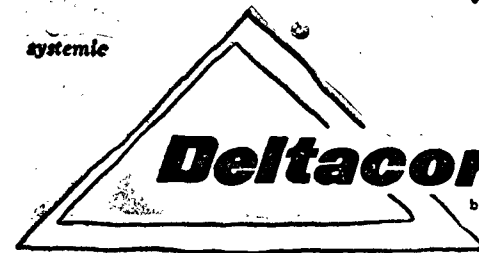


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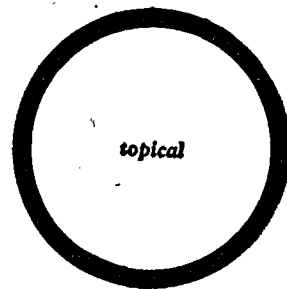
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Editorials

TRAFFICKING IN NARCOTICS

EARLY in August the United Nations Organization issued a report stating that over a hundred thousand persons are engaged at present in the world-wide traffic in harmful narcotics and that the problem of checking this extensive illicit trade in rugs is very difficult because the victims aid and abet the traffickers. India must be particularly alive now to this matter, because we are told that of the one hundred seizures of illicit rugs reported from the Headquarters of the International Police Organization during recent months, eighteen related to cases originating in India. This is indeed very disquieting, and the matter assumes a graver aspect when we learn from a news item which was reported in the local press on the 15th of last month, that organized searches are being conducted in some towns of South India by the Central Prohibition Intelligence Bureau assisted by Special Police Officers from the Madras and Madhya Pradesh States in connection with a conspiracy case relating to trafficking in narcotic drugs.

The habit of taking opium or ganja is unfortunately long established in Asia and it was classed together with drink in the social reform programme of the Congress. Poppy cultivation used to be common in Uttar Pradesh, Madhya Bharat, Rajasthan and Himachal Pradesh but the crop is not sold in the market but directly to the Government which processes it at the factories at Ghazipur and Neemach. The processed products are then sold exclusively to the State Governments for use in medicinal preparations and some scientific products. There has been a considerable fall in the acreage under poppy cultivation in India during the last fifty years. Thus from 760,000 acres in

1905 it has dwindled down to 50,000 acres in 1956. This has naturally resulted in a serious loss of revenue to the Central Government; but still they have decided to close down the production of opium and its products completely by the end of 1959. But so long as there are addicts in India, the drug is smuggled into the country and since it is easily concealed, it is difficult to check. The Government are, however, taking steps to stop production and they are said to have cured 17,000 addicts to the habit.

One difficulty with the campaign against narcotics is that when one form of production is stopped, the addicts take to other drugs. Thus for instance, in South America the coca leaf is commonly chewed because it contains cocaine. The use of Marijuana (cannabis hemp) in the form of a powder has become common in the United States where thousands of adolescents in the cities have fallen victims to it. The leaves of another narcotic plant called Qat are exported from Ethiopia to Kenya in large quantities and Kenya is already a victim to this narcotic. In Europe and Great Britain people are taking to drugs to obtain relief from pain or seek release from mental troubles and worries and they resort to the new class of the tranquillizers—barbiturates, which are prescribed by doctors for sedation. The fight against narcotic drugs and addiction thereto appears to be a never-ending one, as a wide variety of these narcotics is always put into the market from time to time.

Addiction to opium and ganja (*bhang*) which is more insidious and injurious to health than most others and which was a very prevalent habit among many people in our country has luckily been countered to a great extent by Governmental measures and we may feel proud of the substantial progress so far made in checking this evil; but we are not in a position to say yet that the battle has been won or will be won by 1959, because of the unsocial elements who circumvent all well-directed measures and legislative enactments, thereby encouraging illegal traffic in these harmful drugs. It will, therefore, be the duty of all right thinking persons to cooperate with the authorities in effectively putting down this canker which eats into the vitals of the nation.

PROGRESS IN MEDICAL EDUCATION

Emphasis on Preventive Medicine and Environmental Hygiene

INAUGURATING the Kurnool Medical College, the fifth in Andhra Pradesh, on the 21st July last, Sri T. T. KRISHNAMACHARI, the Union Finance Minister said that every endeavour should be made to improve environmental sanitation and hygiene and provide better medical facilities for the rural areas. He agreed with Major K. N. RAO, Director of Medical Services, that the

cause of medical attention had suffered because of want of concentration on matters connected with health and environmental hygiene. Therefore, any attempt to improve conditions of the health of the people, whether by way of producing more doctors and providing more amenities to the people would claim the attention of Government. The backwardness of Rayalaseema had all along been a problem in India. "It is a lucky thought to have started the Sri Venkateswara University and anything which did good to the people was right. Sri Venkateswara University was going to be a utilitarian university and any expenditure from the funds of Lord Venkateswara in that direction is quite warranted," said the Finance Minister. As regards the proposal to start a Medical College at Tirupati, if not in the Second Five-Year Plan, it will be started later. The existing thirty-six medical colleges in India are quite inadequate as they are not able to reach the target of finding one doctor for every 4,000 persons. "It might be, the fault lay with the Planning Commission or the Health Ministry or the medical profession which was thinking more of the future than of the immediate present. The existence of politics in the medical profession was ruinous to its future and wherever there was a medical institution there was politics between the doctors of one zone and another. The medical profession has not been able to think together as one." Perhaps there may be some justification for this observation of the Finance Minister; but we have always felt that if there is any one profession in which there has been a considerable volume of unanimity of thought behind its activities, it is the medical profession as represented by the large number, outside the services, who are in private practice. Be that as it may, it is welcome advice that Sri T. T. K. gave at Kurnool, for the possibility of any fissiparous tendencies to undermine the solidarity can be effectively checked.

Another important aspect of public health which requires urgent attention is the neglect of preventive medicine. We are in complete agreement with the Union Finance Minister when he said "It is a great pity that even the planners who had provided for six medical colleges in the Second Plan had not thought of public health engineering training. The provision for increase in doctors or in beds without preventive efforts served only to treat the symptom and not the disease. I am personally interested in the problems of housing and slum clearance."

Mr. KRISHNAMACHARI did not consider it wise to attempt an integration of the indigenous and the allopathic systems of medicine. He strongly emphasized the need for starting more research institutions and also for disseminating the results of research to all hospitals in the country. It was indeed most refreshing and comforting to hear the Finance Minister say in all

sincerity that the question of foreign exchange for medical equipment had a very high priority. If the demand was with regard to preventive medicine or medical colleges and institutions "in spite of the Planning Commission or anybody else, I shall offer my blind eye to any objection that is raised. Any attempt at improving the conditions of health of the people attracts my attention. As a human being, I am primarily interested in the well-being of my fellow human beings." We have no doubt that our Finance Minister will translate his promises into action as and when proper demands are made.

