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MARCH, 1959

The Antiseptic

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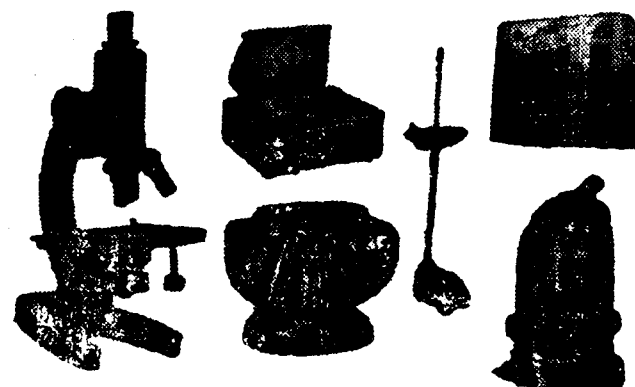
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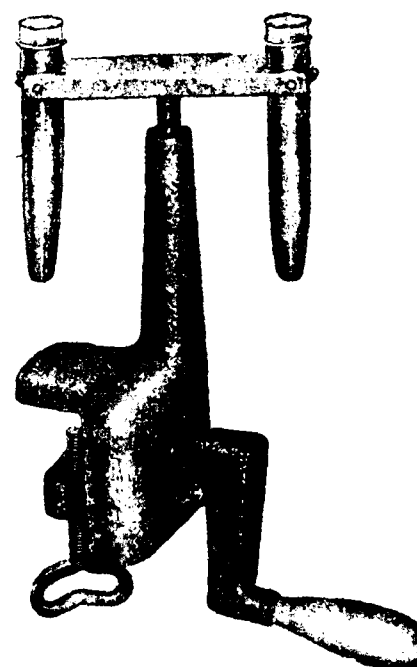
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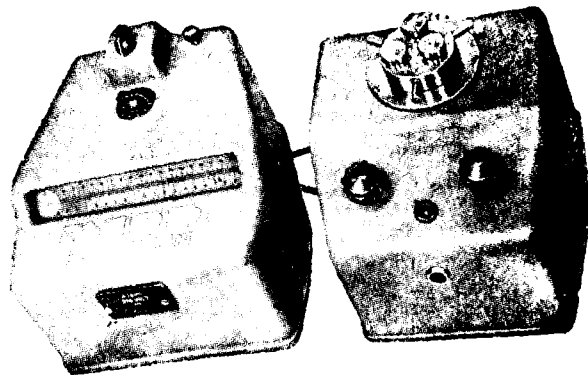
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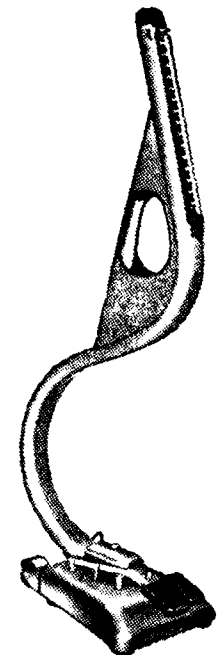
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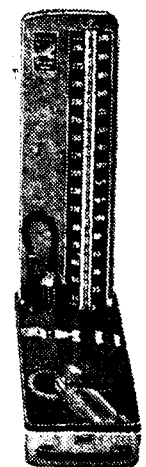
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[10]

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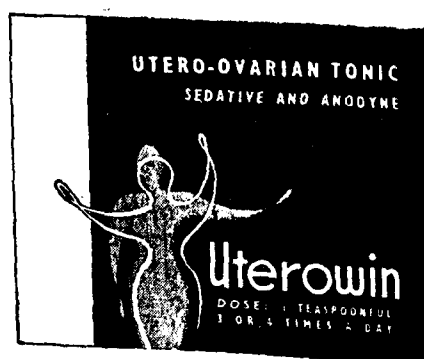
*Chronic Indigestion and
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Potent Presentation of

● DIGESTIVE ENZYMES	Pepsin Papain Diastase
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Vitalises the Neuro-Endocrine functions of the
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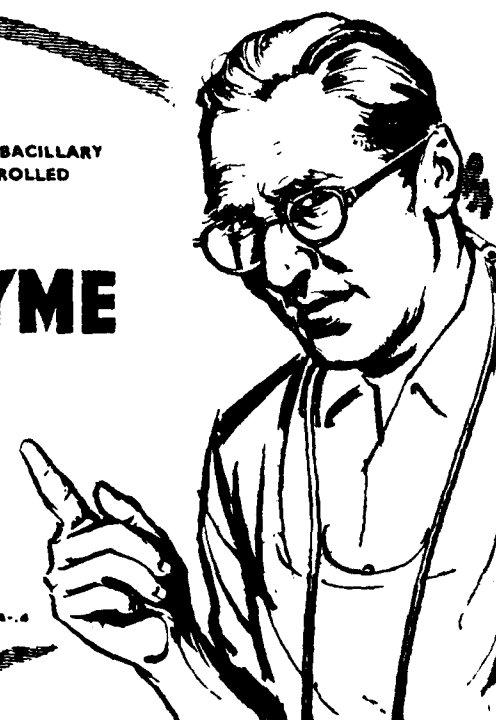
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Each Tablet Contains :—

Iodochloroxyquinoline	250 mg.
Phthalyl Sulphacetamide	100 mg.
Sulpha Guanidine	300 mg.
Vitamin B ₁	1.5 mg.
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Niacin	10 mg.
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[11]

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Proteolysed-Liver Extract derived from	10 g.	of fresh Liver
Stomach Extract derived from	1 g.	of fresh Liver
Hæmoglobin	0.5 g.	
Vitamin B ₁ B.P.	6 mg.	
Riboflavin B.P.	2 mg.	
Nicotinamide B.P.	50 mg.	
Calcium Pantothenate USP	10 mg.	
Pyridoxine Hydrochloride B.P.C.	1 mg.	
Folic Acid B.P.	2.5 mg.	
Vitamin B ₁₂ B.P.	10 mcg.	

ISSUED IN 4 & 8 oz. bottles

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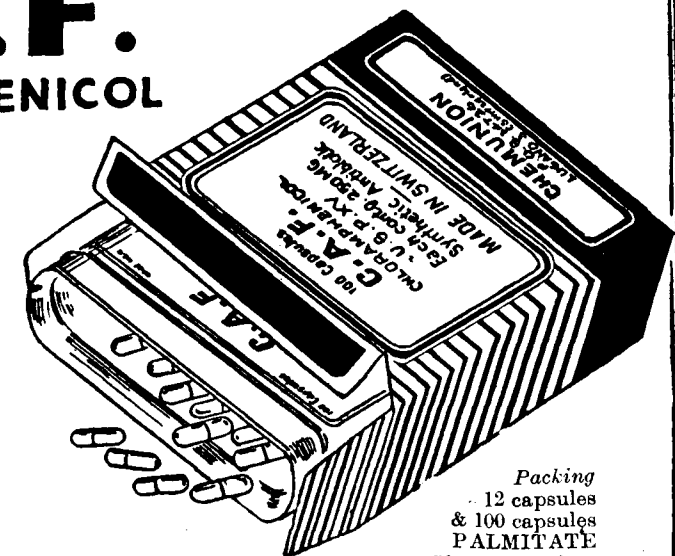
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Each Tablet contains:	
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Vitamin B1 (10 mg.)	... 0.166 gr.
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Headache, toothache, colds, fever and muscular and
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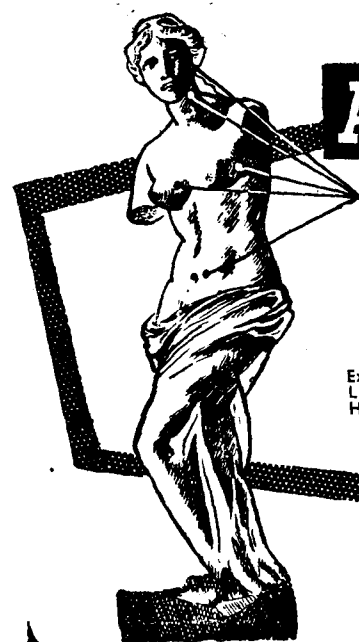
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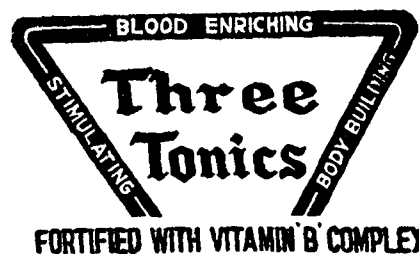
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In Pulmonary Tuberculosis it brings down the Pyrexia, produces gain in weight, increases the appetite, diminishes the sputum.

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NULACIN

Milk-alkali drip therapy without a tube

The most effective control of gastric acidity is milk-alkali drip therapy; the most convenient way of obtaining milk-alkali drip therapy is by sucking Nulacin tablets.

Thus, Nulacin is of great value in the treatment of peptic ulcer in the ambulatory patient, and in the prevention of ulcer relapse.

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SELECTED REFERENCES

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Brit. Med. J., 26th July, 1952, 2: 180-182

Discussion on Peptic Ulceration
Proc. Roy. Soc. Med., May, 1953, 46: 354

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Brit. Med. J., 23rd January, 1954, 1: 183-184

Clinical Investigation into the Action of Antacids
The Practitioner, July, 1954, 173: 46

Ambulatory Continuous Drip Method in the Treatment of Peptic Ulcer—
Amer. J. Dig. Dis., March, 1955, 22: 67-71

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THE IDEAL ANTISEPTIC AND DEODORANT CONTRACEPTIVE TABLET

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KEEPS PERFECTLY IN HOT CLIMATES. The average weight of each tablet when packed is 1.2 grams and contains w/w: Sod. Bicarb. B.P. 0.146 gm. Acid. Tart. B.P. 0.12 gm. Toluene-p-Sulphono-dio-chloroamide 0.013 gm. Perfume q.s., Excipient to 1.2 gm.

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Proteolysed Whole Liver Ext. equivalent orally to fresh Liver	300 gm.
Vitamin B ₁₂	30 mcg.
Folic Acid	7.5 mg.

2 cc. Ampoules
In packs of 6, 12 & 50
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WITH VITAMIN

500 mg.
in 10 c.c.



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Ampoules 5 c.c. 10 c.c.
Calcium Glucono-Glutamate 10% 10%
Vitamin C 100 mg. 200 mg.
250 mg. 500 mg.

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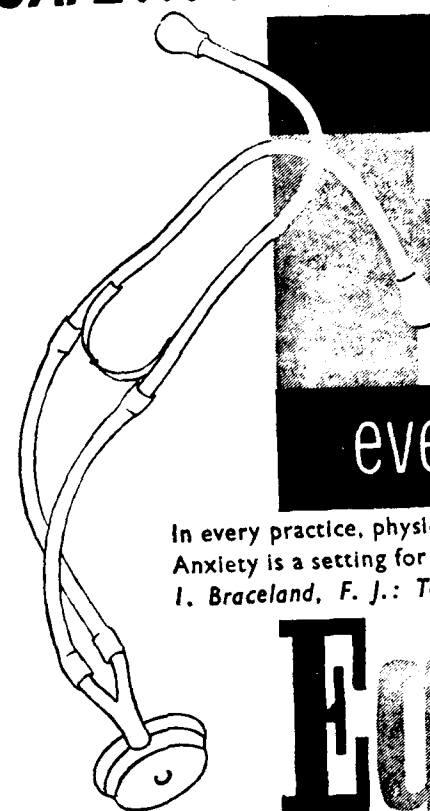
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is part of

every illness!

In every practice, physical sickness is a setting for anxiety!
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I. Braceland, F. J.: Tex. State J. Med., 51:287, 1955.



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Apprehension	Post-operative Care	Mucous colitis	Tetanus	Bursitis
Insomnia	Medical Dentistry	Menstrual Disorders	E. C. T.	Low Back Pain
Premenstrual Tension	Psychotherapy	Tension Headache		Spondylitis
Pregnancy Anxiety		Hypertension		Osteoarthritis
Alcoholism		Myocardial Infarction		Lumbago
Behaviour problem		Neurodermatitis		Wry-neck
Neurosis		Allergy		Fibrositis
Schizophrenia		Asthma		Cerebral palsy
		Cancer		Hemiplegia
		Chronic Diseases		Paraplegia

SUPPLIED: Bottles of 20 x 400 mg., 100 x 400 mg. and 20 x 200 mg. tablets

JOHN WYETH & BROTHER LIMITED

(Incorporated in England with Limited Liability)

Steelcrete House, Dinshaw Wacha Road, Bombay I

* Trade Mark

PANEDIOL
MEPROBAMATE

Latest Tranquilizer—
mind-muscle relaxant.
No after-effects.

BUTARIN
INJECTABLE & TABLETS

Phenyl Butazone, Amidopyrine plus
Vitamin C—the most efficacious com-
bination against Rheumatic Arthro-
pathies. Plain Phenyl Butazone inject-
able and tablets are also available as
"PHENARIN".

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Introducing
PENIVORAL

PENIVORAL Tablets introduce an acid stable
form of Penicillin which puts oral Penicillin
therapy on par with parenteral
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PENIVORAL is the trademark for
Phenoxymethyl Penicillin or
Penicillin V, a new form of
Penicillin absolutely stable and
unaffected by gastric acid.

It extends the use of oral
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12 scored tablets of
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- * PENIVORAL -TRISULFAS:
100,000 I. U. Penicillin V
and
150 mg. Sulfadiazine
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- * Stable in Acids—
in the stomach.
- * Completely absorbed
by the duodenum.
- * Perfectly tolerated.
- * Same activity as
parenteral Penicillin
therapy.

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

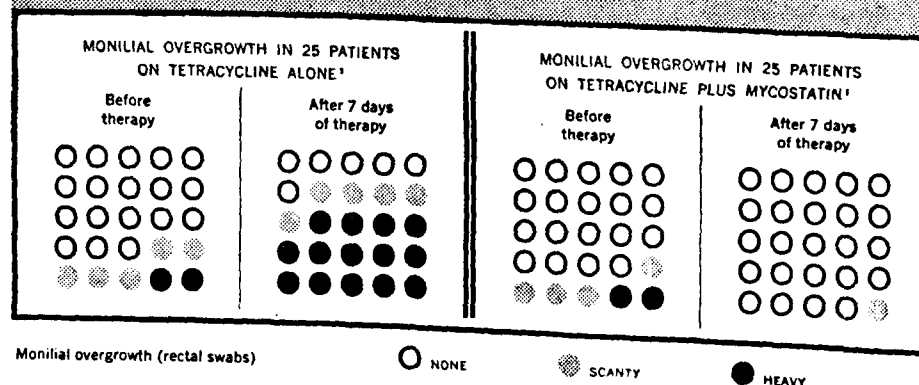
Now...victory over infections

- **pharmacodynamically superior**
- **therapeutically unsurpassed**

With Mysteclin-V you get faster and greater absorption of tetracycline than ever attainable in the past... providing all the benefits of well-established tetracycline therapy. For practical purposes, Mysteclin-V is sodium-free.

MYSTECLIN-V

Contains Mycostatin to forestall monilial overgrowth and possible complications



Mycostatin in Mysteclin-V prevents gastrointestinal monilial overgrowth, thereby minimizing the possibility of antibiotic-induced monilial superinfection.

Supply	Tetracycline phosphate complex, equiv. to tetracycline HCl (mg.)	Mycostatin (units)	Packaging
Capsules (per capsule)	250	250,000	Bottles of 8 and nested packings of 50

1. Childs, A. J.: British M. J. 1 660 (March) 1956.

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A century of experience builds faith

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Manufactured from purest materials
MANUFACTURERS OF SQUIBB MEDICALS IN INDIA

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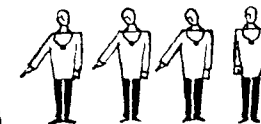
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'ANACIN' with its FOUR MEDICINES

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'Anacin' is a non-toxic and clinically dependable analgesic and antipyretic combining Quinine, Phenacetin, Caffeine and Acetylsalicylic Acid to provide powerful synergistic action against pain, nervous tension, depression and feverishness. A single dose of 2 tablets will achieve a prolonged period of analgesia and impart a sense of well-being.



3 out of 4 doctors recommend the ingredients of 'ANACIN'

Composition:
Quinine $\frac{1}{2}$ gr. Phenacetin 3 gr.
Caffeine $\frac{1}{2}$ gr. Acetylsalicylic Acid 3 gr.

Made in India by:

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**Prolonging
the
Middle age**

Appreciation of the process of aging and its relationship to nutrition and metabolism is demonstrating that old age need no longer be regarded as a period of inactivity and sickness. The onset of premature senility at middle-age can often be traced to steroid-nutritional deficiency. It is precisely for the prevention of this deficiency that 'Geriatone' has been developed.

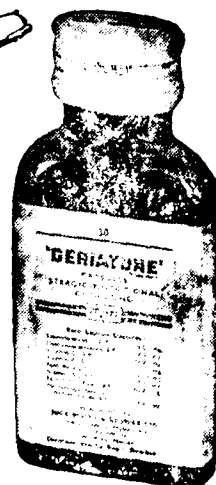
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CAPSULES
Steroid-Nutritional Compound

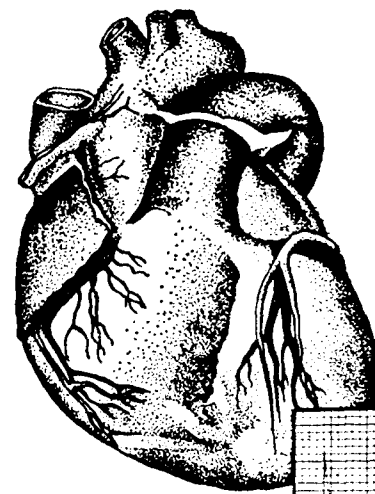
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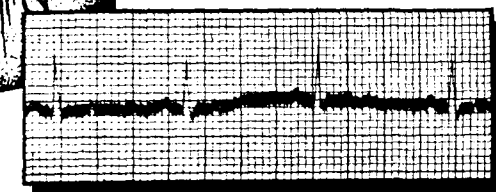
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Bottles of 30 and 240



FLATTENING OF
T WAVES INDICATING
MYOCARDIAL DEFECT



- **Myocardial Damage**
- **Cardiac Insufficiency.**

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EXTRACTUM CORDIS TOTALIS
ORAL

"Cardiovascular diseases are caused primarily by the degeneration of heart muscle. If we replace the used up and missing active chemical constituents contained in the heart muscle responsible for normal myocardial activity, the onset of organic heart disease could be prevented and a number of lives thus saved". (Science, 104, 1946)

HERZOLAN is concentrated extract of heart muscle containing all the active chemical constituents such as ATP, Riboflavin, Lyxoflavine, Cuorine and the essential enzyme Cytochrome c. HERZOLAN is an excellent nourishment for the weakening and degenerating human heart.



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Cipla BOMBAY-8.

"HERZOLAN"
Exhaustive Literature
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LIVULES

̄ Folic Acid & B₁₂



**A potent weapon against
diverse types of anæmias.**

Livules is a standard oral treatment for anæmias. It presents for this purpose an ideal, complete, antianæmic preparation with which the hæmatologic response is prompt and definite, and the clinical results uniformly good.

COMPOSITION:

Each capsule contains:

Proteolysed Liver Powder from 2.25 G. of fresh Liver having
Vitamin B₁₂ activity equivalent to 0.5 mcg. of Cyanocobalamin.
Proteolysed Stomach Powder from 1 G. of fresh Stomach.
Ferrous Sulphate Exc. s.p. 0.1 G. (1½ gr. approx.)
Vitamin B₁ s.p. 5 mg.
Vitamin B₂ (Riboflavin s.p.) 2 mg.

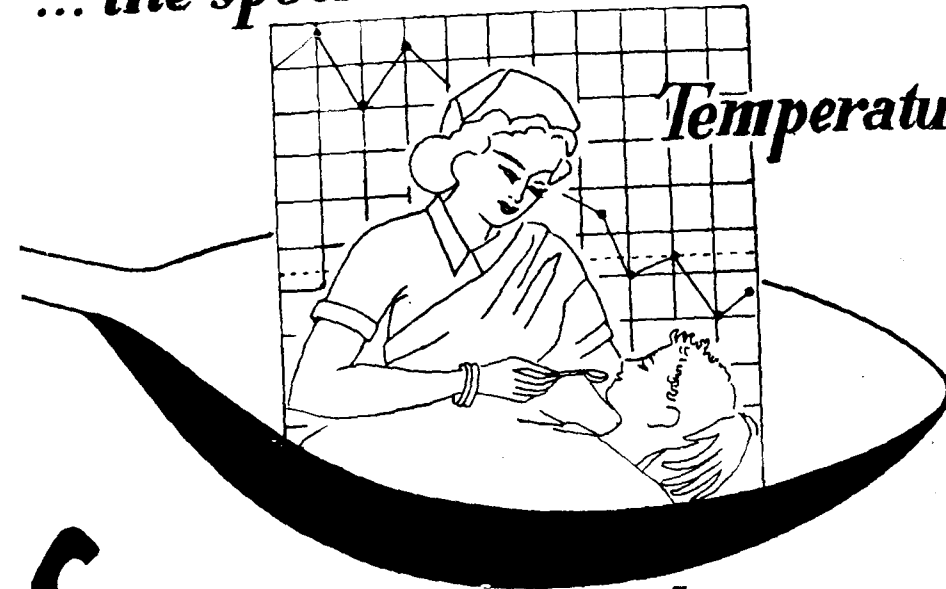
Vitamin B₆ s.p.c. 0.5 mg.
Niacinamide s.p. 15 mg.
Calcium Pantothenate U.S.P. 1 mg.
Vitamin C s.p. 30 mg.
Folic Acid s.p. 1.5 mg.
Vitamin B₁₂ s.p. 5 mcg.

**ALEMBIC CHEMICAL WORKS COMPANY LIMITED,
BARODA-3.**

MP, 58.14

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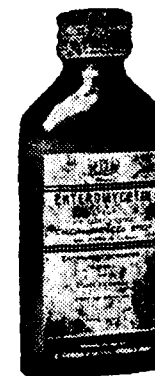
*... the spoon that brings down the
Temperature.*



Enteromycetin syrup

CHLORAMPHENICOL U.S.P.

PLAIN AND WITH VIT. B. COMPLEX



Especially for infants and sensitive patients. Vitamin B-Complex assures further protection by preventing possible effects of avitaminosis.

Packing:

Syrup (with Vit. B-Complex) in 60 c.c., and Syrup (plain) in 50 gm. in Tamperproof bottles with Plastic Spoon.



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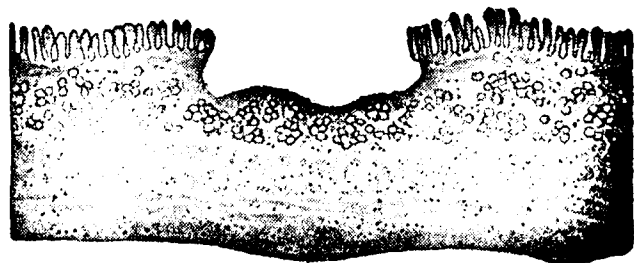
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Action and Coaction

in peptic-ulcer management

- To combat corrosive acidity by prompt buffering
- To relieve acid distress and pain
- To promote healing by prolonged protective action
- To avoid systemic disturbance—no autonomic side-effects, no alkalosis, no acid rebound, no renal burden



Liquid: Bottles of 12 fl. oz.

Tablets: Bottles of 60 and 180.

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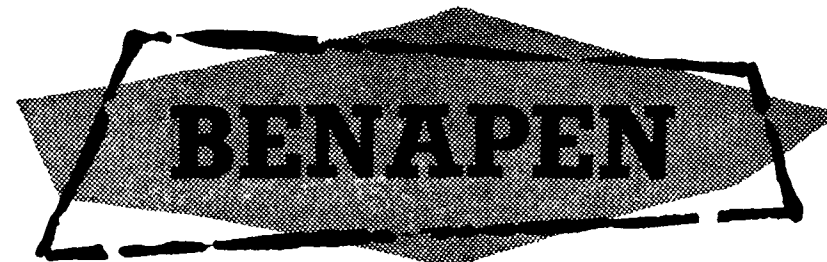
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double gel
for
biphasic
action

two LONGER ACTING PENICILLIN PREPARATIONS



- READY FOR USE
- NON-OILY STABLE SUSPENSION

For the busy practitioner, in the clinic or on visits, Benapen (benethamine penicillin) is the best of all long acting penicillins. It is the only long acting penicillin stable in aqueous suspension.

Vials of 10 cc. containing 300,000 units of benethamine penicillin per cc.



- RAPID AND PERSISTENT EFFECT

Because it also contains crystalline penicillin for rapid effect, Benapen Fortified requires the addition of water for suspension. Benapen is superior to procaine penicillin since it gives persistent blood levels for 3-4 days.

Single dose vials containing 500,000 units benethamine penicillin and 500,000 units of sodium penicillin.

BENAPEN and BENAPEN FORTIFIED
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GLUTANEUROL

Granules & Tablets

L - Glutamic acid dextrogyre
+ Vitamin B₁

Particulars, Literature, Etc. From
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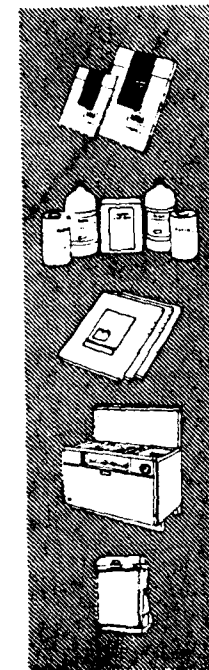
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NPH Insulin, Lilly

Moderately long-acting

Carefully standardized

For Intermediate Effect : (affords best control for most patients) NPH Insulin, Lilly, U-40 and U-80

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Cardiac stimulant
Vascular antispasmodic
Diuretic

Composition:

Aminophylline	0.1 gm.
Papaverine hydrochloride	0.01 gm.
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Tubes of 20 tablets Bottles of 100 tablets

MEXYL Laboratories LTD. BERNE-Switzerland

120

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When children
do not enjoy normal
healthy pastimes...

Something is WRONG

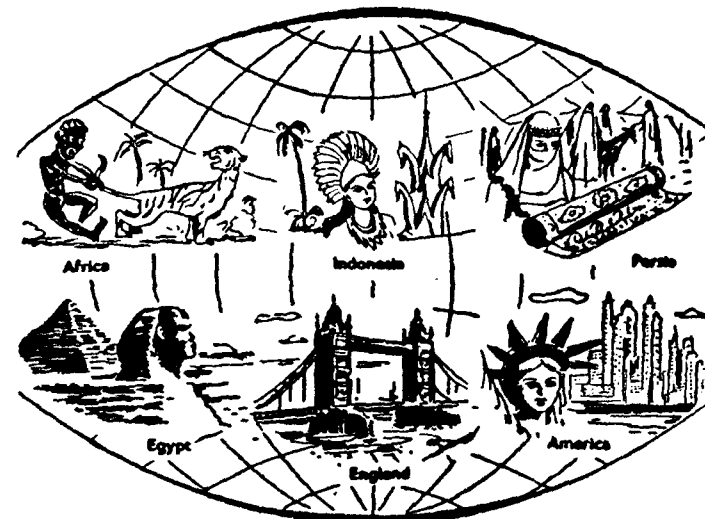


Calcium is an essential requirement for normal healthy development in the young and a deficiency will result in a tired, fractious and unhappy child. CROOKES COLLO-CAL-D is an effective and acceptable means of providing an adequate calcium intake.

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COLLO-CAL-D—4 oz. and
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Boxes 6 x 1 ml. ampoules.
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COLLO-CAL-D with
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CLY-59

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It is sold all over the world!

Africa, Indonesia, Persia, Egypt
even England and America.