On the vexed question of rural medical relief and the unwillingness of medical men to go and settle in rural areas, several solutions have been offered during recent years. Our Union Finance Minister's suggestions in this direction are that as an incentive for the movement of doctors to rural areas, suitable monetary and other attractions must be offered and 4 or six-bed cottage hospitals should be set up in the countryside.

We have all along stressed the need for a more sympathetic and liberal consideration of the pay and prospects and amenities offered to the doctors to induce them to move into rural areas. The present scales of remuneration can never attract qualified medical men to enter into rural practice with a zest and love for the work. Several other alternatives have been suggested, one of which is a compulsory term of service for a year or two in a rural dispensary for every medical student passing out of college before he can be allowed to settle down to practice wherever he wishes to; this is, to our mind, an unworkable proposition and even when compelled there can be no guarantee that he will bestow the necessary care and attention in his work.

The obvious remedy therefore, lies in offering the same scales of pay and prospects to those who opt to go to villages, as the regular service men get and in addition a guarantee that after, say, five years of rural service, he will be transferred to urban areas, if he wishes to have a change.

THE FIRST ALL INDIA SUBSIDIZED RURAL MEDICAL PRACTITIONERS' CONFERENCE

(Centre Urged to Implement an Uniform System for All States)

A CONFERENCE attended by numerous representatives from Bombay, Mysore, Madras, Madhya Pradesh and Andhra Pradesh was inaugurated at Hyderabad by Dr. G. S. MELKOTE, M.P., on the 22nd of July 1957. Dr. (Mrs.) K. ATCHAMAMBA, M.P., was elected as its first President. The reception committee of this conference has submitted a memorandum to the Union Health Minister and the Health Ministers of the various States pointing out the omission of the system from the Five-Year Plans except in the

Bombay State and urging reconsideration on an All-India-level. Dr. MELKOTE in his inaugural address stated that he recognized it would be well nigh impossible today to provide the latest medical services in every one of the 5,50,000 villages. The minimum that had to be attempted was to organize a medical unit at least in a group of 20 villages. A mobile van could take this service to every villager.

According to statistics available, over 1,500 rural medical practitioners are subsidized by the Governments. The largest number is in Bombay, where 400 practitioners receive subsidy at Rs. 150 a month for Allopathy, Rs. 120 for Ayurvedic and Rs. 80 for unqualified. They are also provided with other facilities. A scheme to open an additional 1,000 centres in this State has been included in the Second Plan.

Uttar Pradesh has 75 subsidized allopathic dispensaries. Kerala leads in having numerous Ayurvedic grant-in-aid dispensaries and 16 allopathic dispensaries. Madras has 131 allopathic and 166 Indian medicine centres; Mysore has 107; Andhra Pradesh 279, Orissa 14, and Madhya Pradesh 4. No information is available from other States.

Speaking on the problem of Rural Health, Dr. ATCHAMAMBA regretted that our planner experts had not realized the scope and significance of rural medical services. "The nation is spending more on urban services than for rural; the best talents can be attracted to rural services only by paying higher salaries to doctors serving in rural areas as the task of the rural doctors is more difficult and their responsibilities greater. It is my considered opinion that things are topsyturvy today. Rural services are made most unattractive. There is no use addressing empty exhortations to the medical practitioners to go to rural areas in the name of service, when we are actually providing more attractive jobs for them and greater amenities in the urban areas. The slogan, 'Villages should be the first concern of the Government' has become a mere platitude."

She went to the length of suggesting that every medical practitioner should be encouraged with subsidies from the State to organize his own centre in some rural area. The system of subsidizing rural practitioners has been in vogue for many years in the Madras State, but it cannot be said to have been the success that it was meant to be. The subsidies have been very meagre and the amenities and facilities available in rural areas have been far from adequate or satisfactory. The formation of an All-India body by the subsidized rural practitioners at this juncture is indeed a welcome and proper move.

The Conference adopted a resolution requesting the Union Government to implement a uniform system to govern subsidized

rural medical practitioners of all the States during the Second Five-Year Plan period. They also request the Union Government to fix an uniform scale of subsidy of Rs. 150 a month to rural practitioners, and to take the necessary precautionary measures to counteract the anticipated second wave of influenza, and to give necessary assistance to subsidized rural practitioners to provide medical relief to the rural population in case of epidemics of influenza and other diseases. The conference congratulated the Bombay Government for integrating the Medical and Health Services and entrusting the work of the primary health centres to subsidized rural practitioners.

The above resolutions which were adopted and forwarded to the Union Health Ministry are indeed quite modest and deserve sympathetic and favourable consideration by the Union Government, if only to afford relief to the long-suffering rural population.

LYMPHOGRANULOMA INGUINALE IN THE MALE

TREATMENT:—Before 1949, penicillin and the sulphonamides were the only drugs available for the treatment of lymphogranuloma inguinale. Previous experience had convinced us that penicillin was of doubtful value, and consequently, during this period, patients were treated with sulphonamides. Sulphathiazole was the preparation used almost exclusively. The dosage favoured was 1 g. four times a day for 10 to 14 days, repeating the course if necessary after an interval of 1 to 2 weeks.

Following the work of Wright, Sanders, Logan, Prigot, and Hill (1948), we treated a series of cases with aureomycin. Our earlier results have been published elsewhere (Alergant, 1950). Initially we used a dosage of 250 mg. 6-hourly for 7 days. Subsequently the dose was doubled and the period of treatment was prolonged to from 10 to 14 days. In general, we are not convinced that the results obtained with this relatively expensive antibiotic are any better than those which can be obtained with the much cheaper sulphonamides. Terramycin does not appear to offer any advantages over aureomycin, while chloramphenicol is, if anything, less effective, but our experience with these last two drugs is limited.

It is our present practice in 1956 to treat all cases initially with sulphonamides and to reserve aureomycin for cases which respond poorly or incompletely. We have previously observed (Alergant 1953) that some patients appear to derive more benefit when two different drugs are exhibited successively, than from any single drug. The demonstration by Hurst, Landquist, Melvin, Peters, Senior, Silk, and Stacey (1953) of the effectiveness of quinoxaline, 1:4, dioxide and certain of its substituted derivatives against lymphogranuloma inguinale in mice, and of its effectiveness in developing chick embryos, led to a request for a trial of one of the most active of these compounds in human lymphogranuloma. The compound selected was 2:3 dimethyl-quinoxaline, 1:4 dioxide (7218). In all, seventeen patients were treated with this compound. Our experience with it has been detailed elsewhere (Alergant, 1953). Suffice it to say that toxic side-effects prevent this therapeutically active compound from being a useful addition to the pharmacopœia. Aspiration of buboes was found necessary in nine cases and in some of these on more than one occasion. Otherwise local treatment was not considered important. Hot fomentations, much favoured by our nursing staff, was thought to encourage softening and to increase the necessity for aspiration.—(*Br. Jour. of Ven. Dis.*)

NEWSLETTER FROM THE UNITED STATES

WERNER HEIDEL, M. D.,
Science Information Bureau Incorporated New York

DEAR COLLEAGUE,

THE American Medical Association recently held its annual meeting in New York City. In addition to a wide range of scientific and pharmaceutical exhibits, numerous papers were presented describing new techniques and theories. A report presented by W. BARTLETT summarized his studies on *protrusion of the eyes in Graves' Disease*. Dr. BARTLETT has measured the eyes of patients who had undergone surgery for toxic goitre and found that their eyes do not recede as was formerly believed, but that they appear smaller because the distance between the upper and lower eye lids is reduced. Dr. BARTLETT also observed that a recurrence of the protruding eyes after surgery was not associated with return of the goitre, but with a thyroid hormone deficiency. If this condition is corrected early with large doses of thyroid substance, the eyes again become normal in appearance. An operation for restoring fluid to the eye in patients with xerophthalmia has been devised by J. E. BENNETT and A. L. BAILEY and was also reported at the annual meeting of the American Medical Association. The operation was performed on a patient with xerophthalmia, a condition in which the tear ducts ceases to provide fluid to lubricate the eye. Drs. BENNETT and BAILEY relocated the parotid duct so that it would empty fluid into the eye instead of into the mouth. This worked successfully, but a second operation was necessary to create a drainage duct leading from the eye to the nose to provide for removal of excess fluid released by the parotid gland. This was particularly necessary during meals when the parotid gland was stimulated by food and continued to function as if it were emptying fluid into the mouth.....A report presented at the American Medical Association's annual meeting by M. A. WHITE and co-workers stated that *post-partum mental illness* should not be considered a specific type of mental illness. Psychiatric disorders exhibited by post-partum women do not differ from disturbances found in other women of the same age group. Some women react abnormally to major change, such as adolescence, marriage, childbirth, and ageing. When mental illness follows childbirth, it usually develops within four months, although some women experience symptoms during pregnancy. It is commonly believed that women develop mental illness more frequently after the birth of their first child, but in this study it was revealed that more women developed post-partum psychoses following the birth of a second or third child. Prognosis is generally good, but, of course, depends upon the specific psychosis

which has developed. Gamma globulin combined with an antibiotic, particularly Chloromycetin, has proved beneficial in combating bacterial infectious diseases that do not respond to other modes of treatment. B. A. WAISBREN in *Antibiotics and Chemotherapy*, 7: 322, 1957, reports that the combined action of an antibiotic and gamma globulin provides a therapeutic effect which is greater than that attained by antibiotic or gamma globulin therapy alone. In a study of 46 persons, with long-standing and severe infectious disease, favourable clinical results were achieved in 67 per cent of patients. Findings in a recent study of 1,346 persons support the concept of an aetiological relationship between salt intake and hypertension. L. K. DAHL and R. A. LOVE report their findings in the May 25 issue of the *J.A.M.A.*, 164: 397, 1957. In 105 persons with essential hypertension, the salt intake was found to be significantly higher than that of healthy persons. It is generally known that hypertension is more common in persons who are overweight, and one possible explanation is that in consuming large quantities of food, they are simultaneously ingesting more salt. A new technique for treating advanced pulmonary emphysema with radio-active iodine has been announced by R. A. SAWYER in the annual report of the University of Michigan's Memorial-Phoenix Project on the peaceful uses of atomic energy. Doses of radioactive iodine large enough to cause partial destruction of the thyroid gland are administered, thereby decreasing the body's need for oxygen. This makes the metabolic demands for oxygen equal to the diminished capability of the lung to supply it. In the past five years, 28 patients with an apparently hopeless prognosis have been treated this way with favourable results. The prospect for wider clinical application of the technique is promising. In a study of 105 patients who had anorectal operations, R. TURELL reports in the *A.M.A. Archives of Surgery*, 74: 610, 1957 that 67 per cent of the patients receiving 400 to 600 mg. of diactyl sodium sulfosuccinate (Colace) per day had bowel movements within 48 to 72 hours post-operatively. Colace is a safe and effective agent for promoting the smooth passage of stools and is particularly useful following anorectal operations when it facilitates passage of normal stools at the first post-operative bowel movement. Colace is also effective in softening and eliminating faecal impactions in surgical and non-surgical patients. A severe protein deficiency disease, kwashiorkor, can be effectively treated with skim milk, according to N. S. SCRIMSHAW and co-workers reporting in the June 1 issue of the *J.A.M.A.*, 164: 555, 1957. Symptoms of the disease include retardation of growth, loss of appetite, apathy, irritability, skin changes, brittle hair and nails, anaemia and oedema. Protein deficiency becomes evident when protein in the mother's milk becomes inadequate for the needs of the child. Malnutrition progressively

worsens when, following weaning, the diet consists chiefly of carbohydrates. Acute episodes of kwashiorkor can be precipitated by a number of factors, of which infectious diarrhoea is especially common. Other precipitating factors include diseases such as measles and whooping cough and emotional disturbances. In the majority of cases, administration of skim milk relieves or greatly improves symptoms within seven to ten days.

INFLUENCE OF DOMESTIC BOILING OF MILK ON ITS PROTEIN VALUE

Twenty-one male rats were given a low-N diet for 9 days, as a result of which their weight decreased. The N balance was measured. On the tenth day they were given a diet which restored them to their former weight within 4 days. They were then divided into 3 groups, each of which was given a diet consisting of 300 cc. milk, 65 g. starch and 0.0075 g. salt mixture. The milk for group 1 was unboiled and pasteurized, for group 2 boiled for 5 min. and for group 3 the same milk boiled but with the skin removed. The amount of N ingested and excreted was measured and the coefficient of digestibility, the biological value, and the coefficient of utilization was calculated.

In each group the coefficient of digestibility remained nearly constant. The biological value and the coefficient of utilization varied considerably from one animal to the other, but the mean of each was very close in all 3 groups.

It appears that the domestic boiling of milk, with or without the removal of the "skin," has no great effect on the protein value.—(*Lait*, 1956, 36: 369-374).

SKIN LESIONS OF DENTAL ORIGIN

Cutaneous sinuses originating from chronic alveolar abscesses may simulate skin epitheliomas. The sinuses are produced when the purulent contents of an abscess originating at the apex of an infected tooth or retained root penetrate and destroy the surrounding bone, perforate the periosteum, dissect through the soft tissue, and drain to the skin of the face or neck.