In almost all the nations of both the Hemispheres.
Loma is sold and the demand is still increasing

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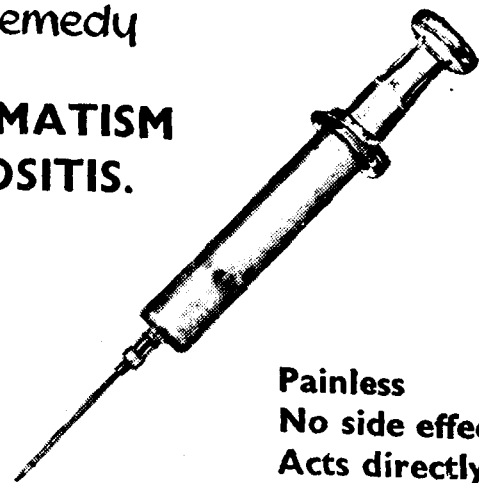
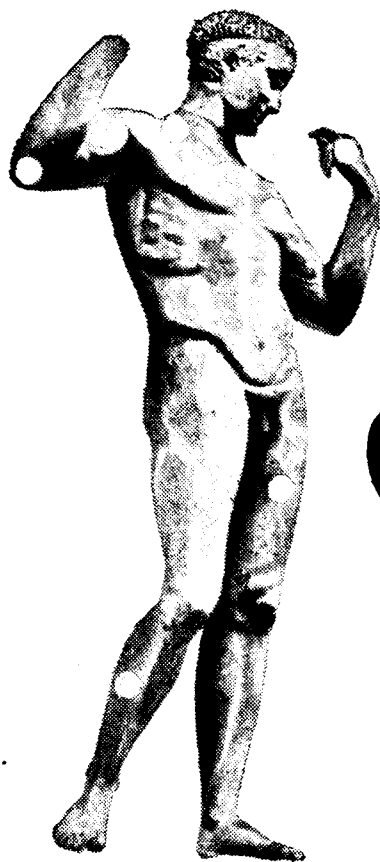


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HAIR DARKENER

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A Modern tested remedy
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MUSCULAR RHEUMATISM
LUMBAGO-FIBROSITIS.



Painless
No side effects
Acts directly
on affected
muscle.

EUPRAGIN

eliminates the pain.

For Intramuscular Injection

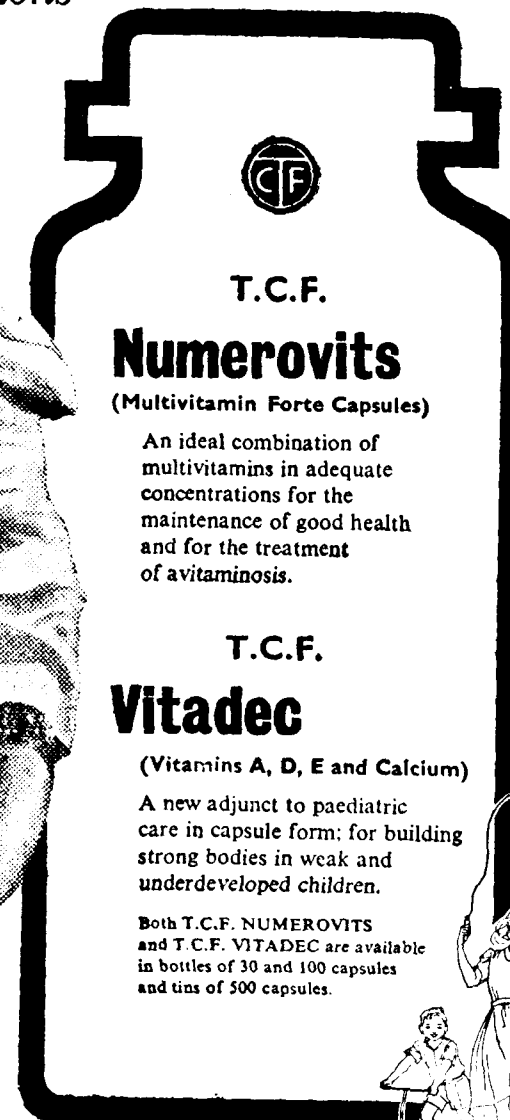
Composition:	5 cc.	10 cc.
Each amp. contains:	Amps.	Amps.
Sodium Sulphate	0.24 g.	0.48 g.
Potassium-Sodium Tartras	0.05 g.	0.10 g.
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Packing: 5 amps. & 50 amps. Boxes.

Manufactured by:
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An ideal combination of
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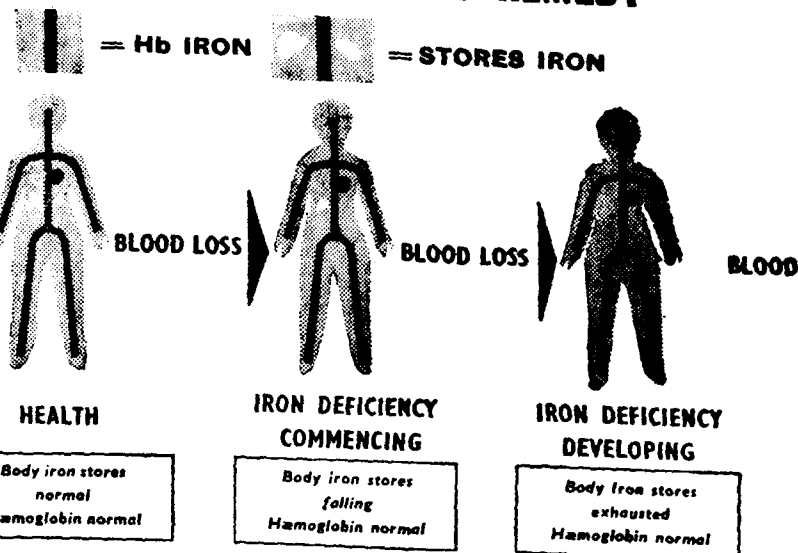
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Iron deficiency—a problem met with in every part of the world; a problem that until recently defied effective solution because of the natural mechanism regulating intestinal iron absorption. British, American and Continental research confirms that in cases of iron deficiency there is a preferential use of iron to keep up the haemoglobin level when iron losses are excessive. Iron is therefore drawn from the body iron stores for this purpose.

The control mechanism prevents replenishment of depleted body iron stores in the liver, spleen and bone-marrow, keeping thousands of patients constantly on the verge of anaemia.

For practical purposes, the intestinal mechanisms which regulate the retention of oral iron reduces absorption as the anaemic phase of iron deficiency is corrected.

IMFERON, the first and only satisfactory preparation of iron suitable for

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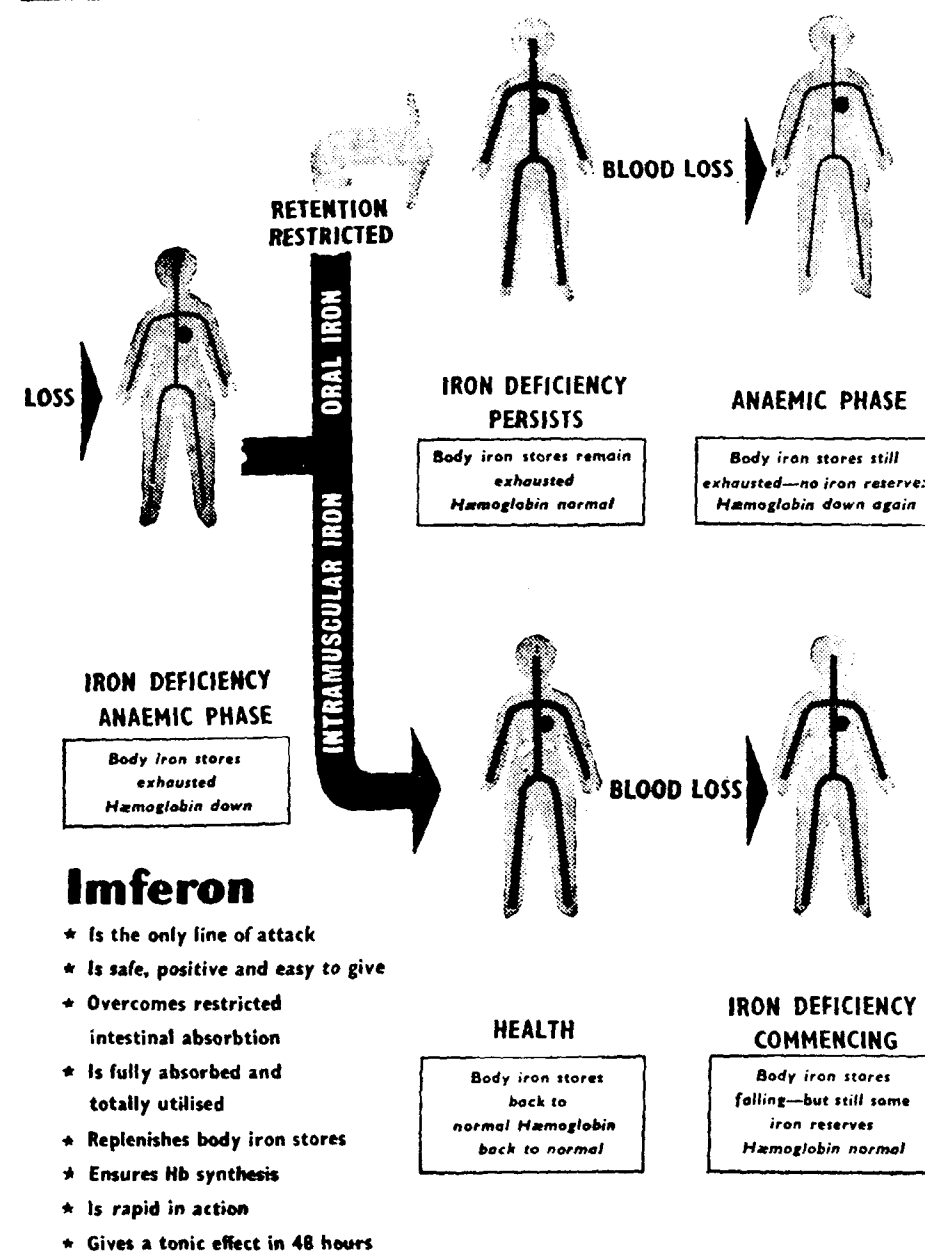
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iron-dextran complex

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the specific therapy in iron deficiency

MARKED TONIC EFFECT IN 48 HOURS

In the
Treatment of

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THE COMBINED ACTION OF FOLIC ACID AND VITAMIN B₁₂ IS CONFIRMED BY CLINICAL EXPERIMENTS WHERE FOLIC ACID AND VITAMIN B₁₂ WERE BOTH FOUND INEFFECTIVE WHEN USED ALONE

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In macrocytic anæmia of Tropical Sprue, as in pernicious anæmia, there is a deficiency of both Folic Acid and Vitamin B₁₂ and that the mechanism of absorption and utilisation of these two substances is similar in both diseases. Six cases of Tropical Sprue treated simultaneously with Folic Acid and Vitamin B₁₂ gave satisfactory hæmatologic and clinical response.

Diez Rivas, F. et al: *Ann. Interm. Med.*, 36. 1076, 1952

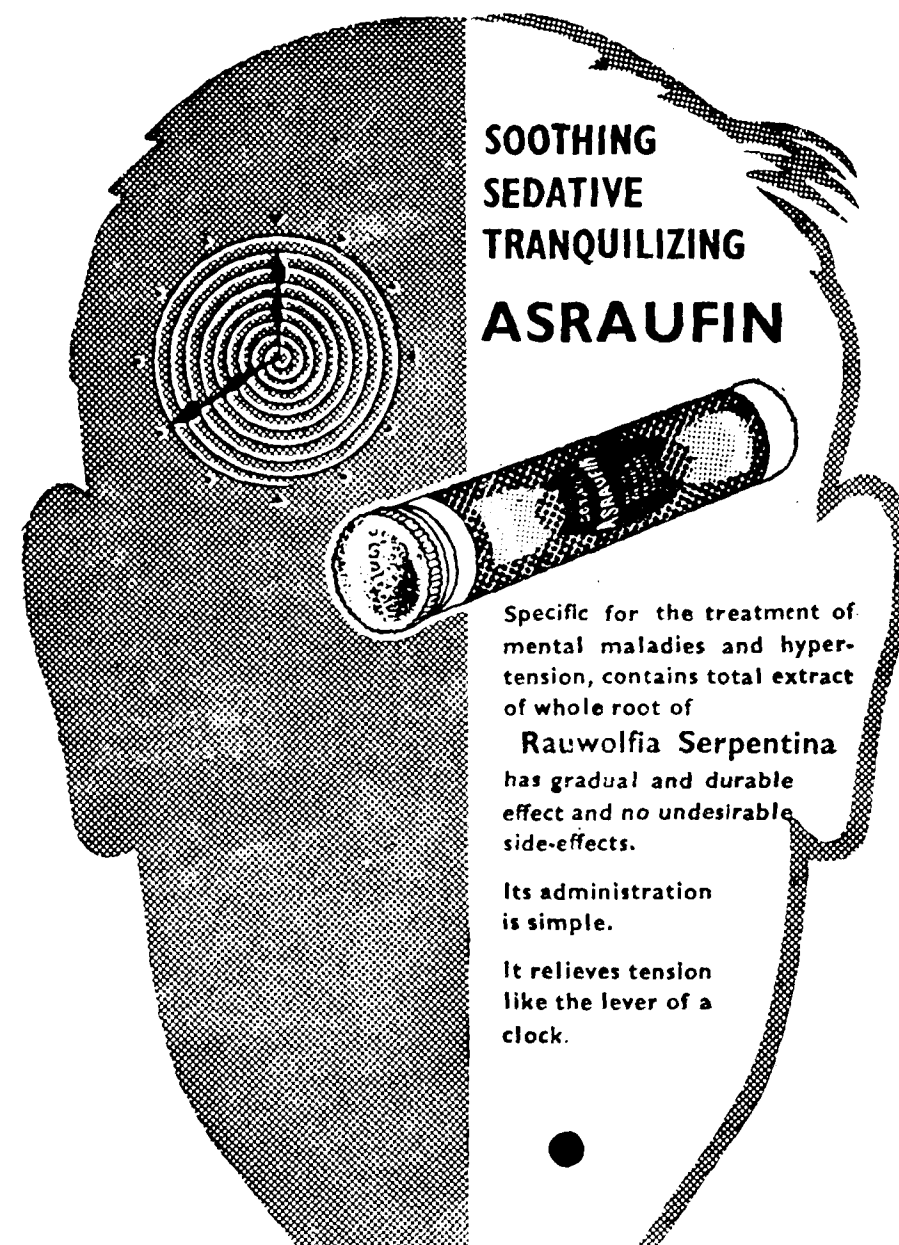
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ASRAUFIN

Specific for the treatment of mental maladies and hypertension, contains total extract of whole root of

Rauwolfia Serpentina
has gradual and durable effect and no undesirable side-effects.

Its administration is simple.

It relieves tension like the lever of a clock.

A Classical Remedy

"Crude extracts have more of a sedative action"

—Dr. R. Heilig, *Indian Practitioner*, 1955

Hamdard
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For the treatment of
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congestive and spasmodic

UTONE is a balanced combination of selected Ayurvedic drugs well known for their beneficial effects on female genital system. It relieves congestion and inflammation of the uterus and its appendages, corrects their functional irregularities and restores them to normal condition.



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'Arkashala'
Ayurvedic
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For Neuro Vegetative Disturbances.

CONTAINS:

Valerian, Belladonna, Secale Cornut, Hyoscyamine
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Highly beneficial in:

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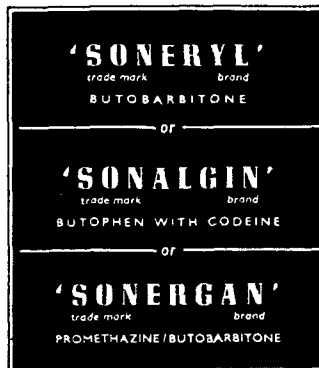
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Fortified with male & female hormones to step
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who find sleep difficult,
prescribe...



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MAY & BAKER LTD

M&B brand Medical Products

when pain
causes insomnia
for
refractory cases
of insomnia
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A Standardised Tonic

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Contains

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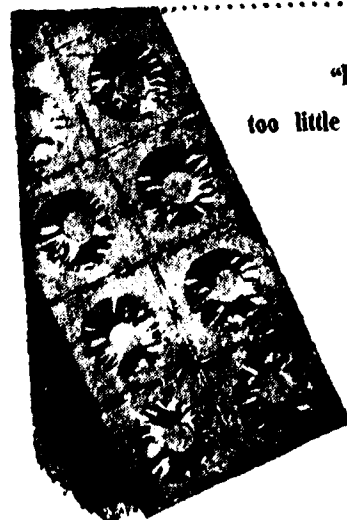
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Original Articles

A PLEA FOR RE-ORIENTATION OF THE MANAGEMENT OF ASYMPTOMATIC DIABETES MELLITUS*

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AFTER over 30 years of medical practice, there is an irresistible temptation to look back with pride over the tremendous advances made in the field of Medicine, which one has been witnessing during the years that have passed. Advances in knowledge of tropical diseases, tuberculosis, cardiology, infectious diseases, virology, aviation medicine, radiation diseases and of radio-isotopes have been amazingly great. As if to meet the challenge, new diseases, like viral hepatitis, encephalitis, and industrial diseases have come into being and old diseases like hypertension, coronary artery disease and diabetes mellitus are assuming greater importance because they are causing morbidity on an increasing scale and levying a progressively increasing toll of useful lives.

I propose in this article to review the changing concept relating to diabetes mellitus and enter a plea for a re-orientation of the problem in the light of my personal experience.

I was on the threshold of my medical career when the discovery of Insulin was proclaimed by Banting and Best in 1922. In 1889, v. Mering and Minkowsky performed their classical experiments on dogs and showed that diabetes mellitus can be produced in animals by removing their pancreas, thereby establishing the

*Paper presented to the 35th All India Medical Conference held at Cuttack, Orissa.
Specially contributed to the ANTISEPTIC.

ætiological site of the disease. Prior to this, the liver, kidneys, and bladder were considered to be the organs at fault. Since then, workers were busy trying to extract the anti-diabetic principle from the pancreas. It was on the 11th January 1922, that the first patients were treated in the Toronto General Hospital with the pancreatic extract prepared in the laboratory of Banting and Best.

The discovery of insulin revolutionized the treatment of diabetes mellitus and brought hope and relief to the despairing diabetics. But the ætiology of the disease is still far from having been solved. Houssay and his colleagues showed that the symptoms of diabetes mellitus were greatly mitigated in the depancreatized dog by ablation of the anterior pituitary. Thus it became clear that the anterior pituitary produced a hormone which would antagonize the action of insulin. A similar diabetogenic influence is exerted also by the adrenal and thyroid glands. It has recently been found that the alpha cells of the islets of Langerhans produce a hormone—Glucagon—which causes hyperglycæmia. In short the disease is associated with multi-glandular dysfunction.

Among the various manifestations of diabetes mellitus, hyperglycæmia and glycosuria have greatly attracted the therapist's interest. All attempts are diverted at eradicating the two. Obviously, it is believed that the cure of these two is equivalent to the cure of diabetes mellitus. Such an equation is fallacious and can be queried for strong reasons. For the disorder of carbohydrate metabolism is not the only anomaly in diabetes. Disorders of protein and fat metabolism, and disturbances of water and electrolyte balance also characterize the disease. It is known that there is increased gluconeogenesis (i.e. formation of sugar from proteins) and lipæmia. A rise in the level of the blood cholesterol is considered by many to be a better index of the severity of the disease. In our present day practice, we aim at eradicating glycosuria and hyperglycæmia, in the belief that these two are the greatest evil consequences. Is it really so?

This raises the question 'Is hyperglycæmia the enemy? In opening a discussion on diabetes, Langdon Brown posed this very question to his audience,' to which there was no answer. Mosenthal¹ answered the query with an emphatic 'No.' It must be remembered that none of the complications of diabetes mellitus have been yet conclusively proved to be due to hyperglycæmia which we set ourselves to treat very assiduously. Hyperglycæmia has not only no damaging effect but is a necessary stimulus for the proper assimilation and oxidation of sugar in diabetics, in whom the threshold for sugar utilization is raised by the metabolic disorder. That glycosuria can exist without any detriment, is seen in renal glycosuria.

Going a step further, there is enough evidence to suggest that hyperglycæmia is a benign helpful adjustment by nature in homeostasis. It has been shown experimentally that the rate of utilization of sugar is proportional to the height of blood-sugar level, within certain limits, both in the diabetic and in the normal animal. There is a relative difficulty in the utilization of sugar in diabetes mellitus by the diabetic organism. The difficulty can be got over in two ways:—(1) by supplying more insulin and thus enabling the diabetic organism to utilize more sugar at the normal blood-sugar level—this is exactly what we attempt in practice; (2) by raising the level of sugar in blood and thus increasing the rate of utilization of sugar by the tissues. This method is attempted by nature in the diabetic as a homeostatic adjustment. Because the renal threshold is not raised simultaneously, glycosuria appears as a side-effect. As long as tissues consume enough sugar for the metabolic needs of the body, the degree of glycosuria is not of any consequence.

In proof of this, it may be pointed out that the patient whose blood-sugar level is maintained at the normal level does not always feel better, and feels rather low and often shows symptoms of hypoglycæmia. The reason is that his tissues can utilize sugar only when there is a high concentration of sugar in the blood. The optimum blood-level of sugar to enable his tissues to utilize sugar in the disturbed state of metabolism is raised and attempts to lower that level tend to precipitate symptoms resembling hypoglycæmia.

Another interesting experiment lends support to this view. When a normal individual is put on a low carbohydrate diet the curves of his glucose tolerance test approximate to that of a diabetic. Thus, in conditions of an inadequate supply of sugar as in this experiment, or of its inadequate utilization as in diabetes mellitus, a rise in the concentration of sugar in the blood enables the tissues to take up the required amount of sugar. Thus it appears that hyperglycæmia is a sort of Nature's attempt to maintain glucose utilization at the normal level in spite of defects in the supply or in the utilization of glucose.

The paradox that blood-sugar level is not at all lowered in spite of an enormous loss of sugar in urine is only explicable on the above presumption. When tissues consume sugar at a high blood-sugar concentration, a fair amount is unavoidably spilt over in the urine. This may be compared to the filling of a small vessel or a shallow vessel with a wide mouth, with a high pressure water jet. More water will be spilt over than what is collected in such a vessel. The spilt water does not affect the head of pressure in the pipe, because the mechanism that maintains the head of pressure is in no way connected with the wastage that occurs. The high level of sugar in the blood in diabetes mellitus

is maintained by abnormal amounts of glucose formed from proteins and fat, exogenous and/or endogenous. When the endogenous source is encroached upon there is rapid emaciation and ketone bodies appear in the blood and urine.

Modern treatment of diabetes mellitus aims at treating—predominantly only the manifestation of the disease, *viz.*, the disturbance of carbohydrate metabolism. No doubt it is one of the important disorders of this disease, because it leads ultimately to incomplete combustion of fats, culminating in coma. The disturbance of carbohydrate metabolism as evinced by glycosuria and or hyperglycæmia may exist unrecognized for years without producing any obvious untoward signs or symptoms. It is comparable to benign hypertension which may be asymptomatic and undetected for years. Though opinion is divided, there is a tendency even among experts to leave such cases of hypertension untreated, with instructions regarding general behaviour and necessity for re-checks at intervals.

The finding of glycosuria and hyperglycæmia in a patient indicates a disturbance of carbohydrate metabolism. As long as the disorder is at a subclinical level, apart from the laboratory findings, it needs only precautionary attention and no active interference. The glycosuria, perhaps, only suggests that a wasteful internal adjustment has taken place for the error of metabolism while sufficient carbohydrate is metabolized to keep the patient free from symptoms. The degree of disturbance in the carbohydrate metabolism clinically depends upon the amount of sugar burnt, and *not* upon how much is spilt over in the urine or accumulated in the blood. Asymptomatic glycosuria or hyperglycæmia cannot be considered a disease though it may be non-physiological in the general sense. In the particular individual, they might have resulted from an attempt on the part of the organism to achieve an internal balance to compensate the error in metabolism, mentioned above.

An important dictum in medicine is that one should treat the patient and not the disease. A person becomes a patient when he complains about his disease. A person without a disease does not come within the jurisdiction of a therapist. It is often very distressing and sometimes disastrous to the patient when doctors start treating abnormalities encountered during radiological, biochemical or electro-cardiographic investigations. This is what I call 'Aggressive Medicine' which is one of the pitfalls of Modern Medicine. Quoting a fatal pitfall to which I was a witness may not be out of place here.

When I was studying in a foreign country, a patient was admitted to a hospital for dyspeptic troubles. During routine radiological examination, a rounded shadow of the size of a marble was observed in the lower part of the right lung. Immediately

a full and detailed investigation of his pulmonary status was set on foot on the suspicion of malignancy. Bronchography, broncho-spirometry, tomography and extensive radiography at different angles were done on the patient without reaching a definite conclusion. As a last resort, thoracotomy with resection of the affected lobe was carried out. The resected lobe showed a fibrous nodule of unknown aetiology, and the patient died on the third day of the operation, from pulmonary complications. Post-mortem examination revealed no abnormality except basal pneumonia as the cause of death. Thus, the patient was a victim to what I call 'Aggressive Medicine.'

The only probable exception to this general rule is the 'open' so-called asymptomatic tuberculous cavity demonstrated radiologically; I believe that such patients have complaints which they often ignore, while a 'symptomless' diabetic has really no constitutional complaints, and appears to be in excellent health.

Diet in diabetes mellitus has been a vexed subject over many centuries. All possible combinations of proteins, fats and carbohydrates have been tried from time to time. The fact that no single dietary has stood the test of time during hundreds of years, lends support to my belief that 'diet' is only a 'fad' in treatment. Dieting is useful only to bring down the weight in the obese diabetic, just as in any other obese person. Obesity tends to increase lipæmia which may aggravate arteriosclerosis in a diabetic. Hence it is advisable to bring the obese diabetic person to normal weight. This can be achieved by 'cutting down' rather than by 'cutting out' different items of food-stuffs. Except for moderation, 'free diet' should be the diet of choice, as it is congenial, comfortable and convenient. 'Free diet' is not synonymous with over-eating. It only indicates a fare unweighed and unimposed, which is capable of satisfying the nutritional needs of an individual and which gives him a sense of well-being. If a person is maintaining normal weight, there is no indication for restricting his diet. It should be remembered that the degrees of glycosuria and hyperglycæmia do not, by themselves, constitute any serious danger or furnish adequate criteria for the severity of the disease.

It has also been observed that reduction of diet in asymptomatic patients with glycosuria and hyperglycæmia leads to the precipitation of symptoms of fatigue, exhaustion, lack of concentration etc. suggesting inadequate nutrition of tissues. Reduction in the level of the blood-sugar due to diminished intake may be a probable factor, as already stated.

From the therapeutic point of view, diabetes mellitus may be divided into two main groups *viz.*, the asymptomatic (or sub-clinical) and the symptomatic (or clinical). Cases with glycosuria and hyperglycæmia without any constitutional signs or symptoms are included in the asymptomatic group. Such cases are usually

brought to light unexpectedly during a physical test or routine check-up. These patients may possibly have had the abnormality for years without any complaints or obvious evidence of damage to the vital organs and so they are better left untreated. They should, however, be told that they have developed a metabolic disorder requiring periodic observation, and that they should report any symptoms to their doctor as soon as they arise. Cases with glycosuria and hyperglycemia and having constitutional signs and symptoms fall in the symptomatic group, which may again be divided for the sake of convenience into two varieties; the benign or intermittently symptomatic and the malignant or accelerated variety. A large number of cases from the symptomatic group are found to belong to the benign cases become symptomatic intermittently and can be easily controlled by insulin and dieting. The malignant variety may remain progressively symptomatic in spite of treatment with insulin and show progressive damage to the tissues of the body.

I have based this classification on the degree of nutrition of the body cells by sugar. In the asymptomatic group, the cells utilize enough sugar for their needs in spite of the underlying metabolic disorder. As a result of metabolic disorder there is interference with the utilization of sugar by the cells. To get over this handicap of the cells, the level of the blood-sugar is raised automatically and an attempt to feed sugar to the tissues is made at the abnormally high blood-sugar level. It is realized that the rate of utilization of sugar is proportional to the height of blood-sugar level. As a side-effect of raised blood-sugar, there is inevitable glycosuria. As long as the tissues metabolize enough sugar, there are no constitutional symptoms. The important corollary of therapeutic importance to be deduced from this, is that in this class of cases: *'There is no need of insulin and any attempt to lower the blood-sugar level is detrimental to the homeostatic adjustment and consequentially to the nutrition of the tissues.'* A large number of these cases may not assume a progressive course or even reach the symptomatic threshold for years, and there is no justification for inflicting a prolonged treatment with or without dietary restrictions on the patient.