The lesion first appears as a small nodule, which grows slowly and painlessly, then ulcerates. The drainage is usually purulent at first, later becoming serosanguineous and, finally, serious. A crust may form. Often, granuloma-like tissue proliferates at the ulcerated area. The surrounding skin becomes inflamed, indurated, and adherent to bone. The lesion may persist for years.

Differential diagnosis includes epithelioma, thyroglossal sinus, actinomycosis, and bronchial or salivary fistula. Exploration of the lesion with a fine malleable metal probe may define the sinus tract and enter the sinus cavity. Roentgenograms of the jaw may show the abscess or diseased root; after injection of Lipiodol into the sinus tract, extension of the sinus to the jaw may also be demonstrated roentgenographically. Culture and smear exclude actinomycosis. Biopsy is rarely necessary.

Treatment consists of extraction of the infected tooth or operative removal of the retained root or sequestrum, with curettage of the abscess cavity and of the sinus tract.—(*G.P.*, 14: 81-85, 1956 via *Mod. Med.*, Jan. 15, 1957).

GLEANINGS FROM THE MEDICAL PRESS

OBSTETRICS & GYNÆCOLOGY

The problem of keeping premature infants warm or cold.—H. W. Kintzel. *Arch. Kinderh.*, 154: 238-247, 3., 1957 via J.A.M.A.).

Cooling has been regarded as a factor in the mortality of premature infants. It has been demonstrated in several statistical reports that the death rate is much higher in premature infants whose body temperature is below normal than in those in whom it is normal at the time they are admitted to the hospital. At the author's hospital the comparative rates were 47 and 18%. The higher mortality of those with low temperatures is evident even if premature infants with intracranial hemorrhages and with other organic lesions are excluded. Whereas it was long accepted that the premature infants should be warmed up to 37°C (98.6°F) as soon as possible, it has recently been questioned whether this produced the best results. Joppich, for instance, advised that these infants be left to depend on their own heat-regulating mechanism and that external heat (hot water bag) should be applied only if the body temperature fell to below 32°C (89.6°F). Tobler also reported favourable results with very gradual warming. Other investigators advocated not only that the body temperature of the infants not be increased, but that cooling be deliberately induced in the hope of reducing the high mortality.

In order to obtain more definite information on the advisability of hypothermia in the prematurely born, the author studied premature infants who were kept at temperatures at which they were born rather than warmed rapidly. It is pointed out that the problem in adults is different from that in premature infants because of the functional inefficiency of their heat-regulating centre. The author advises keeping premature infants weighing under 2,000 gm. (4 lb. 6 oz.) at low temperature if they are admitted with a low temperature, but this

treatment seems to be of little advantage in premature infants of higher weight. The author does not favour inducing low temperatures, even under careful supervision.

Pregnancy and peptic ulcer.—(New England J. Med., 255: 1131, 1956 via General Practitioner).

A number of clinical reports have attested that pregnancy alleviates the symptoms of peptic ulcer. The relationship of that clinical observation to gastric secretory activity has been evaluated by Gryboski and Spiro. This was accomplished by serial studies of blood pepsin levels during pregnancy and the postpartum period. Blood pepsin levels usually parallel gastric pepsin levels and are therefore a reflection of gastric secretory activity.

The authors found that during the first six months of pregnancy blood pepsin levels showed no significant variation from the normal. From the seventh month on, there was a rise in the levels that reached a peak at the time of delivery. Afterward, the levels fell to normal values during the postpartum period.

These results suggest that any alleviating effect of pregnancy on peptic ulcer needs to be attributed to some other factor than an influence of pregnancy in reducing gastric secretion. The authors offer the thought that peptic ulcer may improve during pregnancy because of improvements in diet and general care, rather than any physiologic events.

MEDICINE & THERAPEUTICS

Therapy of plantar warts.—(A.M.J. Roentgenol., 76: 1956 via Gen. Prac., 1957).

The value of irradiation in the treatment of plantar warts has been recognized by most radiologists for years. However, the majority of other physicians are unconvinced of its therapeutic benefits, according to

Reeves and Jackson. In their clinic during the past 25 years, irradiation has been the treatment of choice. First the horny or thickened surface is pared with a scalpel or a callus file. Then lead foil is applied to the periphery of the wart. It is important for the foot to be immobilized during treatment. Persons over 50 years of age are not treated because of possible changes in skin nutrition. There were no instances of post-irradiation damage.

At the time of therapy, the patient is told that he may have some reaction within two weeks following treatment, and that approximately four weeks may elapse before the reaction subsides. The patient is also advised that should this treatment fail to produce a cure, the area is not to be irradiated again.

Fats and coronary thrombosis.—(J.A.M.A.).

In a paper read before the Manchester Medical Society, Dr. J. N. Morris, the Director of the Medical Research Council's social medicine research unit, stated that he was unable to trace any correlation between mortality from coronary heart disease and trends in fat consumption. In his view, the marked variations in the mortality in western countries with comparable high-fat intakes were in accordance with the suggestion that total fat consumption was the critical factor. Changes in the consumption of animal fat in Great Britain in the present century could be related to changes in the incidence of coronary atheroma as recorded at the London Hospital, but they showed no relation to the Registrar General's figures on mortality from coronary heart disease. The trend of consumption of butter fat in Great Britain showed less than no relation, as indicated by the steep increase in the number of coronary deaths since 1943, changes in the intake of vegetable fats showed a closer relation to the mortality, and changes in intake of hydrogenated fat showed a still closer relation, except that the distribution of coronary mortality by social classes was not in accordance with the class pattern of

margarine intake. International evidence is even more contradictory. In Norway, where there is high consumption of margarine, there seem to be fewer cases of fatal coronary thrombosis than in New Zealand where little margarine is eaten. Are the Norwegians protected by eating fish? If so, this does not explain why Aberdeen reported twice the coronary death rate of Oslo. In terms of total essential fatty acids, the only available data for Great Britain give no support to the hypothesis that the population is now suffering from an absolute or relative deficiency of these nutrients. One possible explanation of the apparent anomalies of the present moment is that several dietary factors may be involved or that diet is only one of several causes of ischaemic heart disease.

Infections in leprosy institutions.—(A.E. Davison, *Internat. J. Leprosy*, 24: 275-279, July-Sept., 1956, New Orleans, via J.A.M.A.).

The concepts of some leprologists that leprosy is only, or mostly, acquired in infancy and that it is unnecessary for adults to take even rudimentary precautions against infection are considered dangerous by Davison. He describes the cases of 2 physicians, born in England, who acquired leprosy at the ages of 53 and 60 years while working as medical officers at a leprosy institution in Pretoria, South Africa, 3 Europeans who contracted leprosy as adults when working as overseers in leprosy institutions in South Africa, and 10 cases among adult Bantus who worked in leprosy institutions and contracted the disease at the average age of 46 years, although the onset of leprosy among Bantu males occurs generally at the age of 19. A plea is made for elementary hygienic practices by the staff in leprosy institutions.