In the benign symptomatic group, this adjustment fails intermittently and tissues show evidence of starvation. The causes of failure may be many like stress, trauma, infection, endocrine imbalance etc. In this class of cases, the other mechanism of increasing the capacity of tissues to metabolize sugar has to be utilized therapeutically, by giving insulin parenterally. Insulin is known to have two important functions. One is of increasing the capacity of the tissues to utilize sugar *even at normal blood-sugar level*. The other is of inhibiting the delivery of sugar to the blood from the liver. Both the mechanisms tend to lower the

level of blood-sugar, but it has been found that the latter function is more important to maintain physiological sugar level in the blood. Disturbance of this function of the liver is responsible for the diabetic curve in the glucose tolerance test in diabetes mellitus. The lessened capacity of the tissues to utilize sugar stimulates an exaggerated flow of sugar from the liver in an attempt to induce the tissues to utilize their quota of sugar by raising the level of blood-sugar. Thus, whenever the appearance of symptoms reveals that the physiological adjustment has failed and the tissues are starved of sugar, dieting and parenteral insulin will maintain the nutrition of cells.

In the malignant symptomatic group, the tissues cannot be induced to metabolize sugar even by using insulin. As a result, ketosis appears and there is progressive deterioration in the state of the patient. Exacerbations may appear in the course of the previous two groups, and the malignant state may be suddenly precipitated. The treatment of this condition is still a problem.

It is well known that at present we have no means at our disposal to cure diabetes mellitus. Then what should be our objective in the treatment of these cases? Obviously it should be the prevention of starvation of the tissues. The appearance of symptoms should be taken as indicating that the tissues are starved of sugar. On this basis, cases of the asymptomatic group need no treatment. Cases of the symptomatic group need treatment for the relief of the symptoms. There shall remain no indication for the continuation of the treatment when the symptoms are relieved and do not relapse in a reasonable treatment. Cases of both groups need treatment with insulin and dieting when stress of any type is associated or anticipated.

The ideal of keeping urine sugar-free all the time over years by insulin is both impracticable and inadvisable. It will entail great and constant strain on the patient and produce anguish when the tests show reduction. Such patients always run the risk of severe hypoglycemic reactions. The 'daily prick' involves social and economic difficulties. Habitual insulin administration over years may give rise to local fat and muscle atrophy, anaphylactic reactions, hypoglycemic reactions, local inflammation, and the daily dread of the pain of the prick. Since the advent of insulin, arteriosclerosis has unexpectedly developed into a problem of major importance. Myocardial infarction is suspected to be more common in insulin-treated cases. The deleterious effect of blood-sugar variations upon the heart and particularly of hypoglycemia in older subjects, should be taken into consideration. The needs of the myocardium should not be ignored in an attempt to control a metabolic disorder. High blood-sugar levels found in such cases may represent the optimum value for the nourishment of the myocardium in the disturbed state of

metabolism and interference may not be indicated. Similar conditions may be existing in other tissues as well.

The problem becomes worse when insulin-resistance occurs. Even very large quantities of insulin are unable to maintain the patient sugar free.

A strict control of glycosuria and hyperglycæmia in diabetes even in the non-symptomatic patients, is advocated on the unsubstantiated claim that the "complications of diabetes" are prevented thereby. To be able to appreciate the unjustness of the claim, one must first distinguish between the complications of the diabetic disorder and the complications arising from glycosuria and hyperglycæmia. Acidosis is the only complication belonging to the latter category. It has never been proved convincingly that vascular degeneration, neuropathy, ophthalmological changes, renal intercapillary fibrosis etc. which are the avowed complications of the diabetic disorder are due to glycosuria or hyperglycæmia. Therefore, though the blood-sugar is kept under control by regular insulin regime, most of these complications make their appearance, perhaps, a few years later, but they can never be completely avoided. The course of vascular degeneration often has no relation to the severity of the disease or the control of glycosuria and hyperglycæmia. It is often the duration of the disease that matters. If the diabetic lives long enough, he will develop one or other form of vascular disease. Renal papillary necrosis is another fatal complication. 'It does not appear that the severity or degree of control of diabetes is in any way related to the incidence or the severity of this complication³.' (See *Renal complications of diabetes: Dr. Carlo Lafranco la Hoz, Anales de la Facultad de medicina*).

Diabetic degenerations or complications are very often discovered long before hyperglycæmia or glycosuria develop. 'There are verified instances of typical diabetic retinopathy in patients whose fasting blood-sugar levels and even glucose tolerance tests reveal no abnormalities! 'Also' there are generally accepted observations that the birth of an excessively large infant (over 5 kg.) may portend the onset of diabetes in the mother in the near future⁴. It is generally accepted that 'insulin, diet and control of glycosuria have not altered significantly' the course of arteriosclerosis in the past⁵.

It has been observed that the 'effects of strict control show only after 15 to 20 years. Until then, the incidence of retinopathy and arterial calcification are not very different' in the controlled and uncontrolled groups. No uncontrolled patient was free from retinal and vascular degeneration after 20 years while 8% of the controlled group were⁶. What a high price for a small favourable percentage!

Before the advent of insulin, the number of diabetics with vascular disease was relatively small. During the last ten years, however, because of the survival of many more patients, vascular disease has become a major problem in diabetes mellitus. It cannot be denied that insulin itself may be a causal factor in the production or aggravation of vascular degeneration to some extent.

The ultimate truth appears to be that the orthodox school would insist on strictly controlling all through life, in the belief that they may do harm some time or other, though the harm cannot unequivocally be proved. While one with my conviction, would prefer to be more liberal with the diabetic until it is conclusively shown that glycosuria and hyperglycæmia *per se* are definitely harmful. It will be realized that it is almost impossible to maintain a normal blood-sugar level and a sugar-free urine throughout the 24 hours of the day all his life, in order to reap the maximum imaginary benefit of the disciplined insulin life. Then why not relax the strict discipline voluntarily and treat the patient only when indication arises, and thus help the patient to do almost as well, with less of stress, cost, torture and inconvenience?

The growing knowledge and clinical experience of any disease has always been responsible for the changing concepts in regard to its therapy. We have, by now, accumulated enough experience about the disturbed physiology of diabetes mellitus and its treatment, both clinically and experimentally, to warrant a change in our attitude towards its different phases. The history of medicine is made by physicians who did not hesitate to follow the guidance given by collective experience and break the shackles of orthodoxy. I have been treating all my diabetics on the above principle, during the last few years, and I have had no reason to repent. The patients also have been better in every way and appreciated the changed attitude. It will be a golden day for the patient-world when my experience is corroborated by my colleagues, and the above principles are integrated in the therapy of diabetes mellitus.

I am conscious of the fact that my views are contradictory to the teachings of great workers in the field and may therefore, give rise to heated controversy and even to evoke a severe rebuke. But I feel bound to express, with due respect to persons holding contrary views, the honest impressions I have gained in my practice, though they may militate against the traditional concepts relating to the treatment of diabetes mellitus.

I do not claim to have any specialization in the subject and will not stand comparison as regards the volume of work done, to the giants in the field, who have made a life-study of diabetes mellitus. I have no statistical data or research work to offer,

Facts gathered from literature have been simply marshalled and interpreted in support of my observations. In the course of this study, I found that I am not alone in holding the views that I have expressed. Tolstoi is strongly in favour of this attitude, but his views would appear to have been inundated by the statistical outflow from organized laboratories. As diabetes mellitus is on the increase all over the world, a re-evaluation of our experience and revision of our attitude towards its treatment would appear to be necessary.

To-day the question we have to answer is this:—*viz.*, are we going to add to the numerous stress factors already existing in the life of the diabetic, another enormous strain of life-long control of sugar in the blood and urine, even in the asymptomatic and the intermittently symptomatic diabetic, in return for a probable small improvement in the statistical figure of complications that may become manifest only 15 to 20 years later? My answer to the question is an emphatic 'No.'

Conclusions.—The value of insulin as an anti-diabetic drug is undoubted. Thirtysix years have elapsed after its discovery and it is high time that we re-assessed the accumulated data with special reference to insulin. Though insulin has not cured diabetes mellitus, it has helped to prevent the starvation of tissues from lack of utilization of sugar, and thereby ameliorate the symptoms arising therefrom *viz.*, loss of weight, ketonuria, excessive thirst etc. The use of insulin in diabetes mellitus where there is no evidence of starvation of tissues, is irrational and unwarranted. Insulin is like an axe. Is it to be used indiscriminately against every case of glycosuria and hyperglycaemia? Certainly not! It is but fair that it should not be used where the abnormal findings of glycosuria and hyperglycaemia constitute nature's successful attempt to remedy the metabolic disorder in the disease. This occurs in the asymptomatic group of diabetes mellitus. In the symptomatic group also, insulin should be used *only* to ameliorate symptoms. The 'insulin life' involves physical torture, complications, dangers, constant stress, and a permanent social and economic handicap; hence it should be avoided as far as possible. Glycosuria and hyperglycaemia have not been conclusively shown to be the cause of complications in diabetes mellitus. Though they are abnormal findings, they should not be considered to be necessarily part of the disease and treated whenever found. They should be considered probably as compensatory and benign in nature as long as they do not produce classical constitutional symptoms of the disease and need no treatment. They invite special attention only in conditions of stress like infection, trauma, surgical operation, pregnancy etc., when the help of insulin may be invoked because nature's mechanism may break down or prove inadequate under

those conditions. Insulin must be used when ketosis or the constitutional symptoms of diabetes mellitus appear, because they constitute definite evidence of nature's failure to compensate the metabolic defect in this condition. Dieting is useful in diabetes mellitus only for the reduction of obesity in the obese, otherwise, a 'free diet' should be the diet of choice.

Summary.—A plea is made for a reconsideration of our attitude towards glycosuria and hyperglycaemia in an otherwise symptomless patient. The thoughts were stimulated by diabetic patients observed during 10 years who refused to submit to the diabetic regime and lived a full span of life and died without the complications of diabetes mellitus. Evidence is adduced in support of the view that a diabetic regime should not be inflicted on persons showing only glycosuria and hyperglycaemia without the classical symptoms of diabetes mellitus or ketonuria. It may, however, be necessary to use insulin in symptomless diabetics under conditions of stress, in anticipation of danger.

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Jayashree,
Deshmukhwadi,
Poona City.

PREVENTION OF ADVERSE EFFECTS OF STREPTOMYCIN ON THE EAR

Ozaki studied 21 cases of pulmonary tuberculosis showing hearing loss due to streptomycin and dihydro-streptomycin. Ten of them, developed it after only 2 to 10 gm. of streptomycin; the development of adverse effects do not therefore depend on dosage alone but also on personal idiosyncrasy.

15 cases were treated with daily intravenous administration of fortified vitamin B₁, 100 mg. and continued until there was complete recovery. During treatment audiograms are taken every 10 days. After recovery injections were given twice a week for a month, once a week for next month and thrice during the third and succeeding months for six months. Symptoms of streptomycin toxicity are: slight otalgia, feeling of obstruction of the ear, consciousness of compression of the ear, and tinnitus without difficulty of hearing; prophylaxis lies in intravenous administration of fortified vitamin B₁, 100 mg. directly before or after the administration of the above drugs.—(A.M.A. Archives of Otolaryngology).

AMINOPYRINE AS ANTIPYRETIC

Cardon *et al* report that it may be a life saving drug where even the most specific of the newer drugs have failed. It is a pyrazolone compound resembling the salicylates, and is given orally. It is excreted in the urine after two hours. Long-continued administration has no cumulative effect. It exerts a direct action on the heat-regulating centre of the brain. A fall in oxygen consumption follows defervescence, and the temperature drops even though sweating is blocked by atropine. It relieves pain, arising in integumental structures such as headache, neuralgia and myalgia. It is more potent as an analgesic than the opiates, in cases of migraine, tic douloureux and tabetic crisis.

It may give rise to agranulocytosis owing to indiscriminate use. Aminopyrine is occasionally life-saving and deserves a trial when fever is a significant feature in the disease.—(*Ann. Int. Med.*)

SULPHONAMIDE MIXTURES

The precipitation of sulphonamides in the renal tract is a troublesome and sometimes dangerous side-effect of administering this group of drugs. D. Lehr has shown that the sulphonamides, even if closely related chemically, are soluble in one and the same solution almost to the extent of their separate solubilities.

The antibacterial efficiency of sulphonamide mixtures is the subject of some debate. Lehr found that *in vitro* their full therapeutic efficiency was retained. The subject has also been investigated by F. B. Schweinburg and A. M. Rutenburg, and L. Weinstein and E. B. Murphy used sulphathiazole, alone and in various mixtures, and tested their effectiveness *in vitro* against a wide range of gram-positive and gram-negative organisms. They found that the effectiveness of mixtures of sulphonamides was unpredictable; sometimes the mixture had an additive or even a potentiating effect and sometimes the mixing of sulphonamides appeared to depress antibacterial activity. Schweinburg and Rutenburg recommend that "the use of sulphonamide mixtures in preference to a single effective sulphonamide is justified only when *in vitro* sensitivity tests demonstrate for the components of the mixture either an additive or potentiating effect." In clinical trials sulphonamide mixtures seem to give favourable results. Lehr reported 170 unselected patients with a variety of infections in which clinical results were satisfactory and the incidence of side-effects was low.

In experiments to discover the most effective mixture, Lehr found that sulphadiazine and sulphamerazine combined with either sulphathiazole or sulphacetamide were the best mixtures, combining a high clinical effectiveness with a low toxicity. Later, sulphathiazole, which was perhaps the most toxic of the three, was replaced by sulphadimidine. In practice a number of preparations of sulphonamide mixtures are available. The tab. trisulphon. (B.N.F.) contain sulphadiazine 0.185 g., sulphathiazole 0.185 g., and sulphamerazine 0.130 g. This would appear to be a useful mixture, as each of the three sulphonamides has a high antibacterial activity; the quantity of sulphamerazine is lower than that of the other two drugs because it was found to be more apt to give rise to urinary crystals.

The possibility of an increased risk of drug sensitivity to several sulphonamides which might follow the use of mixtures has been raised. Lehr has pointed out that the incidence of sensitization reactions ran parallel with the dose of the sulphonamide employed. He considered that mild mixtures might well reduce the frequency of sensitivity reactions, and this was substantiated by his experience with 700 patients treated with such mixtures.—(*Editorial Annotation in Br. Med. Jour.*, 3-1-'59).

HYPOFIBRINOGENÆMIA

During recent years it has been determined that a defect in the coagulation mechanism may infrequently develop in late pregnancy and the intrapartum and immediate postpartum period. Because of its low incidence in comparison to the number of deliveries, the syndrome of hypofibrinogenæmia is sometimes disregarded until the patient is in the terminal stage of hæmorrhagic shock. The syndrome, if undetected and untreated, may constitute the difference between whether the patient survives or dies from uncontrolled uterine hæmorrhage.—(*G. P.*, Dec. 1958 from *J.A.M.A.*).

New... process... and... syndrome

HIRUDOID

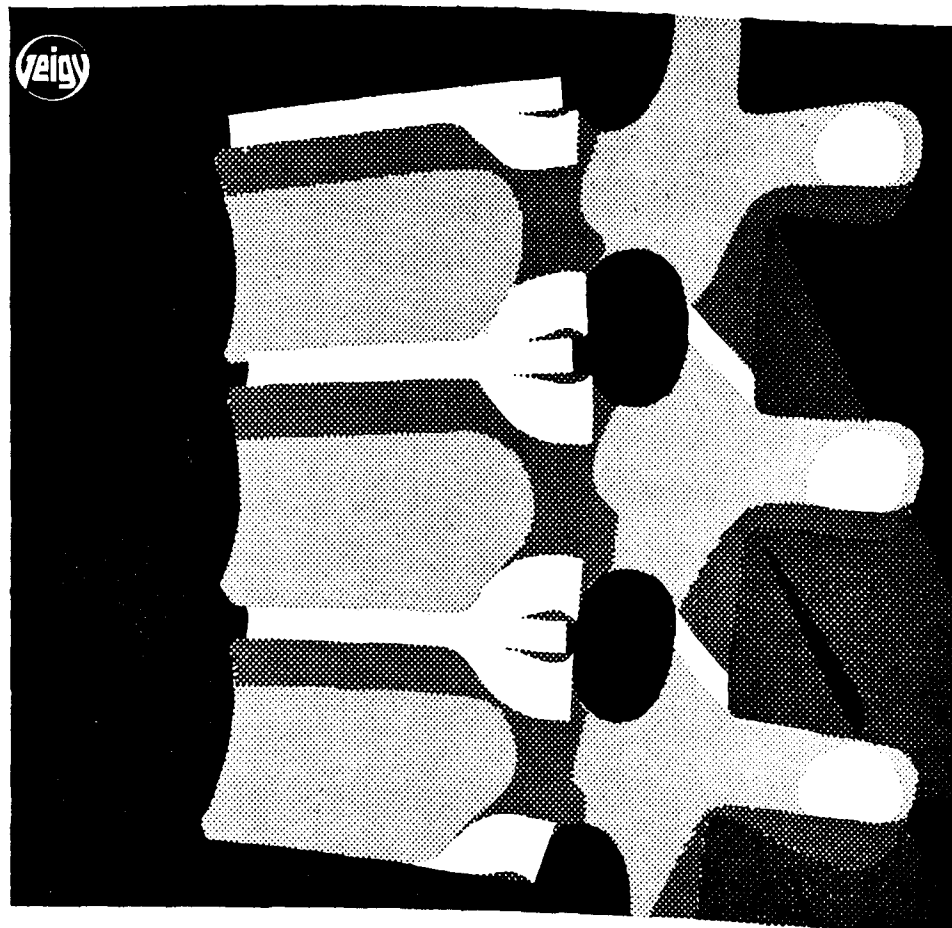
its therapeutic effects:

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- vasodilating
- fibrinolysis promoting
- antithrombotic
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URTICARIA is a common skin condition seen frequently in the skin out-patient department and also in general practice. Few persons escape from it. It is also known as "Hives" or "Nettle Rash" and in Tamil as "Thadipu" or "Pemushte."

It is characterized by the sudden appearance in any part of the body of transitory, erythematous wheals, with intense itching. The appearance of the lesions is preceded by local erythema, with a stinging, pricking sensation and, on scratching, oedematous wheals quickly develop in a few seconds. The lesions vary in size and shape and may be extensive and confluent. They fade away soon or may persist for from 1 to 6 hours, and may reappear elsewhere in other parts of the body.

Historical.—In 1718, Juncker noted that urticaria was produced by ingesting foods like mussel and shellfish, a fact which has since been well established. Later Bateman in 1814 and Sydenham in 1865 described urticaria. In 1887, Unna described the mechanism of the production of urticaria, and in 1900 Neisser propounded the theory that urticaria was due to vasomotor neurosis, accompanied by serum and lymph exudation. Phillipson (1900) considered that toxic emboli were the cause; and in 1907, Winternitz stated that urticaria may be due to blood poisoning.

Pathogenesis.—Regarding pathogenesis, several theories have been advanced to explain the mechanism by which urticaria is produced:—It is attributed to toxic emboli; to the action of circulating poisons on the vessel wall; to angioneurosis producing acute spastic oedema of the vessels; and to changes following the liberation of histamine-like substance of Lewis. Now that experiments have proved histamine synthesis in mast cells in the vessel walls, their degranulation is considered to be the cause of the series of changes seen in urticaria.

Histopathology.—Tissue mast cells are situated in the walls of the smaller blood vessels of the dermis. They store histamine, a vasodilator substance. Experiments have indicated histamine synthesis in mast cells. They also contain granules of acid muco-polysaccharides, of the hyaluronic acid and heparin types.

Various types of haematogenous toxins reaching the cutaneous vessels, or local trauma, cause the mast cells to liberate their contents into the surrounding ground substance. The liberation of acid muco-polysaccharides causes the binding of the free water and the maintenance of the gel structure of the connective tissue ground substance. Along with it histamine is also liberated

* Specially contributed to the ANTISEPTIC.

during this process of degranulation, which often leaves the mast cells intact.

The histamine release sets up a series of local changes, like local capillary dilatation, followed by capillary permeability. Through an axon-reflex, the regional arterioles are dilated, and this is followed by capillary permeability resulting in profuse exudation in the dermis of serum and leucocytes, often eosinophilic in character. Thus localized oedema or wheals are produced and in the tissue fluid spaces there is a derangement of pressure. The dilated vessels in the affected areas are filled with leucocyte and perivascular infiltration is prominent.

Marked cellular exudate is seen around the coiled ducts of the sweat glands. The lymphatic vessels in the area are dilated and they are filled with granular debris. Slowly the fluid and cells are absorbed and wheals are completely resolved without any residual lesions or sequential changes.

When the local oedema is severe, it causes pressure on the neighbouring arterioles, and consequently the wheal is blanched later on with a red areola surrounding it. In severe urticaria spongiosis occurs in the epidermis with intercellular and intracellular oedema and bullous lesions are formed over the wheals. This is common in children.

Aetiology.—Urticaria occurs in the acute and chronic forms. The acute forms are most common in children and young adults while the chronic forms are seen in the older age-groups.

Women are more often affected than men. The known predisposing conditions are:—alcoholism, hyperthyroidism, endocrine imbalance at menopause, psychological influences, and heredity.

Members of atopic families with a history of attacks of asthma and migraine are also prone to this malady though less frequently. Numerous hæmatogenous toxins are now known, as exciting causes that bring about a degranulation of the mast cells. The urticariogenic toxins may be produced locally or may be circulating in the blood stream. They may be classified as follows:—

A. Toxins produced locally by the action of heat, cold, trauma, light and ultra-violet rays; B. toxins from external sources like bee and wasp stings, insect-bites (flea, bedbug, sand-fly, acarus scabell) and jelly fish stings; and C. toxins reaching the dermis *via*, the blood-stream:—

(1) From the alimentary canal:—(a) After ingestion of foods such as prawns, shellfish, mushrooms, eggs and stale food; (b) due to achlorhydria—improper digestion and formation of abnormal protein fractions and bacterial flora; (c) due to toxins from intestinal parasites such as round worms, threadworms,

tapeworms, hookworms and entamoeba histolytica; (d) due to the ingestion of certain drugs like quinine, soda salicylas; aspirin; phenolphthelin in laxatives; barbiturates etc.; and (e) after soap water enemata.

(2) From septic foci:—Bacterial toxins from infected tonsils and antrum; dental apical abscess; pyorrhœa; otitis media; and infections of the appendix, gall bladder, prostate and cervix.

(3) From B. coli infections of the urinary tract.

D. As an allergic manifestation:—*From inhalants*—such as pollen, housedust, feathers, cooking-odours, animal danders; *from ingestants*—such as fish, stale food, mushrooms etc.; *from injectants*—such as sera, vaccines, blood transfusion, liver extract, pituitary extract, insulin, penicillin, streptomycin and *from contactants*—with penicillin, streptomycin, silk and woollen clothing.

E. As a result of psychogenic influence:—Cholinergic urticaria is seen following emotional or tension states, undue worry, fright, anger, excitement, and nervous anxiety.

Symptoms and signs.—The onset in acute attacks is sudden and the initial symptoms are:—a burning sensation in the skin of short duration, itching, appearance of wheals of varying size, shape, distribution and duration; they may start as small patches and later coalesce to form large sheets. When severe, they have whitish centres with erythematous borders and cover the entire limbs or large parts of the trunk, and buttocks. Simultaneously the mucous membrane of the mouth, pharynx and larynx may be affected. The skin lesions may appear and disappear with extreme rapidity, or may last for even an hour or more. But when they disappear they leave no trace of their previous presence. Excessive irritability of the cutaneous vasomotor system is seen in such individuals and Duke's "Urticaria dermatographica" may be demonstrated by rubbing or mechanically irritating the skin. Constitutional symptoms are not frequently seen. But occasionally, headache, slight fever, with loose motions and slight gastro-intestinal colic may be present along with skin lesions.

THE INVESTIGATIONS INDICATED IN A CASE OF URTICARIA:—

(1) *History*:—Repeated history-taking can help in establishing the aetiology in individual cases. Elicit history of recent contact with new unbleached cotton clothings or new beddings being used recently; history of taking stale-foods, or of new varieties of fish never taken before; history of bites, stings, or exposure in fields to pollen dust; history of using new soaps; history of passing worms in stools and history of amœbic dysentery and treatment for the same; history of using contraceptive agents recently; history of taking drugs by mouth or injections.

(2) *Examination of the skin*:—Strip the patient and see the urticarial lesions. If no urticarial lesion is seen at the time of examination, then elicit Duke's "Urticaria dermatographica" by stroking the patient's back with the blunt end of your pen and see the whealing. Also search at the sites of election for scabetic burrows; and for pediculosis of scalp and trunk.

(3) *Septic focus*:—Further examine the patient for infected tonsils, antrum, apical abscess, etc.

(4) *Examination of blood*:—An increase in the total W.B.C. count will indicate a recent septic focus. A high lymphocytic count will indicate a chronic septic focus. A high eosinophilic count will indicate infestation with worms and an allergic state.

(5) *Examination of stools*:—Examine for ova and cysts. Foul smelling and bulky stools with undigested meat fibres, indicate improper digestion.

(6) *Examination of urine*:—When albumin is present, investigate for B. coli infection of the urinary tract.

DIAGNOSIS:—It is not difficult to make a clinical diagnosis of urticaria. The typical wheals distributed about the trunk and limbs and their evanescent character and intense itching preceding the appearance of the lesion will help in the diagnosis. Old lesions resolve, leaving no trace of it, and fresh crops are seen elsewhere in the body.

In differential diagnosis mainly scabies, pediculosis and erythema multiforme are to be considered. In scabies the presence of burrows, with or without secondary infection, at the sites of election, with more itching in the night will be characteristic. The scalp and the trunk must be searched for pediculus capitis and corporis. Their presence, with extensive scratch marks all over the body will help in the diagnosis. Subjective symptoms with various types of skin lesions that are vesicular, bullous and erythematous and distributed all over the limbs and trunk will suggest Erythema multiforme. In the diagnosis of urticaria, skin testing has a very limited sphere of usefulness.

TREATMENT:—In the acute stage of urticaria the drug of choice for rapid relief is the subcutaneous injection of epinephrine 0.5 to 0.75 cc. The relief may be temporary but the patient is soon made comfortable and the injection may be repeated after 1 to 3 hours if needed. But this drug must be avoided in patients with hypertension or cardiac irregularities.

Another group of drugs useful in acute attacks is the antihistamine group, which may be administered parenterally or orally. They are antistine, pyri-benzamine and benadryl. Ambobutyl syrup is useful for the treatment of children and the aged. But a combination of antihistamines with calcium is to be

preferred and the same may be injected I.V. for rapid relief. Such combined preparations are: injection Sandosten (Sandoz); injection Calciluvine (Boehringer). These I.V. injections may be repeated after 6 to 8 hours. Intravenous Calcibronat injections may also be given to allay the irritation in the acute stage.

In the acute stage, local applications are indicated for the violent itching. Antipruritic lotions, such as Calamine lotion with 10% Liquor carbonis detergens, may be applied repeatedly on those areas where there is intense itching. The following lotion will relieve the itching:—

R	Mentholia	...	gr. v.
	Camphor	...	gr. v.
	Calamine Prep	Zinc Oxide aa	3 iv
	Spts. Vini Rosi	...	5 iv
	Aqua Dist	q.s.	Fl. oz. iv
	Misce—apply externally.		

Sedatives such as barbiturates and bromides are given orally at night to overcome the insomnia caused by intense itching.

All the above-mentioned measures are meant for ameliorating the patient in the acute stage. But the treating physician must search for the cause of the urticaria in individual cases and, after necessary investigations, institute specific treatments as early as possible.

Yet another group of drugs is now available for the treatment of urticaria is the corticosteroids and corticotrophins. They counteract the effect of histamines and affect the permeability of the capillaries and thus abort the acute urticarial attacks; they are thus effective in severe urticaria as they relieve the symptoms. Once relief is obtained by the administration of corticosteroids or corticotrophins for 3 or 4 days, then the dose is reduced and tapered off gradually. In chronic urticaria, maintenance doses for a long period, with necessary precautions, are indicated. In chronic urticaria of several months' duration, careful history-taking and elaborate investigations alone will reveal the cause and specific treatment should be instituted thereafter. Where no cause could be traced and where therapeutic tests have failed, the psychiatric condition of the patient must be fully reviewed.

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SULPHAMETHOXY-PYRIDAZINE*

In the Treatment of Lymphogranuloma Venereum

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LYMPHOGRANULOMA VENEREUM is a virus disease of the lymph channels and lymph-nodes manifesting in a variety of ways; mainly by bubo-formation, rectal stricture, genital elephantiasis and ulceration (Greenblatt, 1953). In clinical practice, the sulphonamides have proved their usefulness over a period of years particularly in the acute phase of the disease as in bubo and in systemic infections (Rajam and Rangiah, 1955). To achieve the best results, a total dose of 31.5 to 45 grammes of sulpha drug had to be given in the course of 7 to 10 days. This large dose discouraged the patient. The brand of Sulpha-methoxy-pyridazine† used in this study is stated to be a new low-dosage and long acting derivative of sulphonamide, promptly absorbed from the gastro-intestinal tract; it penetrates and diffuses into body tissues and fluids reaching an effective blood-concentration within 2 hours of administration; and it is slowly excreted in the urine. A daily maintenance dose of 0.5 g. (1 tablet) is supposed to provide an effective bacteriostatic plasma-level in the average adult. It has moderate acetylation and the concentration of the drug in the kidney being low due to its low rate of excretion, the danger of crystalluria is very much reduced.

Ten cases of lymphogranuloma venereum with bubo were treated with this new drug between 28.5.58 and 26.9.58 and the results are reported in this short paper.

Material and treatment.—The patients with venereal disease attending K.R. Hospital were submitted to all tests for all venereal diseases including the blood test for syphilis (*viz.*, VDRL slide-flocculation test). All the patients with buboes were tested with Frei-antigen. Those who had bubo with no apparent sore and showed a positive reaction to Frei test were selected for treatment with this new drug, if they agreed to have inpatient treatment. Fig. 1 (p. 185) shows one of the cases with bubo of the right groin and a positive Frei test.

Every patient, thus selected, had 2 tablets, one twice a day on the first day and one tablet on the following five or six days—a dose of 7 or 8 tablets per patient. The tablet was put into the mouth of the patient every morning during ward rounds.

All the patients were males between 20 and 30 years of age, seven being below 25. Eight of the ten were bachelors. All of them had unilateral buboes, seven having them on the left side.

*Specially contributed to the ANTISEPTIC.
†The preparation used in this study was 'LEDERKYN,' manufactured by Lederle Laboratories.

The duration of the bubo varied from one to 4 weeks; three patients had the bubo only for a week, three for about 2 weeks and four between 2 and 4 weeks. These patients were either serving in a hotel or in a transport organization.

Only one patient had fever of 102.5°F with an urticarial rash all over his body.



FIG. 1. Showing bubo with transverse groove on the right groin and positive reaction to the Frei-test on his right fore-arm.

aspiration. Eighteen days after the therapy the bubo had completely subsided.

Follow-up :—The patients were followed up for 1 to 4 months. None showed any recurrence of the lesion. Only one patient who had treatment in the middle of August 1958 reported about 1½ months later with proctitis, for which no cause could be detected.

Discussion.—The 100% subsidence of pain, tenderness, fever and urticaria, the complete disappearance of bubo with or without aspiration and the almost negligible recurrence are noteworthy points, though the treatment relates only to a comparatively small number of cases. Those who have had adequate experience of treating this disease, will agree that a certain percentage of patients do still have residual buboes in spite of the full course of treatment. It remains to be seen whether this new drug has anything to do with a reduction in the percentage of residual buboes. The single case which came back with proctitis is a discouraging fact but in the absence of methods to demonstrate the presence

Response to treatment.—Pain and tenderness over the bubo subsided within 48 to 72 hours of starting the treatment. In six out of ten cases (60%) the bubo subsided completely. In the remaining four (40%), the bubo became fluctuant—two had to be aspirated on the sixth day of therapy and the other two at the end of the therapy. One patient needed aspiration twice. Residual bubo was not seen in any of these cases. The response of the patient who had fever and urticarial rash was remarkable in that, the rash and fever subsided within 48 hours but the pain and tenderness over the bubo remained for 2 more days. The bubo ultimately became slightly fluctuant but yielded no pus on

of the virus it is difficult to say if the condition is due to lymphogranuloma venereum. There was no reaction to the drug.

Summary.—Ten cases of lymphogranuloma venereum were treated with sulphamethoxy-pyridazine and followed for a period up to 4 months. Two tablets of 0.5 g. each were given on the first day and one daily for 5 to 6 days. The response to treatment with this low-dosage long-acting sulpha drug was relatively good in that the pain, tenderness, fever and rash disappeared and the buboes completely subsided. There was no residual bubo in any of the cases and the recurrence of buboes during the follow-up period was *nil*. Only one case reported with proctitis, 1½ months later. It is difficult to state with any degree of certainty if this means a progression of the disease.

Acknowledgements.—My grateful thanks are due to Messrs. Lederle Laboratories (India) Private Ltd., who supplied me through their local representative the requisite number of tablets for 6 patients free of cost and to Sri Dr. A. K. Jopalarajan, F.R.C.S., Superintendent, K. R. Hospital, Mysore, for according permission to conduct the trial with these tablets, and also to publish the results through this paper.

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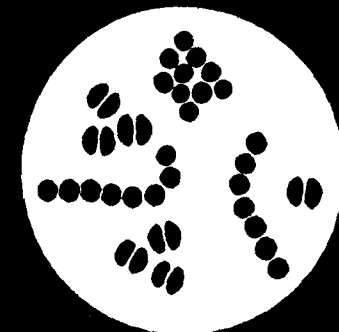
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BENZATHINE PENICILLIN G IN THE PREVENTION OF STREPTOCOCCIC INFECTIONS

Benzathine penicillin G is employed for the prevention of streptococcic infections in rheumatic patients. For this purpose it is recommended that 1,200,000 units be given by intramuscular injection at monthly intervals. Although this prophylactic regimen appears to be adequate for the prevention of streptococcic infections and recurrences of rheumatic fever, there is little information concerning the duration of protection afforded by this and other doses of benzathine penicillin G. Since the incidence of reactions to benzathine penicillin G is related to the amount injected, further information concerning the duration of protection afforded by various amounts results of such a study and, in addition, presents data on the effectiveness of a single injection of benzathine penicillin G on the elimination of group A streptococci from the tissues of the oropharynx and tonsils.

The effectiveness of benzathine penicillin G in preventing streptococcic pharyngitis was determined during an epidemic of this disease among military personnel at an air force base. A single intramuscular injection was given to each of 741 men, representing about 10% of the exposed population. Three dosage levels were tried, and all were equally effective in eliminating group A streptococci from the throat in carriers, while men who had received a placebo injection continued to harbour the organisms. The duration of protection, however, varied with the dosage. The first streptococcic infections began to occur as early as the 8th day after injection in 240 men who had received 300,000 units, while in 246 men who had received 1,200,000 units the first illnesses were observed on the 44th day. It appeared that 1,200,000 units of benzathine penicillin G protected the individual for approximately six weeks.—(J.A.M.A.).

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DIAGNOSIS AND PRINCIPLES OF TREATMENT OF SIMPLE FRACTURE*

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DIAGNOSIS:—The diagnosis of fracture is often missed in clinical practice. Simple fractures with little displacement may escape our attention, resulting in pain, disability and swelling for a long time. The classical signs and symptoms of fracture as crepitus, deformity, loss of function, preternatural mobility and signs of local trauma are misleading as these occur in soft tissue wounds and dislocations. The diagnosis of fracture will be easy and certain with a history of trauma and a localized bony tenderness which, on palpation, will give rise to localized excruciating tenderness (pencil point tenderness) as demonstrated by change in facial expression. Fracture should be suspected in all cases of injuries when pain, tenderness or limitation of movement persist even after a week. In all doubtful cases of injuries of bone, skiagraphy should be advised.

Principles of treatment.—GENERAL:—The normal process of repair after fractures demands certain basic factors, viz., a fair reduction of the fragments, maintenance of apposition by immobilization and preservation of blood supply of the fractured ends. In addition to these local cardinal factors, poor general health and constitutional diseases affect the union of bones. Due to a better understanding of the biochemistry of the bone and body fluids, attention has recently been focused on the effect of nutrition on the stages of repair of connective tissue generally and on fracture-healing in particular. Vitamins, minerals, hormones and proteins play supportive roles. A supplement of protein in the diet of nutritionally poor patients helps the process of union after fracture and averts secondary complications following major fractures in old persons (Bose 1956). Any nutritional deficiency detected during the management of fracture cases should be corrected.

LOCAL:—Principles of local treatment consist of:—

(1) Proper reduction of fracture; (2) immobilization of fracture site for an adequate period; and (3) rehabilitation of the patient.

1. *Principles for proper reduction:*—(a) Good muscular relaxation by general anaesthesia should be ideal. It is necessary when there is much displacement of fragments and in muscular limb. Local infiltration anaesthesia by 1-27. Novocaine (sterile) into fracture haematoma may be used in minor displaced fractures but must be used with proper aseptic care.

*Specially contributed to the ANTISEPTIC.

(b) *Determination of position of fragments* :—Estimation of the position of fragments by palpation or skiagraphy is essential before undertaking reduction. The displacement of fragments in fractures is described in regard to lower or distal fragment and in manipulative reduction, the aim is to bring the lower or distal fragment back in alignment with upper or proximal fragment. The surgeon must have a good mental picture of the displacement of fractures ends for a successful reduction.

(c) *Apposition of fragments* :—An anatomical end to end apposition of fragments is desired in all cases after reduction by check skiagraphy. Half apposition of cortices of fragments is acceptable.

(d) *Proper traction and countertraction* :—Sufficient traction and countertraction in the longitudinal axis of bone is necessary for a successful reduction. Common cause of failure of reduction especially in the fracture of both radius and ulna or tibia and fibula or even in supracondylar fracture of humerus is inefficient traction and countertraction.

Technique of reduction.—Under proper anaesthesia, traction and countertraction should be applied for at least 5 minutes before the actual manipulation is undertaken. The over-riding of fragments can often be felt to be corrected during traction. Manipulation should be done then to correct other displacements (side to side, rotational or angular) and to hitch the fracture ends into a fairly stable position. Respect and judicious use of the soft tissue hinge (Charnby) should be done to ensure stability of fragments.

Reduction by manipulation is ideal but requires skill and specialized technique. Failing this method, operative reduction should be done. Open reduction is often necessary in fracture of both radius and ulna, in fracture of neck of the femur, patella, olecranon process of ulna where there are chances of muscle or soft tissue interposition between the fragments.

Operative reduction and subsequent internal metallic fixation has a tendency for fine carpentry to get an ideal anatomical reduction (Watson Jones, 1956) but carries with it the chances of infection, delayed union and non-union. Even when union occurs, there are chances of loss of physiological functions of the limb in spite of good anatomical reduction and union.

Immobilization.—(a) It should be efficient so as not to allow any movement between the fractured fragments; (b) only the affected part should be immobilized allowing other parts of the limb free for movement and active use; (c) one joint above and one joint below the fractured site should be immobilized as a rule, whatever the method used; and (d) it should be for a minimum period—this time table of union varies with the site

and the type of fractures, the age and constitution of the patient.

1. *Methods of external fixation* :—(i) Splints of various types were used formerly but have now been replaced by plaster of paris casts and casings. Splints have the main function of support or traction. Splints meant for support have been outmoded and replaced by plaster of paris casts for their manifold advantages. Splints used for traction purposes cannot be replaced by plaster and hence Thomas' splint has come to stay; (ii) Plaster of paris cast casing ensures good immobilization and is comfortable to the patient. It is light, requires little adjustment subsequently, fits the body and can be quickly applied. Some surgeons use plaster directly on the skin, but others prefer a layer of cotton wool. Usually unpadded plaster is preferred but for outdoor cases in a hot and humid climate, lightly padded plaster is ideal.

Both splints and plaster of paris casts ensure external immobilization. Some fractures even get displaced within this plaster cast. They are better immobilized by internal methods which require an open operation and exposure of fracture site.

2. *Methods of internal fixation* :—Bone plating :—Stainless steel or vitallium (alloy) plates with screws are used for the long bones. Accessory splintage by external method as plaster of paris casing is desirable.

Bone grafts :—Grafts of autogenous, homogeneous, and even heterogeneous origin, serve the dual purpose of internal fixation and osteogenesis. They are indicated in delayed union and non-union. Autogenous grafts are incorporated more quickly than other types and hence preferred. Bone banks should be developed in well-equipped hospitals to serve as a ready store of bones for grafting.

Screw fixation can be done in spinal fractures especially near a joint and should be supported by plaster-fixation.

Intramedullary nailing :—A long nail with a diameter slightly less than that of the medullary cavity of the fractured bone is used to fix both the fragments. The length of the nail should be a few centimetres less than that of the medullary cavity of the bone. This is a very useful modern method, which if followed correctly, will ensure perfect anatomical apposition of fragments and dispense with external methods of immobilization. Early rehabilitation of the patient is possible as he will require a shorter hospital stay. Asepsis during operation should be of the highest order. This method was developed by Kuntschner during the last German war to enable the injured soldiers with fractured femurs to go to the front line in 3 or 4 weeks.

Smith-Peterson pin provides a good method of internal fixation of the fractured neck of the femur after manipulative

reduction. External support by plaster boot to prevent external rotation of the leg is essential for atleast 3 months.

Period of immobilization.—The period of immobilization will depend on the nature and site of the fracture and also the age and constitution of the patient. Fractures of the small bones as carpals (except scaphoid) and small long bones as metacarpals, phalanges and ribs which are naturally splinted and where no rotational or gravitational forces act, may be immobilized for 2 to 3 weeks, when a sort of sticky union occurs.

Fractures of long bones of the superior extremity as the clavicle, humerus, radius or ulna should be splinted for 4 to 6 weeks when clinical union will be effected. But when rotational force or gravity plays on the fragments as in fractures of both bones of the forearm or fracture of bones of the inferior extremity e.g., the femur, tibia, calcaneus or vertebral body, they should be immobilized for 12 weeks or more when union would be firm and the fracture site remodelled. This is known as radiological union.

The average time of union in children is 1 to 2 weeks while in old persons, this is delayed by a few weeks.

Post-reduction check skiagraphy should be done immediately after the plaster is set, atleast once during the period of immobilization and also after removal of the plaster or splint.

Rehabilitation.—The maintenance of normal movements of the nonaffected portion of the limb during the immobilization period is necessary to prevent stiffness of joints and wasting of the muscles. Active movements should be encouraged. Breathing exercise in old and infirm patients is essential to prevent hypostatic pneumonia.

Various methods of physiotherapy with different kinds of massage as effleurage, tapotement etc. and contrast are both very useful to loosen shift joints and improve the bones of muscles of the immobilized limb.

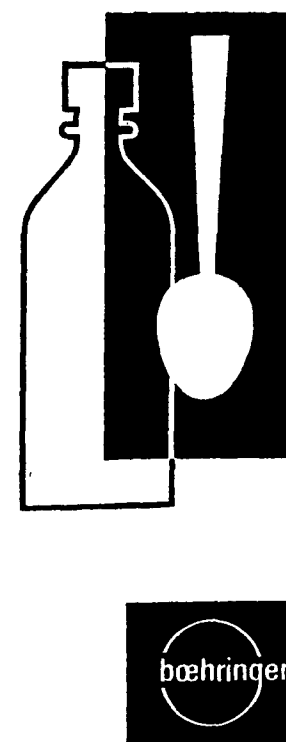
The psychological reactions of the patient should also be attended to and unnecessary fear and anxiety as regards the limb should be allayed. Congenial occupation to the mind by various hobbies, music etc. and by occupational therapy is very useful. The whole process of rehabilitating the patient to his previous or other suitable occupation if crippled, should be under the direction of an orthopaedic surgeon, physiotherapist and occupational therapist.

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THIS is a rare congenital special variety of cerebral sclerosis which goes under the name of tuberous or tuberoses by reason of its large glial nodules, embedded like tubers in the brain. This distinctive feature of its pathology, is combined in a classical case with unusual tumour growths in other organs, with the singular condition known as adenoma sebaceum and with diverse congenital anomalies elsewhere. Prominent clinical features include: (1) facial naevi (sebaceous adenoma); (2) recurrent convulsive seizures and (3) retardation of mental development. This syndrome varies rather widely in dependence upon the degree and extent of the nervous lesions and incomplete varieties are more common than the form with all the possible clinical and pathological features. Bourneville's disease, Pringle's disease, Brushfield-Wyatt's disease and epiloia are other names for this condition.

Historical.—Virchow (1864) had recognized the occurrence of scleromas—as he named them—in the cerebral cortex and a case with some of the pathological features of the disease had been reported by Recklinghausen (1880). The disease was described separately in 1881 by Hartdegen who proposed the term 'glioma gangliocellulare cerebri congenitum' and by Bourneville (1880-81) to the latter of whom credit is due for having established it as a morbid entity. Examples began slowly to enter medical literature, studies being made by Pellizzi (1901), Vogt (1908), Campbell (1905) and others. Geitlin's (1906) was one of the best of that period and has a full bibliography. Among later reviews may be cited those of Bielschowsky and Gallus (1913), Fowler and Dickson (1910) (29 cases analysed), Babonneix (1928), Feriz (1930), Critchley and Earl (1932), Van Bogaert (1935); a number of the journal *Belge de Neurologie* was devoted to the subject in 1933. Venkoba Rao (1957) recorded one case in a Christian male, aged eighteen.

Aetiology.—It is commoner in Europe than in the United States of America (Shelmire, 1918). The disease in the well-developed form is relatively rare, accounting for less than one-half of one per cent of the admissions to colonies for the epileptic or mentally retarded. At a London Hospital for mental defectives 2,412 cases were admitted during the period 1914 to 1925 inclusive, of which 16 or 0.66% were affected by the disease. It shows no racial proclivity apart from seeming not to exist in the coloured

* Specially contributed to the ANTISEPTIC.

racess and occurs more often among the poorer classes than in the well-to-do. By 1912 some 60 cases had been recorded; Freeman, quoted by Ferrare and Doolittle (1936) estimated that this number had increased to about 100 cases by 1922 and about 361 cases have been reported since (Berland, 1953).

Statistics regarding its incidence in India are meagre and should be built-up.

Either sex is liable, with a preference for the male; 20 males and 9 females in Fowler and Dickson's series of 29; 46 and 26 respectively in Bielschowsky's 78, no mention being made about the other six. A smaller collection (Brushfield and Wyatt, 1926) comprised seven boys and nine girls. In a series of three cases recorded by us, all were males.

The first-borns appear more liable to develop it than the subsequent children. Brushfield and Wyatt (1926) found that six of their sixteen children were first-born, four of nine (Fowler and Dickson) being similarly placed but only one out of ten in the Critchley-Earl series. The disease does not appear to affect the off-spring of parents reaching the extreme of their reproductive life, for in one series the average age of the fathers was thirty-three and of the mothers twenty-seven years; in another, thirty-three and thirty years. In this series of three the first-borns were two and one had an elder-brother.

Heredofamilial factors are operative in numerous cases. The disease may appear as a Mendelian dominant (Koenen, 1932; Kufs, 1933; Ley and Titeca, 1933; Van Bogaert and others) over two or more generations or as is no less frequent, its transmission may be heterophenic, some features only, or perhaps only a single one, being manifested in sibs and collaterals. The syndrome becomes divided up into partial types, which in their turn can again give rise to complete forms. Further psychopathic or neuropathic heredity of a non-specific is by no means unusual. The mother, maternal cousin and uncle of one of the Critchley-Earl patients, all had adenoma sebaceum; in the Ja. family (Borremans, Dyckmans and Van Bogaert (1933) the mother suffered from tuberous sclerosis and four of her children, while of the five others one was mentally weak and three died of convulsions one of the latter showing facial adenoma also. Kinnier Wilson in his "*Text-Book on Neurology*" illustrates these several points by diagrams and also indicates how the morbid process can be linked to cerebral and skin tumours of another kind.

Inheritance of one or more of the individual features of the disease is not uncommon and the coincidence of tuberous sclerosis and Von Recklinghausen's disease in the same family has been recorded.

In the series recorded by us, all the other members of the family were doing well. Only in one case (Case 1), there was a

history of fits occurring periodically similar in nature to epilepsy in the mother's younger sister.

Symptomatology.—With few exceptions, the disease makes its appearance during infancy or early childhood. Like any other mental defective, the child is slow in reaching the successive milestones on the path of growth; late in sitting up, crawling, walking, talking. Normal at birth, attention is drawn to it either by this retarded development to which naturally enough, the parents may shut their eyes for some time, or by the onset of convulsive fits. In the course of two or three years, these symptoms are more evident and at a varying period thereafter cutaneous signs may be detected as a rule before the first decade is over. At the time of the second dentition, or at puberty, the disease may advance with a stride; instead of improvement as he grows older, the child may retrogress mentally and on account of misbehaviour have to enter some institution; adenoma sebaceum of the face becomes more marked and other cutaneous lesions gradually appear. Nervous symptoms which, in view of the cerebral lesions, might have been expected to occur with frequency, spastic paralysis for instance, are distinctly uncommon.

Incomplete forms, of which examples have been given, tend to run a rather different course. One or other of the main ingredients of the syndrome may be misleading; skin affections *per se* will not impair vitality and when mental deficiency is trifling or mental power up to average the patient may not be handicapped at all except perhaps by infrequent fits.

Epilepsy.—The convulsions begin as a rule during the first year of life. Both petit mal and major attacks occur and Jacksonian convulsions have been described. Status epilepticus may supervene. Attacks of one or other kind—major, minor, Jacksonian—are a cardinal feature of the disease, whatever its form, failing to appear in only a very small number, no doubt owing to early death in some instances.

The symptoms in this series manifested in Case No. 1 (See p. 194) only in childhood; in Case No. 2 (See p. 195) in his 38th year and in Case No. 3 (See p. 196) in his twelfth year. In Case 1, the patient had convulsions from his seventh year onwards and two cases had no convulsions at all but one gave a history of "attacks of giddiness" after heavy exertion from his twelfth year (Case No. 3). In this connection it is worthwhile bearing in mind 'a solitary fit occurred in the life time of a patient mentioned by Fowler and Dickson.'

Mental symptoms.—Any degree of mental retardation may be present including complete idiocy or vary from idiocy to a mild degree of mental retardation. In most cases, the onset is early, the duration chronic and the deterioration of mental faculties progressive. Stereotype mental performances and psychotic

episodes are not infrequent. Mental symptoms range from idiocy upward to a mild degree of feeble-mindedness and are all but universal; but in no sense are they specific. Mental powers often are but little impaired, if at all. Intellectual deficit is the fundamental trait, to which are superadded moral and affective derangement and sometimes a primitive form of psychosis.



CASE I. Fig. 1.—A case of tuberous sclerosis showing the characteristic facial lesions (adenoma sebaceum).

No parallelism obtains between epilepsy and mental deficit; some patients are epileptic aments, in others fits appear early and become worse though psychical deterioration is negligible; or again, the latter advances and yet seizures seldom occur.

In our series, the mental powers were not impaired in Cases 2 and 3, and Case No. 1 was an imbecile who never progressed at school. The other two never entered school at all.

Other cerebral symptoms.—Among additional nervous symptoms are those found in any infantile encephalopathy, *viz.*, hemiplegia or diplegia with spasticity and contractures and athetotic or other kind of involuntary movement



Fig. 2.—Lateral view of skull, showing multiple, small, irregularly scattered varying in size and shape within the calvarium, mostly in the frontal and temporal and parietal lobes of the brain.



Fig. 3.—Pneumoencephalogram, shows (a) dilatation of the lateral ventricles; (b) candle-gutterings in the walls of the lateral ventricles.

(Volland, 1909; Bonfigli, 1910; Perusini, 1905; and others). The atonic variety of diplegia has been observed and monoplegia too. Muscle tone as frequently happens' among the cerebral palsies of

childhood can be increased proximally and reduced distally. Sensory impairment is often hard to find, doubtless owing to the mental condition of the examinees. Reflex signs in accordance with pyramidal disease may be present, but again as is usual in the case of children, the abdominals are seldom, if ever, lost. Cranial nerves are normal except for changes presently to be described. Papilloedema does not occur unless a cerebral tumour co-exists. Speech mechanisms are liable to disturbance and final extinction, yet it is often difficult to decide whether these ensue on local lesions or general psychic involution.



CASE II. Fig. 1.—Male, age 38. Tuberous sclerosis showing characteristic facial lesions (sebaceous adenoma).

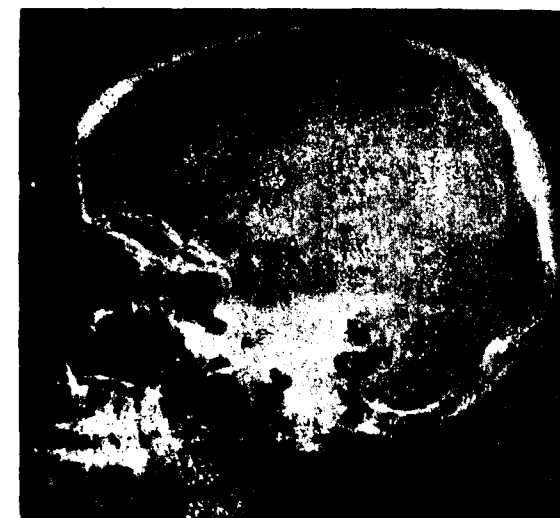


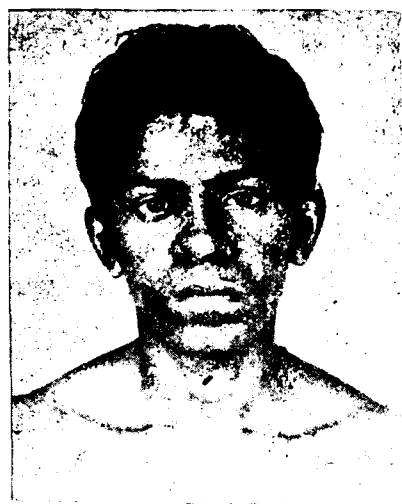
Fig. 2.—Lateral view of skull, showing multiple, small, irregularly scattered varying in size and shape within the calvarium, mostly in the frontal and temporal and parietal lobes of the brain.

Case No. 2 reported with the main complaint of periodic headache (bifrontal) of twenty days' duration.

Extracerebral anomalies and neoplasias.—Under this heading are included for purposes of description; (a) external or visible peculiarities occurring sufficiently often to have diagnostic value; (b) structural defects in organs which however, seldom cause symptoms.

Cutaneous anomalies form an integral part of the picture. Among them facial adenoma sebaceum is the most highly characteristic—a sign of such great value that its absence in a sporadic case makes diagnosis uncertain. It may however, occur by itself in relatives of patients suffering from the disease (Benkman, 1909; Reitmann, 1907; and others). The condition was recorded in 28 of Bielschowsky's 78 cases but lacking in only one of Critchley and Earl's 29. Sometimes noticed in the first months, it may not begin to show till later in infancy or childhood;

exceptionally, the onset is postponed to early adult life. It consists of numerous small papule-like growths set in relative symmetry on the middle of both cheeks and joined by continuity across the nose. The "butterfly" zone outlined in this way is bounded below by the nasolabial fold, on the buccal side of which they seldom infringe, nor do they fail to leave a strip of skin



CASE III. Fig. 1.—Showing the characteristic facial lesions (sebaceous adenoma).

below the orbit untouched. Laterally, they come down to sprinkle discretely across the chin while a few may be seen on the temples or forehead. The nodular rash thus composed is red or reddish-yellow in colour, sometimes reddish brown. The size of the papules vary from a pin-head to a split pea and while generally distinct may, by confluence attain still larger dimensions. Projecting slightly above the skin, they feel a little "shotty;" pressure will make their colour fade, though not disappear. Sometimes, especially over the bridge of the nose, there is perhaps not so much of a rash, as a shiny flush. The lesion gives rise to no symptoms and persists throughout life. Sub-

varieties have been distinguished. The Pringle (1890) type is



Fig. 2.—Lateral view of skull, showing diffuse areas of calcification varying in size and shape, widely distributed in frontal and parietal regions of the skull.



Fig. 3.—Pneumoencephalogram, shows irregular tumefactions protruding into dilated lateral ventricles, some partially calcified. There is no enlargement of pituitary fossa.

that which has for its basis a naevoid or telangiectatic matrix in which lie masses of sebaceous glands—a sebaceous naevus. In

the Balzer and Menetrier (1885) type this feature is less pronounced, the nodule being paler and less vascular; when harder and more fibrous, it constitutes the type of Hallopeau and Laredde (1935).

In this series, all the three cases had the typical adenoma sebaceum on the face, as described above.

A second anomaly consists of fibromas, either small and flat or miliary or taking the form of little pendulous tags; cutaneous and multiple, they may be found on the scalp, the back, the neck, the throat or elsewhere. Such fibrous growths are sometimes pigmented, bluish or naevoid. The miliary form resembles coarse goose-flesh (Busch, 1931, Critchley and Earl). None of these formations contains neural tissue. Similar pedunculated or filiform polyps may be found on mucous membranes of the mouth or intestine (Van Bogaert; Kauffmann, 1935), where also naevoid lesions have been seen. Small angiofibromatous growths sometimes protrude at the margin of the finger-nails.