Another concept that is attacked by the author as dangerous is that leprosy can be contracted only after long continued close contact. He describes a case of leprosy in a male native child who was born of a leprosy woman in an African leprosy institution. The infant was removed from his mother

6 weeks after birth and had not been exposed to infection after that. The first symptoms of leprosy occurred in the child 13 months later. The author believes that infected persons should not come in contact with children and that breast feeding of children born in leprosy institutions is to be condemned.

SURGERY

Cryptorchidism.—(*Harefuah*, Oct. 15, 1956, via *Curr. Med. Dig.*, May '57).

Cryptorchidism is a congenital malformation. In the sequence of embryological events the *tunica vaginalis* fails to open up either the inguinal canal and the scrotum, or the scrotum alone, with the result that the way for the descent of the testicle is not prepared. Shortness of the spermatic vessels or the *ductus deferens* may rarely be the cause of non-descent of the testicles, and a still greater rarity is hormonal insufficiency. The confusion in the evaluation of the effect of hormonal treatment is due to the difficulty in the differential diagnosis between true cryptorchidism and retracted testicle. Surgery is the only effective treatment except in the rare case of bilateral cryptorchidism associated with sexual infantilism. The time to operate is until the age of 5 years. The principle of the operation is to free the spermatic vessels and the *ductus deferens* from the surrounding tissues and to gain enough length for deposition of the testicle into the scrotum without tension of the cord structures. Fixation of the testis in the scrotum by elastic traction for 1 week is sufficient. The Torek operation is *not* to be recommended.

Pitfalls in adenoid and tonsil surgery.—(*Rocky Mt. Med. Jour.*, Nov. 1956 via *Curr. Med. Dig.*, April 1957).

The pitfalls that lead to trouble and poor results in adenoid and tonsil surgery are:—

(1) Inadequate pre-operative history as to clear-cut indications and bleeding; (2) Lack of close scrutiny of red blood count and haemoglobin;

(3) Inadequate psychological preparation of the patient (and the parent); (4) Inadequate anaesthesia; (5) Inadequate lighting; (6) Inadequate scrutiny of the effect of the mouth gag on teeth; (7) Dull instruments; (8) Inadequate exposure of nasopharynx and incomplete adenoid removal; (9) Improper and incomplete dissection of the tonsil and incomplete removal of the base that is adjacent to the tongue; (10) Inadequate haemostasis during the operation; (11) Failure to prevent blood from entering the larynx and trachea; (12) Lack of complete hemostasis in the tonsil fossae and nasopharynx before patient is returned to bed; (13) Inadequate observation by the nursing staff of the colour, pulse, respirations and blood pressure; and (14) Reluctance to give blood transfusion at the early stage of the trouble.

Conservative therapy of nontoxic nodular goitre.—(*Arch. Int. Med.*, 99: 60-69, 1957 via *Mod. Med.*, June 15, 1957).

Conservative management of nontoxic nodular goitre in selected patients is justified. Risk of death from thyroid cancer among conservatively treated patients is probably less than the operative mortality would be if all goitre nodules were removed.

Current criteria for selection of patients for surgery are apparently fairly reliable. Enlarging, firm, discrete tumours of the thyroid must be removed, as must nodules producing distinct pressure symptoms. Soft, smooth, round nodules which are not enlarging may be left alone. Among older patients, irregular, partially calcified masses which have not changed for some years may also be conservatively managed.

Of 140 patients with conservatively treated nontoxic nodular goitre seen between 1921 and 1945, only 1 later had thyroid cancer. In contrast, 16% of 156 surgically treated patients had cancer.

A reasonable period of observation to determine whether or not a nodule is enlarging is almost always justified. Nodules appearing during pregnancy

may regress spontaneously. Dessicated thyroid or iodine may produce satisfactory results in other instances. Since the prognosis in thyroid cancer depends principally on the biologic characteristics of the tumour, the physician may take several months to decide whether surgery is necessary.

RADIOLOGY

Radiotherapy for arthritis conditions.—(*Medical Journal of Australia*).

G. D. Kersley (*J. Fac. Radiologists*, January, 1957) has conducted an investigation of the value of radiotherapy in osteoarthritis, rheumatoid arthritis and ankylosing spondylitis. He stresses the need for adjuvant physical treatment, for postural exercises during radiation treatment and also for continuing overall management and advice by appropriate specialist. In the investigation, a control series was "treated"—they were placed under the machine, but the current was not switched on. The results are reviewed in 429 cases of osteoarthritis in which treatment was given at varying dosage levels. Of patients treated

at high dosage 57% showed improvement which was maintained. Different parts of the spine showed varying response; the best results were obtained in the dorsal region, as 69% showed marked improvement. The poorest response was in the lumbar region. Those treated at lower dosage showed improvement, but this improvement was not statistically significant. Most of the 257 patients in the rheumatoid arthritis group were in the reactive phase and showed radiological evidence of secondary osteoarthritic changes. The percentage of patients improved was 47 as compared with 30 in the control series, a difference which is not statistically significant, and it is probable that the osteoarthritic element influenced the result. In the group of 102 cases of ankylosing spondylitis, the response was more dramatic. At medium dosage 88% of the patient showed improvement, and at high dosage this figure rose to 95%. Pain relief occurred irrespective of stage of disease, and studies of the erythrocyte sedimentation rate in these cases showed a continued fall over the twelve months following treatment.

NEWS AND NOTES

The Kolhapur Medical Association has received a gift of a "DICTATO," weighing-cum-measuring machine from Messrs. Ravison Pharmaceuticals Private Ltd., sole distributors of Pfizer products in India.

The gift was handed over to Dr. P. B. Bhadre, President of the Association by Mr. G. Pinto, Regional Manager of Messrs. Ravison Pharmaceuticals at Kolhapur on July 15.

The presentation ceremony was watched by a number of members of the Association. The "DICTATO" machine would be installed at the Women and Children's Health Centre run by the Association.

Fifth International Congress of Internal Medicine

It is announced that this Congress will be held at the new Sheraton Hotel, Philadelphia, Pennsylvania

during April 24-26, 1958. This will be the first meeting of the society outside Europe. The previous Congresses, at two year intervals were held in Paris, London, Stockholm and Madrid. The objects of the Society are to promote scientific knowledge in internal medicine, to further the education of the younger generation and to encourage friendship among physicians of all countries.

The 1958 Annual Session of the American College of Physicians will be held on Atlantic City, April 28 to May 2, immediately following the Philadelphia Congress.