In this series the lesions described above on the cutaneous areas were present except the angiomatous growths at the margin of the finger-nails.

Another skin lesion is the "Peau de chagrin"—a shagreen patch consisting of a rough and irregularly thickened area about the size of a wafer biscuit or larger and commonly situated over the lower part of the back. It is generally single, but may be double pinkish or whitish in colour.

All the cases in this series had this type of lesion and it was single in distribution.

Among rarer skin affections, vitiligo and leucoderma have been noted as well as brown spots of a *cafe-au-lait* colour similar to those of Recklinghausen's disease; lipoma is another occasional finding, known also in multiple symmetrical form. These affections were however, absent in this series.

Of all these skin lesions three only according to Van Bogaert, can be regarded as genuinely heterophenic and having a diagnostic value for incomplete types of the disease, namely Adenoma Sebaceum, Subungual Angiofibroma and Peau de Chagrin. In this series, two lesions, namely "adenoma sebaceum" and "peau de chagrin" were present.

Retinal lesions are relatively rarer. Among them the occurrence of small tumours, either on the disc, beside it or at some more distant point has been reported. Van Der Hoeve (1923) apparently the first to describe this, saw them in both fundi of six patients suffering from the disease, whereas of a dozen or more personally examined, only one was thus distinguished and one only in the Critchley-Earl series of 29. The growths are not always so flat as Van-Der Hoeve would have it; white or

greyish-white, with a glistening surface, their contours are generally oval or round, although they may be elongated and irregular. These tumours can extend out through the vitreous into which loosened and detached parts of the growth may fall. Owing to the frequency with which nævoid conditions (nævi cutis, sebaceous nævus and so on) are found in the disease. Van Der Hoeve, suggested the word "Phakoma" for all such tumours the retinal lesion would then be a neurocytophakoma retinae.

Other retinal features include yellowish or rosy spots with or without pigmentary deposition, circumscribed nævoid lesions and an appearance not unlike retinitis pigmentosa. These fundus changes are comparable to those of skin and mucosæ and polymorphic in character. Retinal tumours may be the sole indication of tuberous sclerosis. In this series, no retinal lesions were seen.

The disease is notorious for the number of congenital malformations and stigmas with which it may be combined, for example abnormalities of the skull, face, ears, palate, cryptorchidia, spina bifida, hydromyelia, hydrocephalus, syndactyly, extra digits, simian hand and so on. Though often undersized (a feature of mental defectives in general) patients do not, as a rule, exhibit infantilism or faulty sexual development. Congenital heart disease is another anomaly observed now and again. The occurrence of tumours in the viscera (kidney, heart, thyroid, thymus, mamma, duodenum etc.) and of cerebral neoplasm apart from the specific tuberous lesions, forms an outstanding feature; but as stated above, their presence is seldom disclosed by clinical symptoms; unless, the growth is visible or palpable or in the case of cerebral tumour, so situated as to heighten the intracranial lesion. In this series, there were no other congenital malformations or stigmas.

Dalsgaard-Nielsen (1935) credited Marcus in 1924 with first describing X-ray changes. Berland (1953) has made a special study of these and reports multiple and bilateral calcifications of the skull and brain, varying in size and shape and within the calvarium or in the brain. The calcifications are small and irregularly scattered but they tend to appear most frequently in the frontal and temporal regions. This helps to distinguish them from the very similar calcifications which may occur with intra-uterine toxoplasma encephalomyelitis. With the latter disease, they are most often situated in the occipital and parietal regions.

In the hands and feet, cyst-like lesions are present in the phalanges with irregular thickening of the cortex of the metatarsal and metacarpal bones and irregular thickening with fragmentation or cyst-like changes in the bones of the hands and feet. Berland states that these (calcifications in the brain and cyst-like

lesions in the extremities) occur in 60 to 65 per cent of cases and serve to establish the diagnosis.

Pneumoencephalograms.—"Candle-gutterings" in the walls of the lateral ventricles in the pneumoencephalogram are also in favour of this disease.

A skull following ventriculography in this condition shows in addition to the above finding which some authors also describe as "irregular tumefactions protruding into ventricles, some partially calcified."

2. Ventricles dilated and sella turcica eroded due to hydrocephalus and increased pressure.

3. Calcified deposit, spotted, amorphous and at times curved cylindrical.

X-ray findings in this series are described under respective skiagrams.

Electroencephalographic abnormalities.—There was nothing abnormal in electroencephalograms.

Pathogenesis.—There is some disagreement as to whether the lesions are true neoplasms or congenital malformations. Present-day observers are agreed that the disease is a developmental anomaly but opinion is divided as to its neoplastic or teratoplastic nature. Probably, both conceptions are right.

Pathology.—The pathological changes are widespread and include lesions in the nervous system, skin, retina, kidney and other viscera.

Nervous system.—The brain is usually normal in size, but there are several hard nodules on the surface of the cortex. These nodules are smooth, rounded or polygeneal and project slightly above the surface of the neighbouring cortex. They are whitish in colour and firm to the touch. The nodules are of various sizes. Some involve only a small portion of one convolution. Others may encompass the convolutions of one whole lobe or a major portion of a hemisphere. In addition there may be developmental anomalies of the cortical convolutions in the form of pachygyria or microgyria.

On sectioning the hemispheres, sclerotic nodules may be found in the subcortical gray matter, the white matter and the basal ganglia. The lining of the lateral ventricles is frequently the site of numerous small nodules which project into the ventricular cavity ("candle gutterings"). Sclerotic nodules are occasionally found in the cerebellum, brain stem and spinal cord.

Histologically, the nodules are characterized by the presence of a cluster of primitive glial cells in the centre and giant cells at the periphery. There is some dispute as to whether the latter are of glial or neuronal origin. Other features include heterotopia,

vascular hyperplasia, disturbances in the cortical architecture and the occasional development of large tumours variously described as spongioblastomas or neurospongioblastomas.

Skin:—The lesions in the skin are multiform and include the characteristic fascial naevi (fibroma molluscum) and patches of skin fibrosis. The fascial lesions are not true adenomas of the sebaceous glands but are naevi arising from nerve elements of the skin, combined with hyperplasia of the connective tissue and blood vessels.

Retina:—The retinal lesions are small congenital lesions (phakomas) which may be composed of glia, ganglion cells or fibroblasts. Gloma of the optic nerve has been reported. The occurrence of congenital tumours in the central nervous system and retina in tuberous sclerosis links this condition with the syndrome of Von Hippel and Lindau.

Other visceral lesions:—These include rhabdomyomata of the heart, renal tumours and tumours or cysts in the liver, pancreas, ovary, thyroid or other viscera. The tumours in the kidney involve the cortex and are mixed growths, variously classified as sarcomas, adenomas, fibromas and angiomas.

DIAGNOSIS:—The diagnosis is made without difficulty when all three features of the disease are present or when the characteristic facial lesions are combined with feeble-mindedness or epilepsy. The diagnosis is not justified by the occurrence of epilepsy in association with pedunculated tumours, fibromas or café-au-lait spots in the skin in the absence of the typical facial naevi. Other findings in favour of the diagnosis of tuberous sclerosis are tumours in the retina, small scattered areas of calcification in the brain in the roentgenograms of the skull and "candle-gutterings" in the walls of the lateral ventricles in the pneumoencephalograms.

Tuberous sclerosis must be differentiated from other diseases with congenital tumours in the skin, nervous system and retina, including von Recklinghausen's disease, von Hippel-Lindau's disease and angiomatosis of the brain with vascular naevi on the face. The differentiation can usually be made from the presence of the typical features of these three conditions.

The symptomatology of toxoplasmosis may occasionally have a superficial resemblance to that of tuberous sclerosis. The differential is made by the absence of the facial lesions in the latter as well as by the specific skin test.

In this series the diagnosis was easy in Case No. 1; since all the three features of the disease were present. In Case No. 2, the diagnosis was justified in view of (a) facial naevi, and (b) X-ray changes in the brain. In Case No. 3, the diagnosis was made on the basis of (a) adenoma sebaceum (b) small scattered

areas of calcification in the brain in the roentgenograms of the skull and "candle-gutterings" in the walls of the lateral ventricles in the pneumoencephalograms and (c) patient complained of 'giddiness on severe exertion. Cases Nos. 2 and 3, were probably abortive forms of the disease and hence there was no evidence of mental deficiency.

COURSE AND PROGNOSIS:—The prognosis is poor and the course is progressive in the full-blown syndrome. The seizures increase in frequency and the severity of the mental defect is progressive. Death usually occurs before the thirtieth year of life. The average duration of life is less than fifteen years. Approximately thirty per cent die before the fifth year and nearly 75 per cent before the twentieth year of life. Death may be due to marasmus, intercurrent infections, status epilepticus or renal failure. In the abortive form there may be a relatively normal life span, particularly if there is no serious degree of mental retardation and the seizures are infrequent or absent.

Forty seven of Bielschowsky's 78 patients had died by the sixteenth year and 11 more by the twentieth. Some maintain that the earlier the onset the quicker is the course likely to be although exceptions are not infrequent. Hartdegan's infant survived only two days while another case of tuberous sclerosis lived for seventy-five years (*Nieuwenhuysse, 1912*) and one of Lind's patients for forty-seven years. No parallels can be drawn between the courses run by the major symptoms; the clinical evolution of each case has to be judged on its own merits.

TREATMENT:—Faced with a disease whose springs lie buried at inaccessible levels of foetal existence, the observer can only veto marriage into tainted stocks, treat fits symptomatically and ensure that the patient has that home or institutional shelter to which his infirmities entitle him.

Summary.—Tuberous sclerosis is a morbid condition characterized by the development in early life of congenital tumours or malformations in the nervous system, skin and occasionally in other organs of the body. Prominent clinical features include:—(1) facial naevi (sebaceous adenoma); (2) recurrent convulsive seizures and (3) retardation of mental development.

This entity has been reviewed in detail in all its varied aspects—history, aetiology, symptomatology, pathogenesis and pathology with a special emphasis on the roentgenographic features—(1) Small scattered areas of calcification in the brain in the roentgenograms of the skull and "candle-gutterings" in the walls of the lateral ventricles in the pneumoencephalograms.

Three cases have been added on to the world literature—(1) A male, aged 16, with all the classical features; (2) a male, aged 38, and (3) a male, aged 27, both abortive forms of this morbid condition with no evidence of mental deficiency.

There are no reliable statistics regarding the incidence of this disease in India. The disease in its well-developed form need not be considered to be a rare entity, if a thorough and proper examination of all the epileptics and

mentally retarded individuals is carried out. The incidence of abortive forms with only one or two of the characteristic features of the disease is probably much greater than that of the fully developed syndrome, as this small series has shown.

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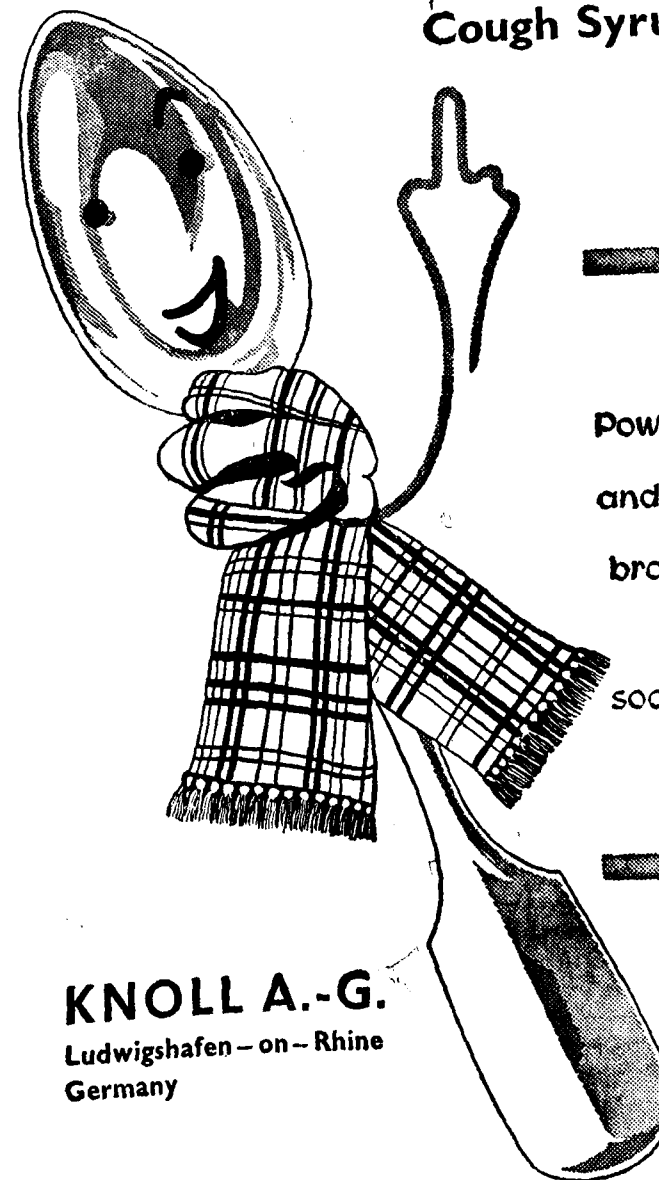
RECENT ADVANCES IN TREATMENT OF CERVICAL INCOMPETENCE CAUSING REPEATED MISCARRIAGES

If cervical incompetence is present and other causes of repeated abortion have, so far as possible, been excluded, the results of operative treatment are good. Three groups of methods have been described:—(1) Reducing the calibre of the whole cervical canal by an anterior longitudinal wedge resection. (2) Producing a scar-ring at the level of the internal os by introducing talc granules subepithelially at that level. These methods have in common that they are usually carried out when the patient is not pregnant, and they have the advantage that they do not necessitate caesarean section being required for delivery. (3) Encirclement of the cervix at the level of the internal os by a purse-string suture, usually subepithelially. This operation may be performed either between pregnancies or during pregnancy; in the latter case some prefer to carry it out at the 14th to 18th week, while others wait till the 20th to 22nd week and will perform it as late as the 28th to 30th week. The ideal material for the suture is still being sought. Fascia (homologous and preserved), braided silk, nylon thread, and nylon tape have all been employed, while the use of kangaroo tendon and of synthetic "decron" mesh are still being evaluated. The best method of eventual delivery is also a matter of opinion. When non-absorbable material has been used for the suture some prefer elective section, while others will cut the suture when labour starts and either remove it or reapproximate the ends after delivery.

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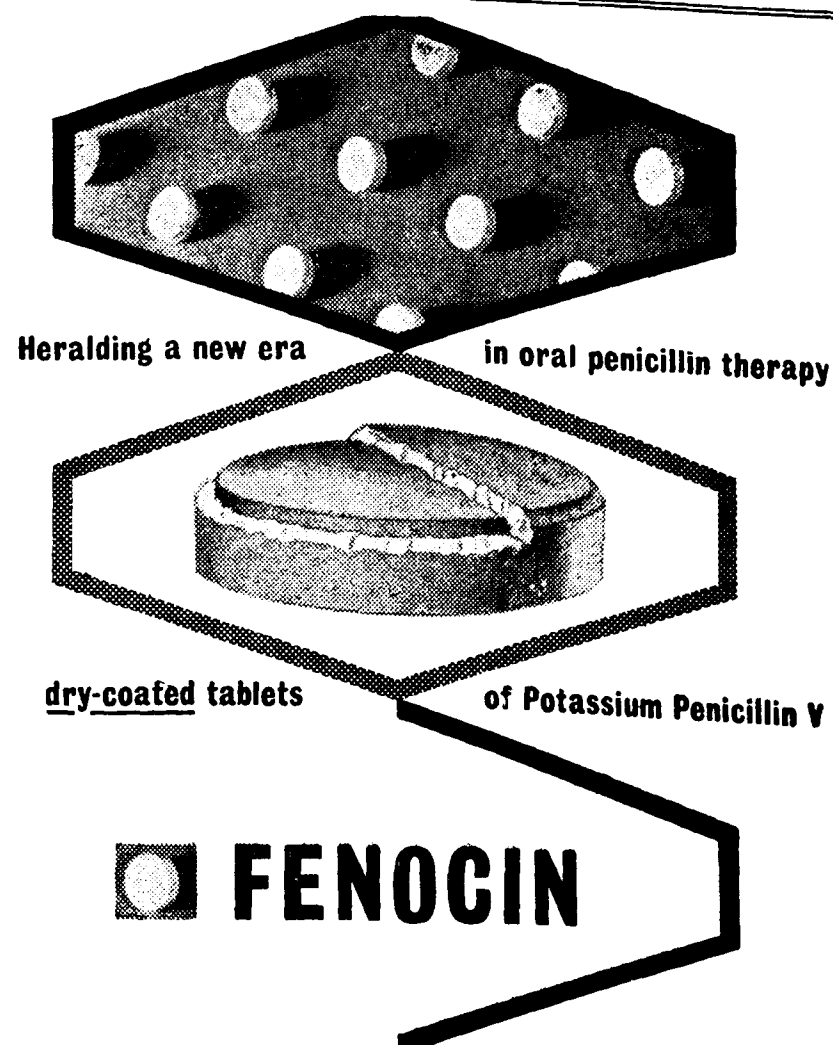
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PROGRESS IN THERAPEUTICS*

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ALL medical practitioners should keep abreast with the latest advances in therapeutics to be able to afford their patients the best possible treatment. A sound knowledge of the properties, dosage and side-effects of drugs is essential.

I. **Tranquillizers.**—It is well known that the mind can play a large part in aggravating disease. Tranquillizers produce sedation without hypnosis:—(1) Chlorpromazine or Largactil or Meghaphen or Thorazine is indicated: (a) in states of tension and psychomotor excitement; (b) as an antiemetic; (c) in surgery as a premedication to produce hypothermia; and (d) in post-therapeutic neuralgia. The dosage recommended is 25 mg. thrice daily and gradually increased to 800 mg. maximum daily dosage.

The toxic manifestations are:—(a) Jaundice; (b) purpura and petechiae; (c) Parkinsonian-like symptoms and (d) bradycardia and hypotension.

(2) *Reserpine*:—The dose recommended is up to 1 mg. The drug is helpful in behaviour disorders and in psoriasis.

The toxic symptoms are:—(a) nasal stuffiness; (b) increase in bowel habits; and (c) nightmares.

(3) *Meprobamate* is available as Equanil, Miltown, Meprophen pertranquil etc. Its tranquillizing action is exerted in doses of 0.4 g. thrice daily. It is useful in anxiety neurosis and checks emotional reaction.

The toxic symptoms are:—(a) Drowsiness; (b) diarrhoea; (c) skin rashes and (d) agranulocytosis.

(4) *Benactazine* or *Suavitil* or *Nutinal*. This is the drug of choice since it does not impair the faculty of thinking and ability to perform intellectual work. There are no serious toxic effects and the dose recommended is 4 mg. daily.

(5) *Methypentynol* is more a sedative than a tranquillizer and is given in doses of 0.5 g.

II. **Other newer drugs used in diseases of the nervous system.**—**Parkinsonism.**—(1) *Artane* (Pacitane) is given in doses of 2 mg. thrice daily. It produces a sustained control of rigidity and tremors. The toxic symptoms are: mental confusion, hallucinations and delirium; (2) *Paqitane*:—Dose: 1.25 mg thrice daily. It has no cerebral stimulating action; (3) *Cogentin*:—Dose: 2 mg. at bed time. The effects last longer than other drugs; (4) *Parsidol* or *Lysiran*:—Dose is 25 mg. thrice daily.

* Specially contributed to the ANTISEPTIC.

Toxic symptom is mental foggiess. (5) *Kemadrine*.—The action is cerebral, stimulating anti-rigidity. Dose is 2.5 mg. thrice daily. The toxic symptoms are blurring of vision and giddiness.

Cerebral stimulants.—*Ritalin* is methylphenidyl acetate and is useful as a mild psychomotor stimulant. The dose is 100 mg. twice or thrice daily, and is especially useful before a *viva voce* examination. It gives the candidate a clear mind before the examination.

Epilepsy.—(1) *Hibicon* or *Benzchlor* propamide is a useful drug in grand mal in doses of 0.5 g. twice daily. The side reactions are minimal producing nausea and vomiting. (2) *Celon-tin* or PM 396 is available in capsules of 0.3 g. and is given twice daily. This is superior to other drugs in petit mal.

The new hypnotics.—The nonbarbiturate group:—(1) *Glutethamide* or *Doridon* is available in doses of 250 mg. and is said to act in 20 minutes. The toxic manifestations are anorexia and gastrointestinal manifestations. (2) *Noludar* or *methpyrrolon* is given in 50 mg. doses.

The new diuretics.—(1) *Chlorothiazide* is a safe potent orally effective diuretic. It induces diuresis in 3 hours; sodium and chloride are both excreted; it potentiates the action of hypotensive drugs and so is a boon in hypertensive failure. The dose is 100 mg. thrice daily for 3 days and a break of three or four days before giving a second course since potassium is also excreted; patients receiving chlorothiazide should receive potassium chloride. The side-effects are giddiness and gastric upsets. (2) *Mictine* or *aminometradine* is given in doses of 200 mg. twice daily. It prevents the reabsorption of electrolytes like chlorothiazide but there is less excretion of potassium compared to chlorothiazide. Nausea and vomiting may occur. (3) *Rolicton* or *amisometradine*:—This is considered to be safer than aminometradine.

The mercurial diuretics interfere with the reabsorption in the renal tubule by blocking the enzyme succinic dehydrogenase. Acetozoleamide is a carbonic anhydrase inhibitor. The enzyme carbonic anhydrase preserves sodium and excretes more hydrogen ion. The urine is more acid. *Diamox* interferes with this mechanism and more bases are excreted producing a condition of acidosis. In addition potassium depletion also may occur. *Mictine* does not interfere with the succinic hydrogenase and carbonic anhydrase but inhibits tubular absorption of sodium.

Some recent drugs for use in cardiovascular system.—
1. *Acetyldigitoxin* is preferable to *Digoxin*. In cases which do not respond to *digoxin*, *acetyl digitoxin* (*Acylanid*—*Sandoz*) in 1.2 mg. is helpful.

2. *Mevasine* or *mecamylamine* is a good hypotensive drug. But it should be remembered that the mixed alkaloids of *rauwolfia* namely *Raudixin* should be the first drug to be used and last to be discarded in hypertension. *Mecamylamine* is given in a dose of 2.5 mg. at 12 hourly intervals. The blood-pressure is recorded in the standing position 4 hours after the dose is taken. Each dose is increased every third day by 2.5 mg. until the systolic blood-pressure in the upright position is 140 mm. of mercury. The average dose has to be assessed only by trial and error. Due to the added fall on assuming the upright position, the patient should sleep during nights at an angle of 45° by using a back-rest. This regime helps to clear papilloedema, hæmorrhages and exudates. To counteract constipation *senna* is given during the night, and next morning one tablet of *neostigmine* 15 mg. and an hour later breakfast and the hypotensive drug.

Myocardial infarction.—Shock is a dreaded complication in myocardial infarction and for this *Levophed* or *norepinephrine* is useful in doses of 4 mg. in 100 cc. of 5% glucose by slow intravenous drip. I have found the addition of 100 mg. of *hydrocortisone* to this intravenous fluid beneficial.

Obstetrics.—*Pitocin* in doses of one ampoule in 1000 cc. of 5% (?) by intravenous drip is indicated in any situation when improvement in the quality of labour is desired.

Prednisolone:—This drug is useful in 30 mg. daily, given in divided doses in rheumatic fever, rheumatic arthritis, allergic conditions and collagen diseases. There is no electrolyte disturbance; topically it has been found beneficial in pruritic dermatoses. The undesirable side-effects of *prednisolone* are aggravation of peptic ulcer and depressive psychosis.

Triamoinolone (*Ledercort*) is derived from *hydrocortisone* and 4 mg. of it is equivalent to 5 mg. of *prednisolone*. The side-effects are postprandial flush and a weakness of the lower limbs. This drug is more effective; another steroid found to be effective is *Decadron*.

Antibiotics.—(1) *Synnamin* 20 mg. every four hours for two weeks is an effective antibiotic against typhoid and para-typhoid and also against gram-positive cocci.

(2) *Framycetin* sulphate is an antibiotic derived from *streptomyces decaris* and is effective in 1.5 per cent water-soluble base in pyogenic dermatoses when applied externally.

(3) *Viomycin* is an antibiotic derived from *streptomyces fradiae* and is given in doses of two g., once in two days in tuberculosis. It is especially helpful in combination with *streptomycin* and also useful in *streptomycin*-resistant cases. Toxic manifestations are dermatitis and 8th nerve deafness.

(4) *Cycloserine* is a new antibiotic available in doses of 250 mg. The dose is 1 g. per day in tuberculosis. The drug is nephrotoxic.

Some recent drugs for use in skin diseases.—(1) In the management of vitiligo, ammimajus has been found useful. This contains three principal alkaloids ammoidin, ammidin and majudine. The drug can be given orally and applied externally. The usual dosage is 1 to 3 tablets. The solution for external use must be diluted well with 60 per cent alcohol and applied and the strength gradually increased. After external application expose to sun's rays or give UVR exposures. (2) 0.1% of Fludrocortone (Florinef—Squibb and Fludrocortone—Merck) is applied externally in allergic dermatoses and gives beneficial results. (3) In the management of skin disease, the tranquillizers have a place since the skin is the mirror of the mind.

The new oral antidiabetic drug.—The new drug is Rastinon or D 860 is a later introduction than Nadisan with less of side-reactions. Oral hypoglycæmic drugs are indicated for patients who are over 40 years of age and with a closer duration of the disease; and for patients requiring not more 40 units of insulin per day.

The contraindications are: (1) juvenile diabetes; (2) unstable diabetics; (3) diabetes with complications and diabetics who can be controlled with adequate diet.

The dose is 3 g. for first day, 2 g. on the second day and 1 g. daily afterwards. If the patient is on insulin, the dosage is reduced by 50% on the first day and then gradually as D 860 is being given.

DYSFUNCTIONAL UTERINE BLEEDING

Munnell and Flick have studied 464 hospitalized patients with a surgical diagnosis of menorrhagia, metrorrhagia, or both, in whom the bleeding was not due to neoplasm, inflammation or pregnancy. The bleeding, often called dysfunctional bleeding, may be due to hyperplasia that is cystic, glandular or adenomatous or unknown.

All of these patients had a diagnostic curettage. The cause of this bleeding is unknown, but most believe it is due to a hormonal disturbance. The microscopic diagnoses in these cases are seen in the table below. Sixty of these patients were postmenopausal and were more apt to show atrophic endometrium or insufficient tissue. There was no correlation between the pattern of bleeding and the microscopic diagnosis. Only 31 patients were found to be anæmic.

The treatment of these patients was dilatation and curettage in 382 patients, dilatation and curettage *plus* radium or roentgen radiation in 61, and hysterectomy in 21 patients. Dilatation and curettage was most effective in patients with nonhyperplasia. The dose of radium therapy used was 2,000 to 2,250 milligram hours; in a few patients deep roentgen therapy was used. Patients in the child-bearing age should be submitted to hysterectomy only as a last resort.—(*Surg., Gynaec. and Obst.*, 106: 321, 1958, via *G. P.*, Dec. 1958).

HEADACHE*

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A COMMON complaint the general practitioner meets in his every day practice is headache. This is a symptom and phenomenon complex in several diseases. The symptom is usually observed relatively, and so is liable to be often wrongly diagnosed. The patient should be thoroughly well examined and when necessary specialists in otorhinolaryngology and ophthalmology, dentists and X-ray specialists should be consulted. The problem nowadays is largely due to functional disorders and neurotic tendencies in the patient and so no case of persistent headache should be dismissed lightly.

The precise mode of occurrence of headache is still unknown. But from experiments hitherto performed, we have some idea of the probable mode of action. It has been shown that the tissues covering the cranium are pain-sensitive, especially the arteries. But the cranium proper is insensitive and most of the dura-mater, all the peri-arachnoid and the brain substance are insensitive. The sensitive parts of the dura are those which cover the base of the skull and the tentorium. Pressure upon the latter structure causes pain which is referred to the brow on the same side of the head. The larger dural arteries are everywhere sensitive. Stimulation of the sensory nerves intra-cranially, the 5th, 9th and 10th and the second cervical causes pain of appropriate distribution.