D.T.M. & H. Examination

The nine months' course of instruction for the D.T.M. & H. Examination of the Calcutta University will begin on the 15th October, 1957 and is open to medical graduates of Indian Universities or candidates

possessing equivalent qualifications recognized by the Calcutta University for this purpose, who have been engaged in medical practice for a continuous period of at least 15 months or held residential appointment in a

teaching hospital for at least one year. Applications for admission in the prescribed form (obtainable from the School office) should reach the Director, School of Tropical Medicine, Calcutta by the 31st August, 1957.

BOOKS RECEIVED

Pharmacology for Medical Students in Tropical Areas—By ROGER A. LEWIS A.B., M.D., Pp. 524. Published by Popular Book Depot, Bombay 7. Price Rs. 15/-

The Voice and its Disorders—By MARGARET GREENE. Pp. 224. Published by Pitman Medical Publishing Co.

Ltd., London. Price 45sh. net.

The Medical Annual 1957—By Sir HENRY TIDY and R. MILNES WALKER. 570 pp. 52 plates and 46 text, illustrations. Published by John. Wright & Sons Ltd., Stonebride Press, Bath Road, Bristol 4. [Price 38s. 6d.]

PREPARATIONS AND INVENTIONS

Glucofren, is claimed to be a sulphamide of extremely low toxicity the administration of which reduces glycaemia both in experimental and human diabetes from the very beginning of the treatment. It has been reported that the administration of 2.5 g. on the first day, 1.5 g. on the second day and 1 g. successively to patients over 40 years of age suffering from moderately serious diabetes mellitus have given good results. This is an oral antidiabetic in tablet form and is manufactured by Messrs. Cophar S. A., Gnosca-Switzerland and is marketed in India by their sole distributors Messrs. Gurco Pharma Private Limited, Post Box No. 655, New Delhi in packings of 20, 48, 200 and 1000 tablets.

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CORRIGENDA

The ANTISEPTIC for Aug. 1957 page 603. Table 2.
For RP 2544 or I.P.T.D. read BZ 55, Carbutamide Nadisan, Invenol or Orasulin.
For Tolbutamide, Orinase read D. 860; Tolbutamide or Orinase.
For Nadisan or Orasulin read R. P. 2544, I.P.T.D.

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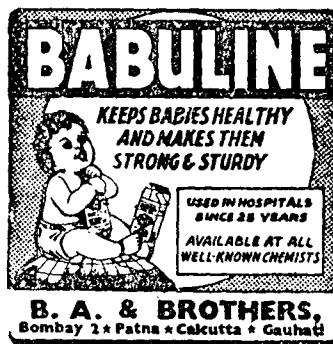
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do 5cc 500 mgm 5-20, 1000 mgm ...	9-50
Vitamin B complex, plain 1000s ...	7-50
do Super Forte 1000s ...	16-50
do Hewlett's 1000s ...	13-50
Cibazol 'CIBA' (Strips of 10 Tab.) 250s ...	13-25
Woodward's Gripe Water doz. ...	37-00
Antiphlogistin Trial 2-25; Small ...	3-75
Sulfanilamide powder lb. ...	4-50
Tedcoy's Sulfanilamide $7\frac{1}{2}$ gr. 500s ...	3-60
" Sulfathiazole " ...	9-25
" Sulfadiazine " ...	18-50
" Sulfaguanidine " ...	5-50
" Sulfadimidine " ...	13-25
" Trisulph " ...	15-00
Chloromycetin Caps. 12s P.D. " ...	11-30
C.A.F. 12s 250mg (Sealed Caps) 4-85; 100s ...	35-70
Distilled water amp. 100s, 5cc 3-20, 10cc ...	4-25
Calcium Gluconate 10% 10cc. 100 amp... ...	9-75
Glucose solution 25% 25cc 50 amp. ...	7-00
Thermometer ZEAL 2-65, Jap 1-10 Ger. ...	1-00
Ephed. Hydrochl. $\frac{1}{2}$ gr 1000s (Tab. Ld) ...	4-50
Calci. Gluc. $7\frac{1}{2}$ gr. 1000s " ...	5-75
Calci. Lactas 5 gr. 1000s " ...	3-50
Aspirin 5 gr. 1000s " ...	6-50
A.P.C. tablets 1000s " ...	13-75
(Tablets Ltd., all tablets at List Rates)	
Zama Oil 0-33 Zama Rub 0-40	
Zama Inhaler 0-47 Amarcose 4 ozs. ...	0-28
Saridon Tab. Strips of 10s 1-10, 100s ...	10-25
Penicillin & Strepto Group GLAXO list rates plus 5%	

Roche & Sharp & Dohme list Price less 20%; B.I. less 20%; T.C.F. less 15%; T.C.F. tabs less 25%; Ciba less 5%; & Parke Davis less 21%.

All Prices unengaged, ex. our godown, packing, forwarding, S.T. and other charges extra. Advance 5% by M.O. Dealers outside our State to send their 'C' Form with their orders.

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FOR QUICK RELIEF

FOR THE TREATMENT OF
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AND MOUTH.

Gargle, spray, rinse
or spread on tooth
brush or on finger tips.

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ORAL THERAPY
for
DIABETES MELLITUS
of
MATURITY ONSET TYPE

NAWOJAS

REDUCES:- Blood sugar
REDUCES:- Urine sugar
NO:- AVITAMINOSIS
IMPROVES:- Vigour
NO:- Allergy

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EXCOL

Ointment

For

Dry Eczema, Psoriasis, Ring-worm
or any dry and scaling type of
skin-diseases.

ANTIFUNGAL
ANTIPARASITIC
ANTIBACTERIAL
AND
KERATOLYTIC

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LIVAFOLBIN

Two c.c. contains:

Liver Extract	50 mg.
Folic Acid	7.5 gm.
Vitamin B12	25 mcg.

Indicated in

Acute pernicious anaemia, Macrocytic
Anæmias, Sprue

Subnormal growth in children is reported to respond to Vitamin B12. Increased appetite were noted in the patients treated and also for the functioning of bone marrow.

Dosage: To be injected intramuscularly 2 cc. daily, or alternate days as directed by the physicians.

Packing: 2 c.c. amps. and 10 c.c. & 30 c.c. R.C. phial

CALCIDOXON

(Calcium Gluconate with Vitamin C)

Five c.c. contains	Ten c.c. contains
Calcium Gluconate 10%	10%
Vitamin C 100 mg.	200 mg.

Indicated in:

Pregnancy, lactation, periods of rapid growth, febrile conditions, old age, convalescence and debility states, in Haemorrhagic & development of teeth and bones.

1 ampoule to be injected daily or alternate days intramuscularly or intravenously as directed by the physician.

MANDOSS DRUGS LTD

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Miracle Bleach For DARK COMPLEXION

DARK complexion is caused by heavy concentration of Melanin pigment in the tissues known as malpighian layer. Melanin is also the cause of freckles and skin-tan. Lessening of this pigment improves the colour of the complexion.