Experimentally headache is produced by injecting 0.1 mg. of histamine and is noticed a minute after the injection, reaches its maximum intensity half a minute later and vanishes in about 10 minutes. It is of a throbbing nature, generalized in distribution. Upon the general circulation, the effect is noticed with a flushed face and a fall in blood-pressure. This fall is only momentary *i.e.*, less than a minute. And the headache starts when the blood-pressure returns to normal. With the injection of histamine there will of course be a rise in cerebrospinal fluid pressure; but by the time the headache begins, the pressure will have come down. So it is evident that headache is not due to increased cerebrospinal fluid pressure. It has also been observed that the headache is relieved by the inter-cranial injection of normal saline or by a second injection of histamine or by the inhalation of amyl-nitrite, the relief being co-incident with the fall in blood-pressure caused by these drugs.

The above experiments show that diminishing the pressure within the arteries or increasing the pressure outside the arteries intra-cranially causes headache, which presupposes that the stretching of the arterial walls causes the headache. This is

*Specially contributed to the *ANTISEPTIC*.

further proved by experimentally induced fever. The latter causes an abnormal stretching of the arterial walls, which in turn causes headache. But the headache is relieved by increasing the thecal pressure by saline injection.

Observations on the mechanism of headache in disease:—In migraine the headache is of a throbbing character just as in fever or when induced by histamine. So we can expect the abnormal stretching of the walls of the intra-cranial arteries; this is proved to be a fact by injection of ergotamine tartrate. There will be a rise in systemic blood-pressure due to general vaso-constriction and a decrease of amplitude in the pulsation of the temporal artery due to local vaso-constriction, and eventually there will be a relief of the headache. This proves that the pain of migraine is caused by dilatation and distension of the cranial arterial walls, and the therenpeolic (*sic*) effect of ergotamine causes relief.

The headache of migraine is also caused by a stretching of the extra-cranial arteries which is proved by experiments *viz.*, pressure upon the common carotid artery, ligature of the temporal artery etc.

Headache is found to be common in hypertensive patients. This does not mean again that arterial hypertension causes the headache, as is shown by the fact that an injection of ergotamine tartrate relieves the headache, but raises the blood-pressure. This further explains that headache is due to variations in the tone of the walls of the cranial arteries and fatigue and stress are the precipitating causes. If the blood-pressure is high a relaxed artery will be stretched more, the liability to headache becoming greater.

The headache of intra-cranial tumours is due to traction upon or displacement of the pain-sensitive intra-cranial structure, such as basal dura and arteries, meningeal arteries, the venous sinuses etc. or an obstruction to the cerebrospinal fluid circulation. Tension or stretching of the dura could also cause pain. It may be supposed that this change is probably due to increased arterial flow or retarded venous out-flow. And this again upsets the vasomotor stability in the system, for example, polyuria is a symptom observed in migraine and is explained by the dilatation of the arterioles occurring in this condition.

The predisposing factors of headache are very many. Briefly, they are:—constipation, torpidity of the liver, errors of refraction, obstructions in the nose, high fevers, high blood-pressure, nephritis, syphilis, endocrine disturbance, neurasthenia, overwork, worry, anxiety, migraine, lumbar puncture etc.

Constipation causes headache directly from intestinal intoxication and reflexly by intestinal stasis as a result of pressure

caused by hard fæces. Constipation is also caused by a greedy colon as it abstracts too much of water from the colon. This is to be corrected by advising the patient to drink plenty of water and take suitable diet. Saline aperients may be given, cascara, senna, aloes or rhubarb may be tried to correct and regularize the bowels.

Torpid liver.—Habitual indulgence in rich and highly seasoned foods, alcoholics etc., malaria, dysentery, and other tropical diseases will cause congestion of the liver and in turn the vascularization is impaired. In such cases, the patient is irritable, drowsy, and often complains of severe headache. In the above conditions the bowels should be opened by epsom salts and the liver toned up by hepatic stimulants.

In these days of malnutrition, we very frequently, come across cases of headache due to errors of refraction. All errors of refraction do not cause headaches. Hypermetropia and astigmatism of the oblique variety often cause severe headache. Also certain diseases of the eye like glaucoma cause intensive headache.

Enlarged turbinates or inflammation of the accessory sinuses—particularly the ethmoid and the frontal—cause persistent headache.

The headache due to cerebral tumour is caused by irritation of the terminations of the trigeminal nerve in the dura mater and bones of the skull from stretching and pressure when the intra-cranial pressure is high. On the other hand, headache due to abnormally low intracranial pressure—such as may follow the removal of cerebrospinal fluid by lumbar puncture—are probably due to a venous congestion of the same tissues or to stretching of the dura mater by displacement. Usually headache is referred to frontal, occipital or the vertical region. Sometimes in concussion or in cases of injury to the skull, headache is caused which may persist for years. In such cases, it is better to give absolute rest to the patient, both physically and mentally for months together. Sodium chloride solution (25%) 100 cc. is usually given intravenously with good result.

Psychosomatic illness.—In this condition, though many peculiar emotional factors play their roles, headache is the most obvious and frequent one. Discussion of current emotional problems may be exceedingly effective and should always be considered—when symptomatic treatment with analgesics does not give relief.

Syphilis.—In the early secondary stage headache sometimes will be severe and this is probably due to endarterial changes in the meninges. Antisyphilitic treatment effects improvement in this condition.

Lumbar puncture.—Sometimes causes a severe headache. It is to be understood that the mere removal of the cerebrospinal

fluid does not play a significant part in the production of headache nor does the quantity of it so withdrawn. Experience, has shown that the production of 'post-lumbar puncture headache' is due to the leakage of fluid through the hole in the dura made by the lumbar puncture needle. A thin needle is always preferable to a thick one for lumbar punctures and the skin puncture should be covered with a small dressing held in place by an adhesive. The patient should be kept in the recumbent posture for 24 hours in order to prevent 'lumbar puncture headache.'

Headache due to high fevers, high blood-pressure, renal disease etc. are due to toxins circulating in the blood and irritating the nerve endings, congestion in the organ, impaired vascularization and extreme stretching of the arterial walls. In hypertension, rest in bed is essential. Postural treatment by raising the head at night by 12" to 18" may gradually lessen the headache. Reduced fluid intake during the later part of the day will minimize the morning headache. Sucking a tablet of 0.5 mg. (1/120 gr.) of glyceryl trinitrate may sometimes give relief. In renal disease, Mag. sulph. $\frac{1}{2}$ to 1 oz. twice daily by mouth gives some relief. The rectal administration of 3 to 6 ounces of 25% Mag. sulph. solution has also been tried successfully.

Migraine.—The pain of migraine is of an agonizing and excruciating character. Errors of refraction, auto-intoxication affecting the sympathetic and vascular systems, tumours of the occipital lobe, periodic enlargement of the pituitary gland, anxiety, worry, grief and bodily fatigue are some of the important predisposing factors. It is more frequent in females and begins at about the age of 20, which is the age of active physical and mental development of the person. It occurs in persons of a neurotic family and is hereditary.

Migraine begins usually in the early hours of the morning while getting up from bed, but may also start at any other time of the day. The typical attack has two stages *viz.*, prodromata lasting for about 5 to 20 minutes varies in character, intensity and duration with different individuals. There will be typical hemicraine in some and bilateral in others. In some it begins with nausea and vomiting while in others there will be temporary aphonia or paresis of the limbs. Sometimes there will be a long period of remission and will then be followed by a severe attack. During pregnancy, it will usually be absent.

Headache begins in a particular spot, gradually involves the entire half of the head and lasts for a few hours to two or three days and is usually relieved by nausea or vomiting. The picture of the face will be typical. The temporal blood vessels are engorged and tender on pressure and feel tense. The corresponding portion of the scalp will also be tender. There will be changes in the size of the pupils with sluggish re-action to light.

There will be lacrimation, rhinorrhœa on the affected side. The C.S.F. pressure will be normal or low and will have no relation to lumbar-puncture-headache.

The treatment of migraine consists in avoiding the precipitating causes. In cases of biliary migraine, bile salts and glycocholate are useful. In menstrual migraine, the regular administration of ovarian or placental extracts will give relief. If the migraine is of an allergic origin, the articles of diet which are responsible for the same may be ascertained and discarded. For cases of migraine associated with fibrositis, the regular use of aspirin, massage, radiotherapy, and the elimination of focal sepsis, will benefit the condition. For an acute attack, A.P.C. may give relief; a tablet of Luminol at the onset of symptoms of the impending attack will sometimes abort it. In severe cases ergotamine tartrate 0.25 to 0.5 mg. subcutaneously will give relief. Urea has been recommended during recent times for the treatment of this condition; 4 g. (60 gr.) of urea thrice daily may be given. Nicotinic acid in 25 mg. doses with meals twice or thrice daily may be tried with benefit in resistant cases.

OCCULT BLOOD IN FÆCES AFTER ADMINISTRATION OF ASPIRIN

It is known that aspirin (acetylsalicylic acid) may occasionally cause a gastric hæmorrhage due to gastritis or a peptic ulcer. Despite the frequent use of this drug such complications have been rare. Moreover, it is difficult if not impossible—certainly in individual cases—to establish a direct proof of an immediate causal connexion. This may be a reason why insufficient thought has been given to this possibility.

In some of our patients, who had been treated with aspirin for rheumatoid arthritis, unexplained occult blood in the stools occurred. This article describes an attempt to determine the possible role of aspirin as a cause of this blood loss.

Since the results of tests for occult blood in the fæces are far from reliable in out-patients, the investigation was carried out only on patients who were hospitalized because of some rheumatic complaint. Those whose histories recorded stomach trouble were excluded from treatment with aspirin. Otherwise no selection was made.

The quantity of aspirin given as a medicine was not changed. In the main the quantity was 750 to 3,000 mg. a day, a few larger amounts being given as an exception. This moderate dosage may be taken as a criterion for the quantities generally administered in practice.

The benzidine reaction test was carried out as follows: Approximately 150 mg. of benzidine was dissolved in 7 cc. of ethyl alcohol 96%; to this was added 7 cc. of glacial acetic acid and 7 cc. of hydrogen peroxide. The strength of the resultant benzidine solution was therefore approximately 0.75%.

After the benzidine solution had been prepared we waited a while to make sure that it did not become coloured through the presence of impurities before the fæces were added. Then, using a glass rod, we took a small quantity of fæces from the centre of the mass and mixed it well with the benzidine solution.

Strongly positive :—Deep blue colouring within 20 seconds.

Positive :—Deep blue colouring within 60 seconds.

Slightly positive :—Greenish blue colouring within 60 seconds.

A trace positive :—Green colouring within 60 seconds.

Negative :—No colouring within 60 seconds.

In order to ensure the greatest possible uniformity in these observations all benzidine tests were carried out by the same technician.

Altogether 140 patients were examined. Of these 95 showed a positive reaction to aspirin. These 140 patients comprised 38 males and 102 females; 23 and 72 respectively showed a positive reaction to aspirin.

Out of the 95 patients who had reacted positively, 79 who needed further treatment with salicyl were given sodium salicylate instead of aspirin (10 patients were given ordinary tablets and 69 coated tablets). In all these cases the benzidine reaction became negative.

No association was found between the ages of patients and their reaction to aspirin.

It appears from our experiments that taking aspirin, even in moderate doses, causes a positive benzidine reaction in the faeces in a high percentage of cases.

From our experiments, however, it appeared that about 70% of the persons who took this medicine, and who mostly had no complaints, lost blood with the faeces.

The amount of aspirin administered has no evident influence on the occurrence and the seriousness of the disorders. The administration of aspirin in powder form suspended in water produces the same results at those obtained when tablets are given. Although it has not been definitely established in what way the occult loss of blood is caused when aspirin is taken, our experiments, following on the information already available, tend to show that a local irritating effect on the gastric mucosa is most probable. When patients are treated for a long time with aspirin it is advisable that there be a regular check of the benzidine reaction in the faeces. If the reaction is found to be strongly positive a discontinuance of this treatment seems to be indicated.

Occult loss of blood in the faeces was proved to occur in about 70% of the 180 persons to whom aspirin in the form of tablets had been administered. Results obtained with the 140 patients treated with aspirin in the wards of the rheumatology department were entirely comparable to those found in the control groups, consisting of 40 healthy volunteers.

It was possible to prove conclusively that aspirin was the cause of this loss of blood, as this phenomenon appeared to be reproducible. The quantity of aspirin administered did not have a great influence on the occurrence and the seriousness of the disorder. The most common doses were 1,500 mg. and 3,000 mg. a day. Identical results were obtained when aspirin in powder form suspended in water was administered to a small group and when the same persons were given tablets. Finally, the results obtained when coated tablets of aspirin were administered are recorded.

It was possible to demonstrate spectroscopically and spectrophotometrically that a positive benzidine reaction after the taking of aspirin is indeed due to the presence of blood. In a number of cases it was shown on the basis of the strength of the benzidine reaction that the quantity of blood lost when aspirin was taken may not always be ignored.—(*British Medical Journal*, 1-11-1958).

2 ORAL
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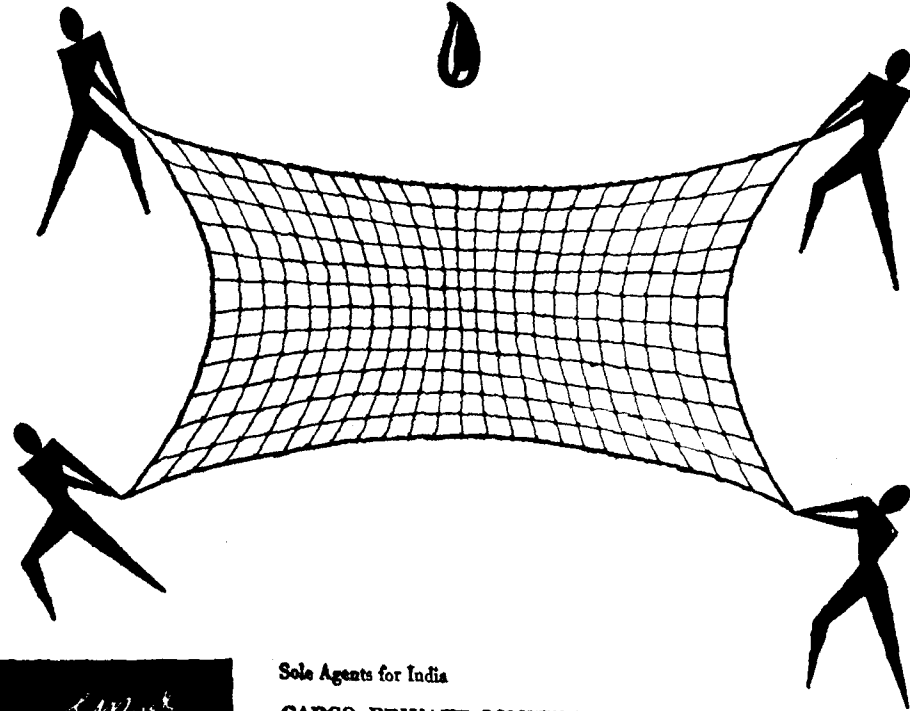
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Cases and Comments

MALIGNANT MALARIA SIMULATING BACILLARY DYSENTERY

(Case Report)

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FOLLOWING an unprecedented heavy flood in August 1958, there occurred in the Sasti Colliery a sub-epidemic of bacillary dysentery, though a cholera epidemic was prevented by timely inoculations. Luckily there was no death from dysentery. All the patients with bacillary dysentery were given suitable treatment using Mist. Olei Ricini, Sulphaguanidine or Sulphathiazole and liquid diet with plenty of sago or barley water. The recovery was uneventful under this regime of treatment in all but one case, the details of which alone are presented in this report.

A skilled worker had symptoms of bacillary dysentery with a temperature of 102.6°F., and numerous small motions containing blood and mucus. When I saw him he was in a very toxæmic condition with excessive thirst. The routine treatment with Mist. Olei Ricini, and Sulphaguanidine, did not avail and he became worse with a thready feeble pulse, sunken eyes, husky voice, all due to the excessive number of stools. I gave him intravenous glucose saline (5%) and one intramuscular injection of Cormid. The same mixture and tablets were continued on the second day; but the patient grew considerably worse at night; he became unconscious, I then made a detailed examination of the patient's abdomen by palpation and found the spleen slightly enlarged. The temperature had shot up to 104°F., and the patient was restless. I took a blood smear and sent it for examination for malarial parasites to the laboratory at Nagpur and without waiting for the results of the examination, gave him an intra-gluteal injection of Quinine bihydrochloride and an intramuscular injection of Cormid. As the patient's condition was serious, I attended on him the whole night and caused cold water to be poured continuously on his head alone all the time, though the relatives at first raised some objection. Luckily the temperature came down to 99.8°F., in the morning. I again gave an intramuscular injection of Quinine with Beplex (AFD). The mixture and tablets were continued. The patient steadily improved. On the evening of the 3rd day I gave him 3 tablets of Camoquin at a time, with a draught of cold water. The recovery was uneventful from the 4th day and the result of the blood-smear examination which was then received showed the presence of numerous malignant tertian parasites of malaria. The anæmic condition of the patient was then treated with Vit B₁₂ (six injections) and livozyme thrice a

day orally after food. He was also given one or two tablets of Chloroquin every week.

This case is of interest because the presence of M. T. malaria was not detected at once, as the predominant symptoms were similar to those of bacillary dysentery.

I wish to express my grateful thanks to Mr. M. G. Athavale, Manager, Sasti Colliery for according permission to publish this case report in the ANTISEPTIC.

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PREVENTIVE TREATMENT OF MIGRAINE WITH DIHYDROERGOTAMINE

The migraine attack is one form of headache which has received extensive investigation over the years. The successful treatment of the acute attack is now well established, the most satisfactory method, from all points of view, being the oral administration of tablets containing ergotamine tartrate and caffeine ('cafergot'). It would, however, be much more desirable to find a means of preventing, or, failing this, reducing the frequency of, attacks, instead of merely aborting the attack when it occurs.

The basic ætiology of migraine is still unknown; there may be one cause or, as is more likely, a number of causes. The actual mechanism of the headache, however, is accepted. It appears that numerous factors playing their parts in susceptible people trigger off the symptom-complex of the migraine attack. Numerous workers have studied the various factors involved: the migraine personality, the psychological aspect, its association with menstruation, epilepsy, and salt and water retention, to mention but a few.

All measures for prevention have been directed at correcting one or more of these known associations, but no definite method has emerged. Of these associations the psychological aspect has probably received the most attention, therapy being directed at removing emotional tension and persuading the patient to adopt a less perfectionistic attitude towards life. It does appear that in modern medicine an increasing number of patients are visiting their doctors complaining of symptoms referable to emotional stress of some kind.

Sixteen patients were studied in this trial: fourteen women and two men. They were patients in a general practice who attended for relief of their migraine attacks. No attempt was made to differentiate between menstrual migraine and the intermittent types, the sole object being to try to demonstrate a reduction in the number of attacks, without reference to the severity of the individual attack or to the migraine type. All patients were encouraged not to change their mode of life in any way other than by taking the prescribed drug. The patients were given dihydroergotamine in the form of oral drops, the average dose being 10 to 25 drops before retiring.

Of the total of 16 patients, no less than 15 showed a reduction in the frequency of migraine attacks. Of these 15 patients, two obtained complete abolition of their migraine, although one could not be claimed as a success for dihydroergotamine as she became pregnant during the course of the trial and treatment was discontinued. Only one patient failed to obtain a reduction in the frequency of her attacks. The large number of women in this series, fourteen as against two men, is noteworthy, although in such a small series this could not be regarded as significant. The preventive dose varied from 10 to 25 drops.—(*The Practitioner*, November 1958).

A MISSED CASE OF CARCINOMA OF CERVIX IN PREGNANCY

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CARCINOMA of cervix in pregnancy is a rare condition, with an incidence of 1 in 2,000 to 1 in 4,000. During my short career, I have seen only two cases, one of which had already been diagnosed by a consulting gynaecologist and obstetrician of this city, and was sent to the hospital for operative treatment. This case was quite early. Abdominal caesarean total hysterectomy was done with removal of the greater part of the parametrium, followed by deep X-ray therapy.

The second case which had been missed by others who had seen her, is reported here:—

Case report.—The patient V. J. of Mahuva, aged 35 years, was seen by a doctor in the 5th month of her pregnancy in the out-patient department. She had six full-term normal deliveries, out of which $5 < \frac{1}{10} \rightarrow$ children were living.

She complained of bleeding per vaginum for the last 10 days, which was noticed for the first time and was painless.

She was advised to get into the Hospital, thinking it to be a case of placenta prævia, but the patient declined to do so. With rest and medical treatment at home, bleeding stopped.

She came again with a second bout of bleeding in the eighth month of her pregnancy and was admitted into the hospital. Her general condition was sufficiently good to stand the operation. Her Hb. was 45% and the R.B.C. count was 2.6 mill. cmm. There was no facility for the blood to be grouped and matched, in our small centre with limited operative equipment.

No vaginal examination was done for fear of inducing more bleeding. On abdominal examination the head of the foetus was floating above the pelvic brim; foetal heart sounds were heard. Her blood-pressure was 108/70 mm. Hg. and her pulse was 120 p.m. with good volume.

The patient was put on the operation-table and a vaginal examination was done before making the incision. It was diagnosed to be a case of central-placenta prævia. Classical caesarean section was done with abdominal sterilization, by modified Pomeroy's technique. The baby was premature but alive; it died after a few hours. The mother was taken to the wards in good condition. One bottle (500 cc.) of Intradex and 3 pints of 5% glucose saline were given by the intravenous drip method during and after the operation.

There was no complication till the patient was discharged on the 12th day, except for a complaint of blood-stained vaginal discharge, which was taken to be the flow of lochia.

The patient came to the health-centre 25 days later, with the complaint of occasional bleeding per vaginum. She was advised to come to the hospital for vaginal and speculum examination as there were not adequate facilities for proper sterilization, and good lighting. Meanwhile, she was prescribed Inj. Methergin 0.2 mg. intramuscularly, one daily for 5 days. The patient was better with this treatment but came back to the hospital for examination, two months after the operation with the same complaint.

She was examined by me, and there was profuse bleeding on introducing my two fingers into the vagina and I noted a big cauliflower-growth on the cervix. A small piece from the growth was taken for biopsy, which was subsequently found to be a squamous-celled carcinoma of the portio-vaginalis by the pathologist. Bleeding was stopped by packing the vagina tightly. Inj. Morphia gr. $\frac{1}{4}$ was given intramuscularly and Inj. Glucose-saline 2 pints with calcium gluconate and Vitamin C 500 mg. were given by intravenous drip method. The pack was removed on the next morning. Luckily, there was no bleeding or sepsis.

The patient was discharged and advised to have Radio-therapy in any of the bigger institutions in the City. Being poor, she did not take the treatment. After sometime, she was readmitted to the hospital with severe anæmia, dyspnoea and tachycardia. Bleeding was present. It was not possible to help her anymore, except for packing the vagina again to stop the bleeding and giving anti-anæmic treatment.

The patient was taken home against medical advice and she died 15 days later.

The point of note in this case is the importance of speculum examination in every case of 'bleeding per vaginum.' In this case, the lesion in the cervix could have been detected much earlier if a speculum examination and biopsy had been done when the patient came for the first time with vaginal bleeding.

My grateful thanks are due to Dr. I. R. Joshi, M.S., the Chief Medical Officer at Mahuva Medical Unit for giving permission to publish a report on this case.

DEFECTS IN DRUG CONTROL

".....it is obviously far more important to ensure that a solution of penicillin is of the correct potency than to correct a 10% deficiency in the amount of ammonia contained in sal volatile. Yet practically all the drug sampling in the country is directed towards the cure of minor faults of composition in 'household' articles such as ammoniated tincture of quinine, cough mixture or Bland's pills, while suppliers of phenobarbitone, sulphaguanidine or promethazine tablets enjoy an almost complete immunity from inspection! This is surely not the intention of the framers of the Food and Drugs Act, but it is evident that some defect exists in the application of legislation to the practical problems of sampling."—(H. H. Bagnall, City Analyst, Birmingham, via *Lancet*).

AN INTERESTING CASE OF LUNG ABSCESS (?)

S. N. RAY, M.B.

Kamala Pharmacy, P. O. Gopalpur, Dt. Mymensingh

J. C. D., Hindu, male, aged 42 years, got an attack of influenza in Dec. 1957. After a month I saw him first. He was getting daily rise of temperature from 97°F. to 100°F. and there was congestion at both cases of the lungs. He was given 10 injections of Seclomycin. The patient was apparently cured and was free from all symptoms viz., cough, fever, malaise etc. He was in this condition for about two weeks and then he began to get a daily rise of temperature with cough and pain on the left base. He was X-rayed at Mymensingh on 3-2-'58 with the following findings:—Rheumatic heart; thickened pleura, left side; no definite evidence of infiltration on either side.

He had received treatment from another physician who gave him:—(1) Sandoz calcium with vitamin C injections; (2) Elixir Benadryl—P. D.; (3) Malveron—Lilly.

The patient became gradually worse and a month later he was again examined by another physician who diagnosed the case clinically to be pulmonary T. B. and prescribed:—(1) Di-hydro-Strepto. 1 g. daily; (2) Isonex and P.A.S. tablet per mouth.

I saw him for the 2nd time after he took ten injections as above. A cavity was detected in the base of the left lung, temperature was 98°F.—102°F. daily, slight toxæmia, pulse 120 p.m. resp. 40 p.m.; sputum blood-tinged and slightly foetid. Taking this to be a case of fulminating type of T.B. I advised him to take further injections of Duplomycin 1 g. daily for 10 days after which I saw him again. He was worse; temperature was 100°F. to 103°F., comatose and dyspnoic. I advised him Strepto-penicillin 1 g. daily for 10 days. After 5 days, the patient was much better and on 3rd April I went to Calcutta advising the patient to continue the Strepto-penicillin. But he became worse and was again X-rayed at Mirjapur Hospital on 18-4-'58 with the following findings:—increased striation both left middle and lower lobes and some patchy shadow and collapsed consolidation. Left lower lobe could be Koch's. E.S.R. 93 mm. first hour. A. F. B. not found in sputum; urine—normal.

He was given the following prescription. (1) Di-hydro-strepto, 1 g. daily for 30 days. (2) Isoniazid and Codliver oil by mouth. The patient was again given Streptomycin from 20-4-'58 to 4-5-'58 i.e., 15 g. this time. After coming back from Calcutta I saw the patient again on 5-5-'58 when his condition was serious. Fine crepitant rubs over the whole of both lungs; temp. 102°F to 104°F., pulse 140 p.m. The patient was semi-conscious, was exhausted from incessant hic-cough and I gave him Largactil tablets, Coramine injection,

and Cardiazol tablets orally. I told his father that the patient was in a very bad critical condition. He had by this time received 35 g. of Di-hydro-strepto and 40 lacs penicillin with 10 g. more Di-hydro-strepto. Next morning, the father came and reported that the hiccough had completely stopped and the patient was a bit better. I felt that it was not a case of T.B. and might be one of abscess of the lungs. I induced the father to continue treatment and I gave him only 3 capsules of tetracycline forte (Dumex). Next day the father came with the report that the fever was diminishing and the patient was feeling much better. Encouraged by this, I prescribed (1) Diamine penicillin 6 lacs every 4th day and (2) Tetracycline 3 capsules daily. After 3 days, the temperature came to normal and all the symptoms were abating but the bleeding had greatly increased. For this condition I gave him the following:—

R	Kapilin	...	1 tab.
	Celin 100 mg.	...	1 tab.
	Ostocalcium	...	1 tab.
	Isonex	...	1 tab.
	Multivitaplex	...	1 tab.
	<i>Et. pulv. i one t.d.s.</i>		

After 3 days, the bleeding stopped completely and has not relapsed since. After 2 injections of 6 lacs penicillin, he was advised 12 lacs Diamine penicillin once in a week. He has taken 5 such injections and 30 capsules of Tetracycline.

I saw him last about a week ago. He is now free from all symptoms. His health is almost normal. There is slight tenderness over the left base and fine rales are also heard over both bases. He cannot be induced to take another X-ray plate of his lungs. It is now clear that he had an abscess of the lungs and probably was a surgical case. Diamine penicillin is being continued once a week and the above powder (omitting Kapilin) is being given.

I shall be glad to receive any suggestions for treatment to effect a complete cure in this case.