Florozone—the miracle bleach acts directly on pigment cells. Readily absorbed it penetrates to the pigmented tissues which it bleaches—making the skin white, fair and lovely. 'Florozone' treatment is *guaranteed*, recognised by dermatologists. Florozone Lotion Rs. 4/4/- per bottle. For acute cases Florozone Concentrated Cream Rs. 5/8/- per jar. From your chemists or direct from Hygienic Research Institute, P.O. Box 1192, Bombay 1. (Clinical report "Skin Health", sent free on request).

FOR ASTHMA

EFELIN

TABLETS FOR ORAL USE
An effective combination for the relief of
ASTHMA and allied troubles.

Each tablet contains:

Aminophylline	..	2 gr.
Ephedrine Hel.	..	1 1/2 gr.
Phenobarbitone	..	1/2 gr.
Caffeine	..	1/4 gr.

The Combination of these Four Drugs
Makes 'Efelin' A Reliable Drug in
Bronchial and Cardiac Asthma, Hay
Fever, Chronic Bronchitis Etc.

DOSE:—1 to 2 tablets during attacks,
ISSUED in Bottles of
25, 100 and 1000 tablets

INDOCO REMEDIES LTD.,
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For sustained Antacid effect

ALUSIL TABLET

(Plain or with Belladonna)

Each ALUSIL Tablet Contains:

Aluminium Hydroxide Gel. (Dried)	200 mg.
Magnesium Hydroxide (Dried)	200 mg.
Magnesium Trisilicate	250 mg.

Indicated in:

Hyperacidity, Peptic Ulcer, etc.

ALUSIL with BELLADONNA

Each tablet contains:

Alusil	... 1 Tablet
Ext. Belladonna	... 11 mg.

Suitable in cases of Peptic Ulcer with
Pain, Spasm and Discomfort.

Both Issued in phials of 75 tablets.

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We manufacture

SACCHARIN B. P. QUALITY "MOTOR BRAND"

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Manufacturers of Hydnocarpus Products for the treatment of Leprosy
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EFFICIENT ANALGESIC

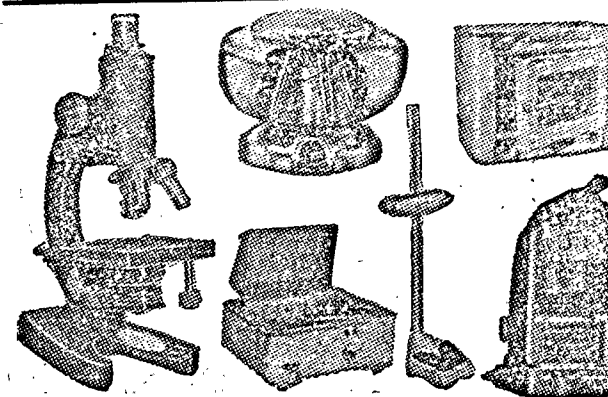


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Recommended for

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THE
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Fresh Arrival of German MICROSCOPES

- Colorimeters
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**Antibiotics
and
Sulphonamides
Recognise
Neither Friend
Nor Foe!**

Why do patients complain of deep depression following oral antibiotics or sulphonamides? It's because the B-complex-producing intestinal flora are as susceptible to these powerful drugs as the harmful pathogenic organisms.

Prevent this "double-edged sword" effect by the administration of a balanced B complex.

B COMPLEX

Vibelan Injection contains B complex vitamins with choline. Vibelan Tablets contain B complex vitamins with yeast.

AVAILABLE AS INJECTION:

Boxes of 100 x 2 ml. ampoules
Vials of 10 ml.

TABLETS (CHOCOLATE-COATED)

Bottles of 25, 100, & 500

Samples of Vibelan are available on request



VIBELAN

BRITISH DRUG HOUSES (INDIA) PRIVATE LTD.
P. O. Box 1341, BOMBAY

For Nausea & Vomiting of Pregnancy

ANUROXIN



COMPOSITION

Components	1 tablet of ANUROXIN contains	1 c.c. of ANUROXIN contains	1 c.c. of ANUROXIN FORTE contains
Vitamin B ₁	75 mg.	50 mg.	100 mg.
Vitamin B ₆	7.5 mg.	50 mg.	100 mg.
Niacinamide	25 mg.	—	—
Phenobarbitone	15 mg.	—	—
Calcium Pantothenate	—	15 mg.	30 mg.



ORIENTAL PHARMACEUTICAL INDUSTRIES LTD.
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AMEBIASIS?

WHETHER IT IS AMOEBIC OR BACILLARY
CAN BE EFFECTIVELY CONTROLLED
WITH

STADMED
ENTROZYME

Each Tablet Contains:—

Iodochloroxyquinoline 250 mg.
Phthalyl Sulphacetamide 100 mg.
Sulpha Guanidine 300 mg.
Vitamin B₁ 1.5 mg.
Vitamin B₂ 1 mg.
Niacin 10 mg.
Diastase 45 mg.
Excipient q.s.

STADMED PRIVATE LTD. CALCUTTA-4

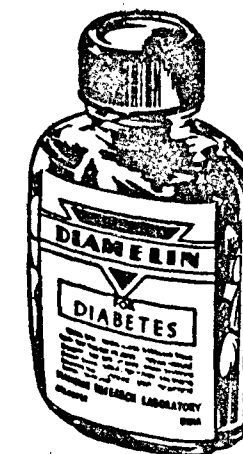


The ORAL Treatment for DIABETES

Now recommended by the leading
Physicians of the World

DIAMELIN

India's Oldest and most Efficacious oral treatment aims at not only correcting the defects of pancreas but also of the liver, nervous system, kidneys and ductless glands, which of late are also considered to be causative factors of Diabetes. Diamelin does not suppress symptoms. It is easily assimilated and gives thorough and lasting results.



Available in packing of 50 tablets at all leading chemists @ Rs. 5-75 nP. per phial.

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HERE
IS
HEALTH
FOR
YOUR
BABIES!

NAUNEHAL
BABY TONIC

Useful in the following
diseases of Children

GENERAL DEBILITY, RICKETS,
INFLAMMATION OF GUMS,
WEAKNESS DURING CONVALESCENCE,
PELLAGRA, ARTHRITIS
INFLAMMATION OF MOUTH,
COLDS & CATARRH.

FORMULA

Each dose of 4.5 c.c. (approx.
one teaspoonful) contains:

Vitamin A	... 2000 I.U.
Vitamin B ₁	... 0.4 mg.
Vitamin B ₂	... 0.6 mg.
Niacinamide	... 5 mg.
Vitamin C	... 20 mg.
Vitamin D ₃	... 500 I.U.
Calcium Glycero-phosphate	... 0.5 gr.
Sodium Glycero-phosphate	... 0.25 gr.
Sucrose	q.s.