INTRAMUSCULAR USE OF IRON

Hagedorn discusses the intramuscular use of iron in the treatment of iron-deficiency anæmia (*J.A.M.A.*). "Imferon" (Benger), a stable non-irritant solution of iron-dextran complex, was injected into the gluteal muscles twice daily in doses of 2.0 cubic centimetres, said to contain 100 milligrammes of iron, in 10 patients with hypochromic anæmic due to gastro-intestinal or general bleeding. The iron was proved to be absorbed, the anæmia improved rapidly, and there were no adverse effects such as pain or systemic reactions. In the 10 patients treated the response was satisfactory, preferable to intravenous iron therapy, but not generally preferable to the oral administration of iron in this type of anæmia. The conclusion was that oral administration of iron was *most reliable* in iron-deficiency anæmia, but that iron given intramuscularly could be used as an alternative or as a supplement.—(*Med. J. Australia*).

A PROTRACTED CASE OF URTICARIA

ABBA SUDDIN AHMED, L.M.F.,

P.O. Dandpur, Dt. Dinajpur

A PATIENT, A. A., Muslim, aged about 32 years of moderate stature and height and of sound health and vigour with a fair complexion came to me on 12-10-'57 complaining of intense itching all over the body along with discrete localized swellings—the so called urticarial wheal in association with excruciating after-burning over the rash in question. The rashes were in crops all over the body including the head and face. He had lassitude and a dull pain all over the body but no temperature during the interval. The bouts were primarily six-hourly *e.g.*, four times a day *viz.*, (i) early part of the morning, (ii) mid-day, (iii) late afternoon and (iv) late hours at night. The wheals were less evanescent in character. Regarding his past history for the last two consecutive years he had been suffering from seasonal prickly heat with no symptoms of allergy etc. all over the body including the head and face. But in the current year, a few months before the actual symptoms supervened, he felt, during itching of the former prickly heat, a few localized swellings concentrating over the prickly heat eruptions—the urticarial rashes which were most evanescent in character having aggravation on exposure to sun, heat and exertion. After a fortnight of such episodes the patient came to me for advice and treatment. In the first instance, I gave him: (1) Injection adrenaline chloride $\frac{1}{2}$ cc. subcutaneous stat. and for two subsequent days, also (2) Calc. gluconate gr. xv, Ephedrine gr. $\frac{1}{2}$, Vit. C tab. $\frac{1}{2}$, *mft. pulv. one b.d.*

He was advised a total abstention from meat, fish, eggs and certain vegetables. After just 3 days' treatment on the above lines, no appreciable improvement was obtained and so I changed the treatment as under:—

Intramuscular injection Antistine (Ciba) 1 amp. for 6 consecutive days. Calciostelin 2 cc. (Glaxo), and Celin 100 mg. 1 cc. (Glaxo) intramuscularly every alternate days. Phenergan (M&B) orally 1 tab. *t.d.s.* Mist. alkaline with Potassium salts *t.d.s.*

The relief though prompt was transitory and not up to the mark. Laboratory investigations were then undertaken with the following result: (a) *Blood*:—Poly 44%; Eosino 33%; Lympho 20%; Mono 3%; and Baso nil. (b) *Stools*: showed no ova, larvæ and cysts but Giardia was (++) ; mucus (+); and undigested food particles (+). (c) *Urine* was normal except for the Phosphates (++) .

He was then given:—(1) Injection Acetylarsan (M&B) starting with 2 cc. up to 3 cc. six such *t.d. i.m.* weekly.

(2) Calciostelin (Glaxo) 2 cc. *i.m.*, every alternate day.

(3) Orally Atebrin 1 tab. *t.d.s.* for 3 days. After the latter tab. Becadex (Glaxo) one tab. *b.d.p.c.* and Elixir Ambodryl (P.D. & Co.) 2 teaspoonfuls thrice daily. Having received above line of treatment he became hopeful and got fairly stable mitigation of the symptoms with slight remnants behind. But unluckily he developed after a few injections of Arsenic, symptoms of intolerance in the form of conjunctivitis, irritation of the eye-ball and dull-headache; the injections were immediately stopped and the following were suggested:—(a) Kapilin tab. (Glaxo); (b) Redoxon tab. (Roche)—one tab. of each *b.d.p.c.*; (c) Sio alkali (A.D.) or Citrinat (E.I.C.); (d) Allercur (Schering) or Synopent (Geigy) or Incidal (Bayer) one tab. *t.d.* for a week with total abstinence from Sodium chloride in the diet. The patient took Incidal. (e) Syrup Methionine with Choline (A.D.) $1\frac{1}{2}$ teaspoonfuls with water *t.d.* (f) Histofax (B.W. & Co.) topically.

With this last regime, the patient was completely symptom-free for a week and thought to be cured of the ailments for a long time. As soon as he started taking his usual dhal in the diet he developed the former symptoms. Becoming desperate owing to the unbearable pangs of the numerous injections he left me in a huff and adopted other sorts of treatment outside, of his own bat. He was under my treatment till late June 1958.

After 4 months' treatment outside with no effect he has come back to me with a faint hope of recovery.

I have presented this case note in the hope that my brother practitioners with similar experience will be so good as to offer their advice and the methods of treatment found successful by them, so that this poor victim may get permanent relief. I should like also to know if this is a case of urticaria, eosinophilia, allergic dermatitis or neurodermatitis.

IRON FOR THE ELDERLY

Because of the tendency for iron salts to produce constipation and mild abdominal cramp in the elderly, L. A. Pegel, Jr. (*Journal of the American Geriatrics Society*, August 1958, 6: 612) has investigated the value of administering iron by means of sustained-release capsules. Each of these capsules contains 150 mg. of exsiccated ferrous sulphate in the form of multiple small coated pellets, which is said to keep the iron in the active ferrous form and to ensure its slow release throughout the intestine, thus reducing the risk of irritation. Ten patients—one man aged 64, and nine women aged 72 to 97—were each given one of these capsules daily; for forty-nine days in the case of the women and for sixty days in the case of the man. Before treatment was started the hæmoglobin levels ranged from 7.5 to 11.5 g. per 100 cc. (average 9.2 g.). Following treatment, in eight of the patients the hæmoglobin rose to within normal limits, the increases varying from 0.5 to 6 g. per 100 cc. (average 2.6 g.), and the final range being 10 to 14.5 g. per 100 cc. (average 11.8 g.). There were no side-effects although all the patients had been constipated or had abdominal cramps during previous treatment with conventional iron preparations.

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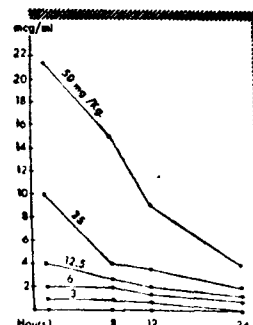
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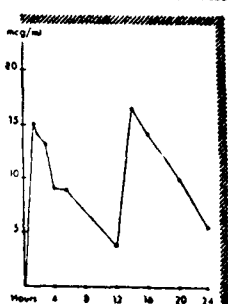
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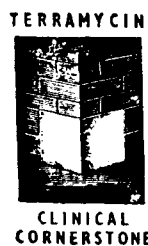
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Editorials

GOLDEN JUBILEE OF THE INDIAN INSTITUTE OF SCIENCE, BANGALORE (Fifty years of magnificent progress)

THIS Institute, India's very first Research Organization owes its origin in 1909 to the courageous vision and munificence of JAMSETJI NUSSEERWANJI TATA, to the devotion of his two sons, Sir D. J. TATA and Sir R. J. TATA and to the active sympathy and support of the Government of India and Government of Mysore. Mr. J.N. TATA was one of the most remarkable Indians of recent times. He was a man of rare public spirit and catholicity and one of the great builders of modern India as aptly described by Shree JAWAHARLAL NEHRU. The Institute has also been served nobly by a succession of able and talented Directors, the first of whom was the distinguished chemist Dr. MORRIS TRAVERS. Starting in 1909 with six professors and 24 students it has now been transformed into an institution with over a dozen departments for furthering advanced research work in pure and applied science and with 157 teachers and nearly 500 students; and as H.R.H. the Duke of Edinburgh said in his felicitous speech on the occasion at Bangalore, the Institute has an "international reputation with many remarkable achievements to its credit." Being equipped with the best laboratories in the country, the Institute took up for investigation during the war a large number of schemes of research sponsored by the Council of Scientific and Industrial Research, the Indian Council of Agricultural Research, the Indian Council of Medical Research, the Government of Mysore and other State Governments. It also closely collaborated with the defence service organizations in their various problems of scientific investigations and technical processes. Anticipating the role

of science in any national planning for the development of a country, the institute went ahead in planning new departments in Engineering and Technology. A further programme of expansion was inaugurated in 1945 under which were established the Departments of Metallurgy and Internal Combustion Engineering. Activities of the Chemistry and Physics Departments were considerably augmented. Instructions and research in Chemical Engineering were provided and laboratories for research in Fermentation Technology, Food Technology and Pharmacology were added. The Science Congress number of "*Science and Culture*" rightly claims that "investigations carried out in the Institute have resulted in the establishment, progress and development of several industries in the country, that the facilities available in its laboratories are made use of both by private and by state-owned industries and that its library is easily one of the best scientific and technical libraries in India."

Rashttrapathi RAJENDRA PRASAD and H.R.H. the Duke of Edinburgh who participated in the Jubilee celebrations both warned people against the dangers inherent in an abuse of science. Said his Royal Highness "The colossal surge of practical invention in recent years has put equipment in our hands which is more powerful than anything known in history and there is promise of more to come. It is almost like giving children sticks of dynamite to play with and then lighting the fuse." The remedy lies in continuing to be guided by the humanities and the ideals of liberalism. "The scientific genius must be linked with humane and courageous thought." The extravagance of many politicians in whose hands scientists have placed weapons of gigantic destruction should be corrected and tempered by a larger view of the needs and aspirations of humanity. "No good can come from one side blaming the scientists for their discoveries or from scientists disclaiming their responsibility." The Prince was still hopeful that we can (and must) solve the crisis by our own choice. "If we do not do so however, I am equally certain that it will be solved for us by war or by famine." These are fateful words coming from one who is well versed in both the theory and application of scientific phenomena. They will be echoed by all interested in the future of mankind as well as science itself.

The need today is for men endowed with scientific genius who are completely devoted to the service of the great spiritual ideas that have permeated Indian thought down the centuries.

As Prime Minister NEHRUJI said while addressing the delegates to the Golden Jubilee celebrations of the Institute, "Scientists cannot live in ivory towers and they should see the picture of those vast number of people in India groping and often stumbling but nevertheless marching forward. It is an exciting thought; it is not only a thought but a reality. This question is how can

the scientist help the people in the forward march. We are also interested of course, because we are part of it. How this scientific institute will fit itself into this tremendous march of human race is a matter of vital interest not only to scientists but to every one."

For fifty long years the Indian Institute of Science has nobly played its part in directing the march of India's progress in pure and applied science and we have every confidence that it will uninterruptedly continue to serve the nation for all time.

THE SILVER JUBILEE SESSIONS OF THE INDIAN MEDICAL COUNCIL

(The Prime Minister's Call to the Medical Profession)

INAUGURATING the Silver Jubilee celebrations of the Indian Medical Council at Delhi on the 13th February last, Prime Minister NEHRUJI expressed concern that not only in the field of medicine but in other fields, India was not doing much in the way of research. In the Universities this might be because of the large burdens which the teachers had to carry, but research was very important from the point of view of improving the quality of the teacher and the student. He suggested that eminent scientists in the National Laboratories might be associated in some form or other with teaching in nearby Universities. They need not displace any on the university staff, but they could go as honorary professors to lecture twice a month or so. This would also benefit the scientists themselves.

Adequate medical relief in the vast rural areas of the country has been conspicuous by its absence. Practitioners of all systems have been reluctant to accept postings to villages or even taluk headquarters. Despite all the efforts made, there has been little real improvement under the first and second plans of the Government and that despite the realization that something tangible has to be done to take medical aid to the people. This has prompted the inauguration of large scale schemes for the eradication of some of the scourges like malaria etc., which have long afflicted the people and with their completion it will certainly mean that the danger of epidemics will have receded. But those big schemes are not taking care of the common ailments of the masses, the functional disorders which are the everyday disablers of men, women and children. These require the attention of qualified medical practitioners and until they are available the prospects of improving the health of the majority will remain distant.

In a statement made by the Madras State's Health Minister in the Legislative Assembly during the Winter Session of last year we noted that fifty medical graduates resigned from the

State Service in 1958. The reasons adduced for such resignations are the ones usually given:—Unwillingness on the part of the doctors to take up appointments in primary health centres, in order to better their prospects elsewhere; for private or domestic reasons and to take up higher studies, obviously with the object also of improving their positions. But the Minister also conceded that one of the main reasons for declining to go to rural parts is the lack of amenities. Even the doubling of the allowance to Rs. 100/- has not improved matters and any further increase so essential if the service is not to suffer from shortage of trained men is prevented because of the lack of resources. It is the old vicious circle, "lack of money prevents the Government appointing medical men to rural health centres and lack of health amongst the village people, the primary producers, prevents the Government from raising more resources from higher production."

The Prime Minister suggested at Delhi the other day that it should be made incumbent on every new medical practitioner to spend a couple of years in village or rural areas before he could set up practice anywhere else. He felt that the Indian Medical Council itself rather than that the Government or Parliament should lay down rules and regulations to tackle the problem. "I should like not only medical graduates but other graduates too to spend a year or more in social service" said Mr. NEHRU, "before they are really considered fully qualified for their profession. More particularly for medical practitioners it should be an essential part of their training that they served in some way in the remote areas which were not properly attended. This would also serve the students tremendously because they would understand conditions in India and their outlook would be widened." He also suggested that cheaper types of hospitals should be evolved to meet the difficult problem of providing cheap and effective services to the villages. We have to evolve either ambulatory service or some other simple type of hospitals which could be connected with some central hospitals in the city. There need not be any duplication of the big hospitals with their costly equipment. People should also be trained up for this work. The Madras State Health Minister, however, stated during the last Assembly Session that there is no legally tenable provision for compelling medical graduates to practise in villages for sometime before they can practise elsewhere.

It has long been the complaint that the subsidy offered is too small to attract qualified men, especially when there is also a shortage of medical men in urban areas, where the rewards are considerable. Yet over the years, attempts to remedy the situation have been inconspicuous in their success. Talk of compulsion, in that graduates should be made to serve for a time in rural areas before being given their final papers, has everywhere

been strongly criticized. The rural dispensaries remain ill-equipped with the things needed to enable a doctor to render the service the people need. If the Governments make the rural dispensaries and the smaller hospitals really attractive and can also offer all the necessary amenities, it should be possible to induce young men to spend some of their time in them provided also that the remuneration is sufficiently attractive. The various expedients suggested and so far tried to provide rural medical relief, have not touched even the fringe of the problem.

In November last year we were told that the Andhra State Government had formulated a scheme of rural medical relief and the proposal was to equip village Vaidyas (doctors) with a range of Ayurvedic drugs and put them in charge of village health centres. The Vaidyas will first be given short courses of training in fundamental health problems and health propaganda, and then sent out into the field. All else having failed, it is perhaps a practical wise step which the Andhra Government has taken, for it can have the purpose of relieving distress to some extent and if the Vaidyas are sufficiently well equipped they can treat the ordinary day-to-day illness which afflict people and might also be sufficiently well instructed to recognize the symptoms of serious disease and to summon expert assistance to catch in time what might otherwise turn into a serious outbreak. The danger may lie in the Vaidyas impelled by vanity or self-confidence, attempting things beyond their capacity and so doing incalculable harm, for it is said that "a little knowledge is a dangerous thing." If this can be effectively guarded against, the scheme might serve a very useful purpose. We are not certain however, that it will be quite the success that it is expected to be by the Andhra State Government, but in view of the dearth of qualified trained medical personnel and the general unwillingness of the existing members of the profession to go to rural areas and also of the present trend of thought that appears to prevail in responsible official circles connected with Health Administration in favour of such a proposal, the scheme is well worth a trial.

As regards the other proceedings of the Jubilee Sessions of the Indian Medical Council we learn that both the Prime Minister and Dr. B. C. Roy, Chief Minister of West Bengal and Chairman of the Reception Committee for the celebrations stressed the importance of research in the medical field. Dr. Roy suggested that the Union Health Minister should take early steps to have an inquiry to assess the progress so far made in post-graduate research and training in the country and take any further steps that might be necessary in this direction. The Union Health Minister Mr. KARMARKAR announced that the Government would constitute a committee for the purpose shortly under the chairmanship of Dr. ROY.

Dr. C.S. PATEL, President of the Medical Council stated that the Council was constituting a Silver Jubilee Research Fund to mark the occasion. He also announced that the Government of India had contributed a sum of Rs. 10,000/- for the Fund. The interest accruing from the fund would be utilized for making yearly awards to those whose research work was adjudged the best in the field of medical and other sciences and most beneficial to humanity. Dr. JIVARAJ MEHTA, the Finance Minister of Bombay suggested that in the interests of the advancement of medical sciences in our country, lecturers and professors in the medical colleges should be prohibited from having private practice. The instructors for their part should make a sacrifice and look forward to salaries not commensurate with their earning but with what similar government servants received. We have ourselves in these columns very often stressed the need for a full-timed medical teaching service in order that medical research and medical service may advance to a higher level. We again strongly reiterate this plea.

Referring to the controversy about the place of indigenous medicine, Mr. NEHRU said that the broad approach to the problem should be that 'these systems should be welcomed if they are qualified by scientific tests. We can only proceed on the basis of scientific approach. There is perhaps a tendency among qualified doctors to consider all those who are not qualified in their own way as outside the pale. They must always be receptive to all kinds of knowledge they might get from any source. Instead of carrying on arguments in a rather heated manner about various systems we should welcome indigenous systems *only subject always to the qualification of science.*'

THE NEED FOR AN ALL INDIA INSTITUTE OF NEUROLOGICAL SCIENCES

(Jaipur Conference)

PRESIDING over the Eighth Annual Conference of the Neurological Society of India on the 18th January 1959 at Jaipur Dr. B. RAMAMURTHI, Professor of Neurosurgery at the Madras Medical College appealed for the establishment of an All India Institute for research into the diseases of the brain and nervous system. India has a special responsibility in this regard having been the only nation that had contributed several centuries earlier, a practical system of controlling the nervous system and through this to the prevention and control of many other diseases of body and mind. Neurology and neurosurgery have been given a prominent place among the specialities in India during the last 10 years and special neurological units are now functioning in Vishakapatnam, Hyderabad, Vellore, Madras, and Bangalore in South

India and in Bombay and Calcutta in the North. In a couple of years two more units are likely to be established at Madurai and Trivandrum.

Dr. RAMAMURTHI said that the great problem that would still baffle mankind is the control of the human mind, the relation of mind to matter and the dependence of thought processes on the physiology of the nervous system. Researches into the functioning of the nervous system will reveal to us the cause of peptic ulcer, hypertension, ulcerative colitis, acalasia cardia and various other diseases.

It is imperative that India should also take a prominent part in contributing to the advancement of knowledge without being a passive utilizer of knowledge gained by others. We should take up the problem, following our ancient Yogic tradition and culture, and analyse it in the light of modern scientific achievements. No doubt the discipline will be exacting but we are sure that we have amongst us men of high calibre and talent who can and will undertake such researches with zest and achieve abiding results of practical utility and value.

In this context, we gladly welcome the concise but clearly set-out memorandum submitted by Dr. RAMAMURTHI to the Union Health Minister for the establishment of an All India Institute of Neurological Sciences, in order to co-ordinate the activities of the many scientists and clinicians interested in the nervous system. At present India is still far behind Western Countries in this regard. Neurological studies really involve organized team work to be successful and so we should bestir ourselves to bring about the fruition of this scheme. The need for such a centre is all the greater, because we in India are in a position to offer to the World advanced and valuable knowledge relating to Yoga and Yogic practices after sublimation in the crucible of modern scientific research. As Dr. RAMAMURTHI has wisely suggested the proposed Institute should be attached to a neurological hospital, with 150 beds devoted to neurology and neurosurgery and another 150 beds to psychiatry; other basic science departments will revolve round this main nucleus. The requisite staff and other personnel have also been outlined in the memorandum. The Institute will also be a postgraduate training centre.

Quite recently Sri D. P. KARMARKAR, in a survey of the progress of the Health Schemes in the First and Second year plans, deplored that the moneys allotted for the development of health schemes had not been utilized fully by the States, the over-all average utilization of the budget provision in the Centres' plan, for assistance to the several States being only 49%. So there should not be any great difficulty in finding funds for this most essential scheme, which offers enormous benefits to the people.

GLEANINGS FROM THE MEDICAL PRESS

OBSTETRICS & GYNÆCOLOGY

Rupture of the uterus.—(*Bulletin of the Tulane University Medical Faculty*, November 1958).

Uterine rupture, whether following caesarean section or not, is a great threat to both mother and infant. The dangers can be reduced by early diagnosis based on suggestive signs and symptoms, and by evaluation of possible uterine injury immediately after delivery.

Customarily one lists ruptured uteri as being complete or incomplete depending upon the continuity of the peritoneum; however, this is of little practical value, as an incomplete rupture resulting in profuse hæmorrhage which may be concealed in much more dangerous than a small complete one which is causing little or no bleeding. Therefore, the importance of stating the location and extent of the rupture in each case is obvious.

Hæmorrhage and shock call for a prompt consideration of the possibility of uterine rupture until the contrary is proved. The cervix should be routinely examined after every delivery per vaginam. The uterine cavity should be explored and the lower uterine segment palpated after every difficult delivery. As in other fields of medicine, the importance of actual examination of the patient cannot be overemphasized.

1. One hundred forty-nine cases of rupture of the gravid uterus have been managed at the New Orleans Charity Hospital from January 1, 1913 to July 1, 1958, an incidence of 1:1517 deliveries. During the past eight years there have been 53 cases, an incidence of 1:1859 deliveries.

2. The high maternal (34.9%) and even higher fetal mortality (70.2%) in this and other large hospital series may be explained in part on the basis that complicated and mismanaged labours gravitate to institutional practice.

3. Each obstetric patient should have information concerning her blood group and Rh status readily available at all times.

4. Every individual who has previously been sectioned is entitled to especially close supervision during each subsequent pregnancy, remembering the fact that a patient who has had one or more vaginal deliveries after section is not necessarily immune to rupture of the uterus.

5. Any evidence of shock during pregnancy, the intrapartum state or following labour, should call for prompt consideration of the possibility of uterine rupture. The cervix should be examined immediately after each delivery and the lower uterine segment should be palpated after each difficult delivery or if there is any question as to extension of a cervical tear.

6. Successful management of rupture of the uterus requires alert evaluation of the situation and immediate therapeutic action. This series and a study of the reported cases substantiates the belief that patients with this condition should be subjected promptly to hysterectomy with rare exceptions. Blood should be administered in adequate amounts to replace that which is lost.

7. The residency system and blood bank have been the major factors in decreasing the maternal mortality from 61 to 11.3% in our institution. Improved facilities, including oxygen, chemotherapy and antibiotics, must also be given due credit.

8. Better co-operation on the part of the patient plus better obstetric judgement and technique will undoubtedly further reduce the incidence of rupture of the uterus.

Indications for ureteroileostomy in gynaecology.—(*Bull. Tulane Univ. Med. Fac.*, November, 1958).

A concise discussion is presented of a method for effecting urinary diversion which offers distinct advantage

over previously used surgical procedures.

Ureteroileostomy has proven to be one of the safest and most effective methods of urinary diversion. Whenever the bladder must be sacrificed or sufficient length of ureter is lost precluding ureterovesical implantation this procedure may be used as the operation of choice. Without doubt the excellent results obtained in many different institutions using this technique are related to the following advantageous factors.

1. *Facility*.—While the operation requires some surgical skill and experience with urinary diversions, the trained operator can complete the procedure in 30 to 60 minutes.

2. *Isolation*.—The urinary stream is protected from cutaneous bacteria by the length of the infection-resistant ileal pouch which is constantly flushed by peristalsis. In addition the urinary tract is isolated from the faecal stream rendering infection a less important hazard than with other methods.

3. *Electrolyte reabsorption*.—Electrolyte imbalance has not been a problem in our cases because the isolated ileal loop is short and constantly empties itself by peristalsis thus keeping reabsorption to a minimum.

4. *Back pressure*.—No urine is retained in the pouch bladder, and no strictures have occurred at the anastomatic site in this series, therefore, there is no back-pressure on the renal pelvis.

5. *Aesthetic*.—When the ileostomy is fitted with a plastic, disposable, skin-tight, Rutzen-type bag, it is leak-proof and odour free.

6. *Permits special studies*.—(a) The urine is clean and can be analysed. (b) The ureteral orifices can be visualized. (c) Pyelograms can be taken.

7. *Ureters may be cut at pelvic brim*.—Only relatively short lengths of ureter are necessary allowing them to be cut at the pelvic.

The primary disadvantage of the procedure is that an appliance must be worn and there is no sphincter control. It has been a much better procedure

in our experience than uretero-sigmoidostomies, a view apparently shared by others since at least one other institution has not only substituted ureteroileostomies for other bowel implantations but is actually taking down troublesome sigmoid implantations and changing them to the 'ileal pouch bladder.'

The bowel is sterilized utilizing a rapid 48 hour technique with Neomycin and Terramycin. At surgery the ureters are isolated from the uterine artery to the pelvic brim taking care to preserve the blood supply and then cut at an appropriate length on a bias to insure an adequate ureteral orifice and a sufficient vascularity.

The ileal loop is then prepared. An 8-inch segment with a good arcade is chosen near the ileo-caecal valve and cut free. Continuity of the ileum is re-established with an open ileo-ileal two layer anastomosis using cotton sutures and the mesentery approximated. The proximal end of the now isolated ileal loop is closed with cotton sutures to form the blind end of the pouch. A small incision is made at the antimesenteric border of the pouch through all layers and the end to side anastomosis of ureter to bowel begun. A fine cotton suture is passed through only the adventitia of the ureter and then the serosa of the bowel at approximately 4 and 8 o'clock to form the first suture layer. The second layer is begun with a cotton or chromic suture passed through the entire ureter at its end then through only the mucosa of the bowel. There is usually room for approximately three to five sutures in this layer. The anastomosis is now completed by finishing the first suture layer (adventitia to serosa) by placing the remaining sutures at ten and 2 o'clock. This is then repeated on the remaining ureter and the distal end of the ileum is sutured to the skin after it has been passed through a right gridiron incision. There must be sufficient space between the anterior spine of the ilium laterally and umbilicus medially to fit a Rutzen-type bag. Urine will be noticed to flow immediately and a catheter attached to a

Gomco suction is placed in the ileostomy until a bag can be fitted in three to five days. The ileostomy sutures can be removed in four to five days.

Some indications for ureteroileostomy in gynecology are:—(1) The need for diverting the urinary stream when total or anterior exenteration is necessary. (2) Multiple urinary fistulae that cannot be corrected by less extensive procedures. (3) Extrophy of the bladder. (4) Whenever sufficient length of ureter is lost to prevent re-anastomosis to the bladder and when it is not desirable to sacrifice the renal unit drained by the damaged ureter. (5) Poorly functioning ureterosigmoidostomies.

MEDICINE & THERAPEUTICS

Pulsations of the chest.—(*Am. Heart Jour.*, 56: 1958, via *G.P.*, Dec. '58).

Hurst and Blackard emphasize that all the information possible should be extracted from simple bedside examinations. They demonstrate this principle with the example of pulsations on the front of the chest. The most important factor in extracting information from these phenomena is to be sufficiently interested to search specifically for them.

In inspecting and palpating the chest, a "delay" is experienced, similar to that when one tries to feel the dorsalis pedis artery. In such cases, several minutes of looking and feeling may be required. The tangential rays of a flashlight are helpful in identifying pulsating areas.

Pulsations in the right or left sternoclavicular joints may signify aneurysm of the aorta. Prominent pulsations in the second and third intercostal spaces adjacent to the sternum usually mean that the pulmonary artery is dilated. This may occur in mitral stenosis, septal defects, patent ductus or pulmonary arteriolar diseases. Prominent pulsations over the lower portion of the sternum and the adjacent precordium on the left may be made due to right ventricular hypertrophy. In addition, they may follow myocardial infarction that involves the septum.

Over the apical area, forceful and sustained lifting of the fingers is diagnostic of the left ventricular hypertrophy. Abnormal apical impulses often follow anterior myocardial infarction. Finally, over the epigastrium, there are abnormal impulses produced by the right ventricle in pulmonary emphysema. These must be differentiated from those produced by the aorta.

Pain in malignant disease.—(*Emergencies in Medical Practice*, via *G.P.*, Dec. 1958).