NAUNEHAL
THE RICHEST TONIC FOR BABIES

Hamdard

DAWAKHANA (TRUST) DELHI

NAUNEHAL
GRIPE SYRUP

Useful in the following
diseases of Children

CONSTIPATION, INDIGESTION,
FLATULENCE, DIARRHOEA,
DYSENTERY, TEETHING,
ENLARGEMENT OF LIVER &
SPLEEN, DISTURBED SLEEP,
INFLAMMATION OF MOUTH,
SALIVATION, ROUND WORMS
& OTHER WORMS, EXCESSIVE
THIRST.

FORMULA

Each dose of 4.5 c.c. (approx.
one teaspoonful) contains:—

Aqua Pudina Destil-lata	... 3 min.
Aqua Zira Destillata	... 3 min.
Conc. Anisi Water	... 1 min.
Aqua Anethi Conc.	... 1 min.
Aqua Ment. Pip	... 1 min.
Soda Bicarb	... 2 grs.
Sodii Bromidum	... 1 gr.
Spt. Ammonia Aromat	... 1 min.
Spt. Chloroforml	... 1 min.
Sucrose	q.s.

for calcium deficiency states

COLLO-CAL-D ELIXIR

(Colloidal calcium with vitamin D)

Presenting a more potent and more palatable
form of the well known Collo-Cal-D Oral.

This is a creamy orange flavoured elixir
containing 500 i.u. vitamin D₃
and 480 mg. calcium per teaspoonful.

available in 4 oz. bottles:

COLLO-CAL-D with VITAMIN B₁₂

(Colloidal calcium, vitamin D and vitamin B₁₂)

The tonic value and growth promoting action
of vitamin B₁₂ is well recognised and its
addition to Collo-Cal-D is therefore logical. This
new formulation provides a 0.85% solution
of the calcium salt of oleic acid with 5,000 i.u.
vitamin D and 50 µg. vitamin B₁₂ per ml.
for intramuscular or subcutaneous injection.

Supplied in 15 ml. r.c. vials.



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(Incorporated in England. The liability of Members is limited.)
COURT HOUSE, CARNAC ROAD, BOMBAY-2

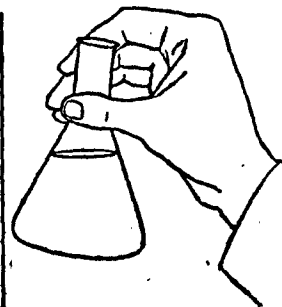
for the relief of TENSION

'MYANESIN'

TRADE MARK

ELIXIR & TABLETS

In rheumatic conditions
In anxiety and allied states



It is now becoming recognised that many cases diagnosed as psychogenic rheumatism are in fact cases of anxiety-induced muscle tension and can therefore logically be treated with Myanesin Elixir and Tablets.

Carefully controlled experiments have demonstrated that muscle tension is greater in anxious patients than in healthy persons. The more severe the symptoms of anxiety the greater is the tension in the muscles.

* Mephenesin, the active constituent of Myanesin preparations, was discovered in the B.D.H. Research Laboratories.

The suggested dosage is—One tablespoonful or two tablets four times daily
Myanesin Elixir and Tablets are also valuable in the treatment of:—

Backache
Headache
Bronchial Asthma
Neurodermatoses
Dysmenorrhoea
Premenstrual Tension

one tablespoonful
or two tablets
four times daily

Insomnia
Nocturnal Cramp

one tablespoonful
at night

'MYANESIN' ELIXIR one gramme mephenesin in each table-
spoonful. Bottle of 8 fl. oz.

'MYANESIN' TABLETS each containing 0.5 gramme mephenesin

BRITISH DRUG HOUSES (INDIA) PRIVATE LTD.

P. O. Box 1341, BOMBAY-1

To the physician requiring a dependable Liver Extract for stimulating intensive erythropoiesis in macrocytic anæmias, Befolex, containing all the constituents of anti-anæmic principle, offers an ideal choice.

Crude Liver Extract
with folic acid and vitamin B₁₂

Befolex

FOR INTRAMUSCULAR INJECTION ONLY

Mode of Issue: Boxes of 2 c. c. × 6 ampoules • Rubber capped vials of 10 c. c.

BENGAL CHEMICAL CALCUTTA BOMBAY KANPUR

Calm
Psychic Storms

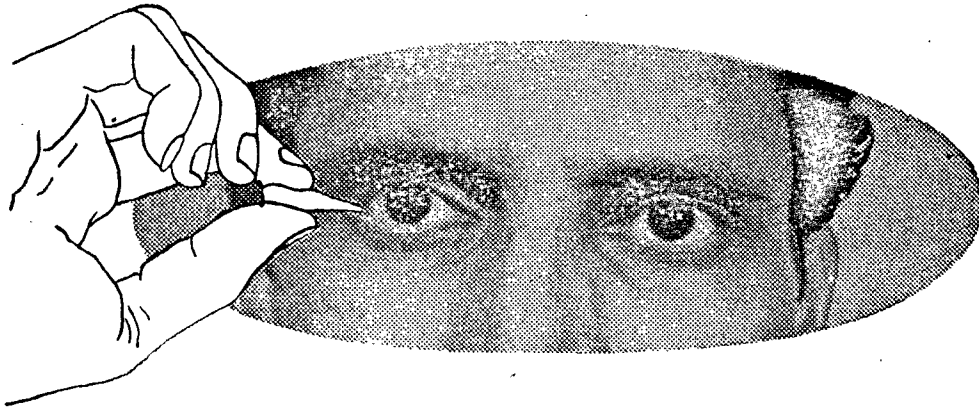
Rausedatin

Oleo-resin fraction of Rauwolfia Serpentina for Mental Disorders

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In Ocular Infections...



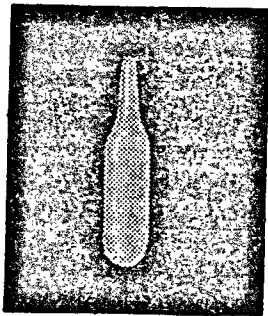
Highly Effective

Sealed and Protected in Disposable Applicator

Sufficient Medication for Application in Both Eyes

Minimizes Cross-Contamination and Re-Infection

Easily Administered



Chloromycetin

'APLICAPS'

SPECIAL-SHAPED PLIABLE GELATIN
CAPSULES WITH ELONGATED TIP

*Chloromycetin Applicaps are supplied in bottles of 12's and
50's, each Applicap providing 2.5 mg. of Chloromycetin in
250 mg. of a specially formulated petrolatum ointment base.*



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