Advanced malignant disease may cause urgent pain from nerve involvement. Intrathecal injection of absolute alcohol often gives marked relief but in view of the dangers, this method should be used only in this type of case.

The technique is as follows:—The patient lies with the painful side uppermost. The pelvis is raised by a pad so that the sacral and lumbar regions are elevated. The head is lowered and the body turned ventrally so that the posterior sensory nerve roots are uppermost. The skin is cleaned and thecal puncture performed in the fourth lumbar interspace. When C.S.F. is seen to escape, 0.5 cc. of absolute alcohol is injected very slowly, drop by drop, taking two minutes to do this. No attempt is made to mix alcohol with C.S.F. in the syringe. The patient is kept on her side for two hours. She will complain of numbness which disappears spontaneously.

Blood detects mental ills.—(*G.P.*, Dec. 1958).

A six-minute blood-test for mental ills has been reported by Dr. Stig Akerfeldt, a biochemist at the Medical Nobel Institute, Stockholm. The test based on a blood serum reaction to an ammonium compound (N, N-dimethyl-p-phenylenediamine) may prove effective in the diagnosis of schizophrenia and other psychoses.

Dr. Hugo Theorell, Nobel laureate and Head of the Institute's Biochemistry Division, said the test trials on 120

patients at Stockholm's Langbro Mental Institute were consistent in 90% of the cases earlier diagnosed.

"At present," he said, "we know little except that an enzyme reaction, probably involving oxidase, occurs when the reagent is added to the blood serum of seriously disturbed mental patients. This causes a colour change in the serum that does not take place when the same test is applied to the serum of normal persons."

An interesting effect of possible significance is the fact that the colour changes noted in the serum of the mental patients have varied according to the type of mental illness. They range from a "currant red" at one stage of schizophrenia to deeper shades as the illness progresses. Dr. Akerfeldt said the colour change is produced by the action of blood enzymes on the reagent, but until it is known what other blood substances may contribute to the change, the results must be considered tentative.

Drugs in atrial fibrillation.—(*Am. Heart J.*, 56: 405, 1958, via *G.P.*, Dec. 1958).

The therapeutic effectiveness of quinidine in atrial fibrillation is generally thought to be due to prolongation of the refractory period of the heart. Its toxicity is attributed to slowing of conduction. McCawley and his colleagues found that quinidine caused a slowing of the rate of atrial and ventricular depolarization. They therefore studied quinidine and other drugs in order to correlate this action—retardation of depolarization—with effectiveness in arresting atrial fibrillation.

These authors first point out that drugs known to prolong the refractory period—*e.g.*, methanetheline (Banthine) and atropine—convert atrial fibrillation only in experimental animals. Transitory arrhythmias of vagal origin would probably respond to these drugs. Paroxysmal atrial fibrillation of recent onset occasionally responds to procaine amide, quinaidine or diphenhydramine (Benadryl). Sustained or chronic atrial fibrillation can be successfully converted only by quinidine or allocreptopine, and only these drugs retarded the rate of atrial and ventricular depolarization.

Thus it is proposed that, in chronic atrial fibrillation, prolongation of depolarization is the basis of effective drug action, rather than prolongation of refractoriness as was assumed previously.

Chronic pulmonary diseases in patients with lung cancer.—(*N.Y.S.J.M.*, December 1, 1958).

Pulmonary pathology, such as pneumonia, atelectasis, or tuberculosis, often masks the presence of a lung cancer and thus creates diagnostic difficulties. Apart from this clinical problem there is the question whether in a given case such pathologic changes are secondary complications, are mere co-existent, or have preceded the inception of the carcinoma.

The prevalent view on this seemingly academic problem is that lung cancer usually develops in a previously healthy organ, and that, in general, nonmalignant pathology, if present, is due to the new growth or is coincidental.

The case histories of 86 patients with lung cancer were reinvestigated thoroughly in regard to previous chronic pulmonary diseases and severe respiratory illness. In addition, a roentgenologic history was obtained of 63 of these patients.

Sixty-five per cent of this group proved to have had a long-standing chronic bronchitis, often associated with chronic asthma or suspected to be tuberculosis. In six patients chronic pulmonary tuberculosis had been known to exist ten or more years before the discovery of the cancer. One had silicosis, and two a chronic chest ailment caused by gas poisoning in World War I.

The most frequent acute pulmonary illnesses in the patients' distant past were epidemic influenza in 1918 to 1920 and noninfluenzal pneumonia. Seventy-seven per cent had suffered at least one and 43 per cent both of these illnesses or multiple attacks of pneumonia.

In a group of patients matched to the sex and age distribution of the cancer group and hospitalized in recent years in the same institution for non-

malignant conditions, the frequency of chronic pulmonary diseases of some type was about half that in the cancer. Similarly, substantial differences were found in relation to the previous occurrence of epidemic influenza of 1918 to 1920 and pneumonia but particularly to multiple episodes of severe pulmonary illnesses.

The results of this study indicate that in many, if not most, cases lung cancer arises in a previously diseased organ. This would support other observations which point toward chronic post-inflammatory processes as a possible etiologic factor in lung cancer.

Since this article was completed, another follow-up study of men with chronic bronchitis has been published. In that group, investigated over a seven-year period, the number of deaths from lung cancer was four times the expected number.

Safety of liquid plasma.—(J.A.M.A., 29-11-'58).

This report summarizes the experience of the University of Chicago Blood Bank with respect to viral hepatitis among patients who received transfusions of plasma and/or whole blood. The patients studied were given transfusions during a period of slightly over 15 years, between September '42 and January 1957, during which time the plasma administered was processed as described below.

Briefly, all blood after being drawn from the donors was refrigerated until used for transfusion. If not used within five or six days, it was converted into plasma. Thus, the blood which was made into plasma was that which had become outdated before use. Beyond this there was no selection. The plasma was first made up into preliminary pools from about 10 donors and placed in 2000 cc. flasks. A final pooling was then made from the blood of about 28 to 30 donors. It was then tested for bacterial contamination. Thereafter, it was stored in the fluid state for periods of about six months in a room where the temperature ranged from 76 to 96 F (24.4 to 35.5°C) and averaged 89 F. (31.6°C).

Plasma was compared with whole blood with respect to the frequency of hepatitis after transfusion. The data represent more than 15 years of experience with a blood bank, the three categories of patients successfully followed up numbered 433 (plasma only) 1242 (plasma plus blood) and 2,343 (blood only). Each plasma pool represented about 28 to 30 donors. After being tested for bacteriological contamination the plasma was stored in the fluid state for about six months in a room where the temperature ranged from 76 F to 96 F (24.4 to 35.5°C) and averaged 89 F. (31.6°C). The findings clearly showed that there is very little chance of serum hepatitis in a patient receiving pooled plasma stored for six months under these conditions, for there was not a single case of hepatitis among 305 patients who survived 180 days or longer after transfusions of plasma representing 12,345 donors. The incidence of hepatitis among patients who had received both plasma and whole blood was attributable solely to the whole blood. Plasma stored at lower temperatures than those recommended can transmit hepatitis despite a seven-month period of storage. Daily temperature records of the storage-space are therefore, an essential feature of the procedure here advocated.

OPHTHALMOLOGY

Treatment of glaucoma.—(A. G. Cross, M.A., M.D., F.R.C.S., *Br. Jour. Clin. Pract.*, 13: 1, Jan. 1959).

This varies according to the type of the glaucoma. *Narrow angle glaucoma* if diagnosed in the stage of prodromal attacks should be treated with miotics, either pilocarpine nitrate 1 per cent or eserine salicylate $\frac{1}{2}$ or 1 per cent, two or three times daily. These drugs contract the pupil and open the angle of the anterior chamber, and they are useful both in overcoming the established prodromal attacks and in pre-mal phase who are treated with miotics may remain controlled for many years without advancing into the congestive

state. Peripheral iridectomy may be indicated if the prodromal attacks are frequent or if the patient is to be out of touch with an ophthalmic surgeon.

Established congestive glaucoma must be treated with the same miotics but used more intensively, up to three or four times hourly, and also with 'Diamox' (acetazolamide) a drug which diminishes the formation of the aqueous and is used in 250 mg. doses every 6 hours; potassium carbonate 1 gramme daily should be given with the Diamox if its administration is prolonged. If this therapy controls the attack, the dose of Diamox and the frequency of the use of miotics can gradually be reduced until the patient is on a balanced maintenance regime of the miotic two or three times daily, with the Diamox once daily.

In order that further attacks may be prevented, surgical treatment should be undertaken. The operation of choice, if there are no peripheral anterior synechiae, is a peripheral iridectomy, carried out through a section just outside the periphery of the cornea after a conjunctival flap has been raised. Peripheral anterior synechiae indicate that a peripheral iridectomy would not overcome the obstruction of the angle and that an iris inclusion operation (iridencleisis) should be performed. This involves the reflection of a conjunctival flap, an incision into the anterior chamber just behind the limbus, radial division of the iris, and the pulling of one of the resulting pillars of the iris through the section under the conjunctiva. Congestive attacks which do not settle with miotics and Diamox require immediate surgical treatment, such as iridectomy or iris inclusion.

Chronic simple glaucoma can be treated in the early stages by miotics. Their effect in this type of glaucoma is definite but their mode of action uncertain since the pupillary constriction can have no effect. A persistent rise of tension, in spite of miotic treatment or evidence from tonography examination that the outflow of aqueous is defective, indicates that surgical treatment should be undertaken. An operation

which allows the aqueous to drain under the conjunctiva is indicated. *Iris inclusion (iridencleisis)* performed in the manner already described may be carried out. The *corneo-scleral trephine operation* is useful in some cases. A flap of conjunctiva is raised and continued about 2mm. on to the cornea. A 1.5 mm. trephine is used to remove the circular piece of tissue at the junction of the sclera and cornea. Peripheral iridectomy is performed to prevent the iris prolapsing, and the conjunctival flap is replaced. *Anterior sclerectomy* is sometimes performed. A conjunctival flap is raised as in the trephine operation, and an incision 5 mm. long is made into the anterior chamber, 2 mm. behind the limbus. Radial incisions at each end of this form a flap with its base towards the limbus. This flap is removed, peripheral iridectomy performed, and the conjunctival flap replaced.

Secondary glaucoma is treated, essentially, by providing therapy for the primary condition. This treatment may be medical or surgical, and, in some cases, may mean removal of the eyeball. Some patients require specific therapy for the raised intraocular pressure since this may, if unrelieved, cause damage to the sight. Diamox is very useful in some cases in doses up to 1,000 mg. daily, together with potassium carbonate 1 gramme daily, since it controls the pressure, until the effects of the primary disease are overcome. Surgical treatment is sometimes required and this is carried out either by one of the drainage operations already described or by applying diathermy of suitable strength on the scleral surface over the ciliary body (cyclodiathermy). This latter procedure reduces the function of the ciliary body and limits the flow of aqueous.

Buphthalmos requires treatment if the intraocular tension is raised, and any of the drainage operations can be used. The tissues of the infantile eye are, however, very proliferative and an overgrowth of fibrous tissue may block the drainage opening so that the pressure again becomes raised. For this reason the operation of goniotomy is often preferred. A goniotomy knife is

passed across the anterior chamber and, under gonioscopic observation, the trabecular tissue of the angle is divided. This allows drainage of the aqueous through the angle and, in many babies, restores the pressure to normal.

Misconceptions about eyeglasses.—(*J. Am. Med. Assoc.*, 22-11-1958).

At a Cornell Conference on Therapy at New York, ideas about many facets of ocular hygiene and the wearing of eyeglasses were aired. Dr. John McLean presented the Conference with ammunition with which the general practitioner may combat false popular ideas. For example, refractive errors have from time to time been held responsible for many symptoms including nausea, and the characteristic attacks of migraine. In all such cases another cause should be sought because uncorrected refractive errors can cause only lack of visual acuity, fatigue of the muscles of accommodation and headache. This fatigue, like fatigue in any other muscle disappears with rest and is not cumulative. Some patients with other symptoms were psychosomatic and the relief is likely to be temporary. Dr. McLean said that relatively few headaches were of ocular origin, but many if not most ophthalmologists would disagree with this statement. A well known consultant in this field believes that if a person attempts to do close work with glasses that do not cause obvious blurring but do not correct his refractive error a headache is very likely to develop. Failure to provide correction does not cause myopia to become progressively worse. This usually occurs throughout the growth period and the rate of progression is not influenced one way or another by the wearing of glasses. Presbyopia likewise progresses at its own rate regardless of corrective measures.

Many parents worry that eyestrain may be brought about by too much homework—a worry that school boys are often careful to foster. The same school boy may bore for hours on end over comic books or some other hobby involving near vision. The ocular fatigue of many a school boy can be

more correctly attributed to boredom.

From time to time patients with refractive errors come under the spell of a faddist who recommends that one throw away one's glasses and strengthen the eyes by means of exercises. The limited success of such faddists depends on their ability to teach persons to use their defective vision more effectively.

Children with severe uncorrected visual defects are severely handicapped. They tend to avoid playing with others and may be considered mentally retarded or queer. If glasses are prescribed for such children in time not only their vision but also their social adjustment is improved. These and other points discussed made the conference one that we are fortunate to have preserved in type.

PÆDIATRICS

Convulsions in childhood.—(Denis Williams, National Hospital, Queen Square, London, *Br. Jour. of Clinical Practice*, Jan. '59).

Convulsions have a very different meaning in children than in adults. They occur so readily in the first two or three years of life that the word epilepsy is not used for them until they have occurred repeatedly without any evident immediate precipitating cause. It is wise to give a good prognosis to the parents of a child who has had convulsions if the child seems mentally and structurally normal, if the convulsions have complicated an illness and if they have not recurred more than once.

The real difficulty is to know when to start neurological investigations, when to commence anticonvulsant treatment and at what stage to suspect the development of epilepsy. This may be the case when the child is premature, if there was toxæmia of pregnancy, a difficult birth perhaps with asphyxia, and if the child is the first in the family. It is particularly likely to be so if the child is late in passing his milestones, is 'too good a baby' suggesting backwardness, if he had any evidence of structural disorder in the nervous system at all, and if

there have been more than two convulsions without a reasonably obvious precipitating cause.

This distinction between, say, a 'febrile convulsion' or 'teething convulsion' and epilepsy is made more difficult because there is no difference at all between the kind of fits which will occur in any of these states. The fit is the same whether epileptic or not. It is true that many of the fits of infancy are brief, incomplete affairs compared with the grand mal of later life, but the kind of convulsion is no help at all in recognizing the nature of its cause, whatever the patient's age.

Peterman (1946) made a study of convulsions in childhood over 20 years and in 2,500 cases he found the causes to be as follows:—

	Per cent
An acute infection	... 33
'Idiopathic' epilepsy	... 26
Birth injury	... 15
Other known causes	... 13
Spasmophilia or tetany	... 7.5
Cause not established	... 6

I have said that convulsions are particularly common in childhood. Bridge in his survey of convulsive disorders in childhood (1949) found that at the same time as 1,000 cases of convulsive disorders were seen in the hospital clinic, there were 500 cases of rheumatic disease, 420 of asthma and 170 of tuberculosis. Roughly a third of the children with convulsions were febrile at the time, a third seemed to have epilepsy and in the other third no cause could be found.

Further instructive figures are those of Thom (1942) who found that 6.7 per cent of 3,460 children from 914 unselected families had had convulsions at some time. This is about 1 in 15.

Although fever is the common precipitant of convulsions in childhood, there are many contributory factors which relate to the convulsion and which may coexist with the fever. Bridge makes this list of contributory causes in 742 children with convulsions:—

Constipation	... 172
Excessive fluid intake	... 145

Fever	... 136
Sleep cycle	... 124
Inadequate diet	... 41
Inactivity or fatigue	... 32
Intestinal parasites	... 18
Vasomotor instability	... 17
Hypoglycæmia	... 10

But it is true that any illness in childhood may precipitate a fit.

It is only when obvious and immediate physical causes for the convulsion have been eliminated that the diagnosis of epilepsy is made, but before that is done it is tremendously important to study the psychological background for the convulsions. The association of asthma or migraine, the occurrence of temper tantrums, sleep disorders, or disturbances of habit or behaviour should suggest the possibility of symptomatic fits—fits in response to stress. Whenever convulsions are becoming more frequent in the absence of evident physical causes, suspect and do your best to reveal stress in the child's life. For instance, parental disharmony, the broken home, or parental anxiety are by far the most potent. Bridge found personality disorder of this sort in a half of his children with epilepsy, and it was severe in a fifth of those.

When physical and psychological precipitants for the fits have been excluded, the probability of epilepsy looms large and yet it is difficult to answer the question 'Has the child epilepsy?' until the passage of time has given the parents the answer. About 1 in 16 children who have a convulsion in childhood will go on to have habitual attacks later. The occurrence of epilepsy in the general population is difficult to establish but it is certainly not less than 1 case in 200 people (0.5 per cent). Convulsions have been said to occur in 1 in 15 of unselected children in an American city, being less as the social scale is ascended, but these two figures give a probability of 1 in 14, of epilepsy occurring later in a child who has had infantile convulsions.

I always explain to the parents that, although febrile convulsions or teething convulsions may not matter, the

fact that they have happened at all means that that child is more susceptible to convulsions in other circumstances than other children who have not convulsed. Having made this explanation, excluded other causes or treated those which may have precipitated the fit, I try to persuade the parents to refrain from asking for anti-convulsant treatment until the child has had at least three fits 'out of the blue.' If phenobarbitone is given for one or two fits there is no indication at all of its therapeutic need or value, and diagnostic confusion is worse confounded. Fortunately, the odds are in the doctor's favour if he gives a good prognosis, and resists the urge to treat when a convulsion has happened with an immediate transient cause in an otherwise normal child.

Management of bronchial asthma in children.—(L. Unger, A.A. Wolf, J. H. Johnson and D. L. Unger, *J. Paediat.*, 52: 538-546, May 1958).

True bronchial asthma is an allergic condition which is usually preceded or associated with seasonal or perennial rhinitis and with partial obstruction of the lower air passages. Bronchial asthma is characterized by wheezing, dyspnoea, orthopnoea, and cough. Demonstration of the causative allergens, especially in patients in whom asthma has begun after the age of 40 years, is not always possible; in children, however, the discovery of the allergen is almost always a comparatively simple matter. For example, in 1952, positive skin tests were obtained in 362 of 366 asthmatic children. A good history must concern itself not only with possible allergic factors but also with past illnesses, emotional problems, and details relating to previous immunizations. The physical examination must be thorough, with special attention to the lungs and heart as well as to the nasal passages. A complete blood count should be made in each case, as well as a Kahn test, a nasal smear, urinalysis, and determination of the erythrocyte sedimentation rate. Skin tests are indicated in almost all allergic conditions, but they are generally use-

less in urticaria and migraine. Tests may be negative in asthmatic infants and positive in the same children when repeated a few years later. Tests should be made with all possible inhalant materials and also with the foods the child eats. A proper allergy survey cannot always be made by performing 20 to 30 skin tests; in many children this number is insufficient, and the results will not be satisfactory. Tests should be made by the scratch method, but intradermal tests must follow if the scratch method does not yield adequate information. Physicians who perform only scratch tests can expect not more than 75 per cent results; those who make only intradermal tests are also wrong, because (a) they are apt to bring on systemic reactions which may even be fatal, (b) they perform fewer tests and may therefore miss positive skin tests, and (c) intradermal tests are more painful.

Therapy may be specific, symptomatic, or preventive. The specific management of asthmatic children consists in avoidance of causative allergens, with or without hyposensitization; usually the results are good. Symptomatic therapy of bronchial asthma is nonspecific, and nothing more than temporary relief of symptoms can be expected. Reassurance is the most important single measure, especially if the child is having first severe attack. For mild to moderate symptoms, repeated subcutaneous injections of 1:1,000 epinephrine in doses of 0.10 to 0.20 cc. usually suffice, along with 5 to 10 drops of a saturated solution of potassium iodide. If necessary, a mild sedative may be added e.g., elixir of Benadryl. This combination is almost always effective. For more severe asthma, the epinephrine may be injected every 4 hours; often 0.10 cc. of Sus-Phrine a long acting epinephrine suspension, is added. Instillation of 5 grains of aminophylline rectally is helpful and is to be preferred to the use of aminophylline suppositories. In addition, syrup of ipecac will induce vomiting, and as the child vomits, he usually eliminates sputum which he has not yet learned to cough up. For the most severe cases (statue

asthmaticus), antibiotics, e. g., penicillin, should usually be added, because in almost all such cases there are infectious complications which cause the symptoms to continue. Corticotropin-gel and prednisone have become very important, but cortisone itself is rarely used any more. The corticosteroids are of great help in lessening asthmatic symptoms, but they are not without danger, and they do not cure asthma or any other disease.

Much can be done to prevent the development of allergic symptoms in children, especially children of allergic parents. The homes should be as free from dust and allergens as possible. New foods should be tried one at a time, at least a week apart, to see if symptoms occur. Children with a tendency toward asthma should be guided away from dusty occupations. Exposure to colds should be minimized. Psychosomatic factors, if present, should be given proper attention. If these precautions are carefully followed, the onset of severe asthma in children can be prevented, or, if asthma does occur, the symptoms can easily be controlled.

RADIOLOGY

The hazards of diagnostic X-rays.—(*The Practitioner*, November 1958).

The publication in 1956 of the report by the Medical Research Council on 'The Hazards to Man of Nuclear and Allied Radiations,' and also the report by the United States National Academy of Sciences on 'The Biological Effects of Atomic Radiation' focused attention on the possible risk of exposure to low doses of radiation. In this respect considerable discussion has taken place since 1956 about the potential hazards of the use of X-rays for medical diagnosis. To set this particular subject in its correct perspective two basic problems must be considered: (i) the doses received from diagnostic X-ray procedures and the frequency of such procedures, (ii) the extent to which available knowledge supports

the suggestion that low levels of dose may be hazardous.

It is not sufficient simply to describe the potential hazards of medical radiology without taking into account the undoubtedly great benefits that accrue from this form of diagnosis. These are such that clearly no-one would be foolish enough to feel that in the long run their value was outweighed by the possible hazards. It is realized that a certain degree of hazard is acceptable, in as much as a certain degree of risk is acceptable, and indeed inevitable, in the performance of such a procedure as a laparotomy. There is every reason, however, while accepting that some risk is inevitable, for reducing this risk so far as is possible. Fortunately a number of measures can be taken which will greatly reduce the potential risk, and in this respect attention is drawn to the work of Ardran and his colleagues.

Ardran (1956) has pointed out how it is often overlooked that for a long time radiologists have been concerned with problems of dose reduction, and he draws attention to the remarkable degree of reduction that can be achieved through such technical advances as filtration of the primary beam, its limitation by suitable cones and diaphragms, and the introduction of high-speed films. Thus, in the Nuffield Institute for Medical Research the skin dose per film, when examining an area of the average human abdomen 5 inches (12.5 cm.) in diameter was progressively reduced from 1.4 r in 1938 to 0.13 r in 1953. A further dramatic reduction to 0.012 r was obtained by the use of an image intensifier and 35-millimetre film. Such measures, together with the use of equipment free from the leakage of stray radiation, cannot but produce an appreciable reduction of dose to the gonads and to the bone marrow. A further important measure to take, which could be universally applied, would be the use of protective shielding of the external male genitalia and of the lower abdomen in women. Ardran and Kemp (1957) have devised such equipment for the protection of the male genitalia, and have suggested that, provided the

primary beam is reduced to a minimum, the use of this should reduce the gonad dose to the population by about 25%. Finally, it is an undoubted fact that much unnecessary duplication of films occurs, and if all members of the medical profession cooperated in reducing the number of X-ray exposures to the minimum necessary for the adequate management of the patient, a further appreciable reduction would occur in the doses to such important target tissues as the testes, the ovaries and the bone marrow. The use of all these measures would go far towards reducing the risks to within acceptable limits and at the same time provide latitude for further expansion in the use of medical diagnostic radiology.

Trial application of cobalt therapy to buccal cancers.—(*J.A.M.A.*, 29-11-'58).

Radioactive cobalt (Co^{60}) was used with encouraging immediate results in treating 20 patients with advanced buccal cancers that were beyond the scope of ordinary radiotherapy. The basic physical characteristics of Co^{60} radiation are (1) its high energy (average 1.25 mev) and (2) the fact that it is practically monochromatic, without soft components. The whole importance of cobalt therapy lies in certain theoretical advantages which flow from these characteristics. These are (1) the great activity, coupled with small size, of the source which permits irradiation from a distance and a good geometric localization of the beam, (2) absorption by the superficial layers which is never preponderant, providing relative protection for the epidermis but making it impossible to use the skin reactions as a guide to treatment, (3) a depth dose which, for similar conditions of irradiation is practically twice as great as that of the standard roentgen therapy and (4) absorption which is practically the same for all tissues, whatever their density so that the danger of radionecrosis of the bone is greatly reduced. This brief summary of the theoretical advantages of Co^{60} therapy shows how well adapted it is to the treatment of buccal cancers, which are often deep, hard to reach by the usual cross fire technique and masked by bone.

SURGERY

Surgery of musculo-skeletal malignant tumours.—(*J. Mt. Sinai Hospl. New York* Nov-Dec. 1958)

1. The ordinary treatment of musculo-skeletal malignant tumours of the extremities remains proximal amputation where feasible.

2. Exceptions are:—(a) Unusually radiosensitive tumours likely to be multicentric (such as Ewing's tumour, reticulum cell sarcoma etc.), (b) some atypical tumours as in the five cases presented in this paper.

3. In the latter, radical resection, local, may be done instead of amputation, but the cases must be carefully selected.

4. Some factors in the selection include (a) size of the tumour and its degree of localization so that it is contained within a particular bone or muscle (b) Resectability without sacrifice of vital structures which would render the limb useless or devitalized. (c) Encapsulation or regional localization so that excision is possible without entrance into the mass and inclusive of the biopsy site. (d) Degree of malignancy as indicated by the histological study of the biopsy and clinical invasiveness. Especially if there is a difference of opinion among competent pathologists as to the presence of malignancy or if there is agreement as to the low grade of malignancy of the tumour local resections may be considered. (e) High grade malignancies may also be considered for such therapy if proximal in the limb so that the difference in certainty of excision is not great as between amputation and resection, each case to be judged individually. (f) Large tumours of weight-bearing bones, involving complicated grafting replacement, prolonged convalescence and consolidation time for useful function should not be treated this way except in very special, otherwise favourable cases from all the above standpoints. (g) Perforation of such malignant tumours through the bony cortex, especially of a long bone, indicating aggressiveness in the growth

renders local recurrence extremely likely despite what may appear a low grade malignancy on histologic study of the biopsy. Ordinarily this should favour therapy by amputation rather than by local resection.

Jejunal interposition operation—analysis of thirty three clinical cases.—(*J.A.M.A.*, 29-11-'58).

In 1955 the concept of cardioesophageal sphincter substitution by the interposition of a segment of jejunum between the oesophagus and the stomach was presented. Included in this publication were case reports of patients in whom this operation had been performed for various lesions, mainly of the lower part of the oesophagus. Since then, additional clinical experience has served to strengthen the validity of this concept.

It is now possible to excise the oesophagogastric junction for such conditions as reflux oesophagitis with stricture with restoration of continuity and without fear of recurrent oesophagitis. The operation here described involves the interposition of a segment of jejunum from 15 to 48 cm. in length with certain precautions taken to make sure of a good blood supply. Four anastomoses have to be made, the most crucial being that between the oesophagus and the jejunal segment. In a period of six years this interposition operation has been carried out in 33 patients. Four postoperative deaths occurred and analysis of the case histories indicates that improvements in technique would reduce the mortality significantly. Among the other 29 patients there has been no dysphagia, and the functioning of the interposed segment of jejunum has been studied by roentgen ray in patients up to six years after operation. All patients, including some with cardiospasm oesophageal varices, and lye stricture, were relieved to be able to swallow normally again and the majority ate three meals a day, but six established a pattern of eating five or six times a day and 12 were apparently unable to vomit. The substitution of a segment of jejunum for the oesophago-

gastric sphincter is a sound physiological procedure.

The interposition of a physiological sphincter at the oesophagogastric junction has prevented the occurrence of postoperative oesophagitis after cardio-oesophageal removal in all of the patients followed up in this series. Ninety-six percent of the patients were improved after the operation. Eighty-eight percent were classified as showing an excellent result.

Cyclopropane anaesthesia.—(*Anaesthesiology*, 10: 619, 1958, via *G.P.*, December, 1958).

Price and associates have found that an increase in the alveolar carbon dioxide tension precipitated a ventricular arrhythmia in each of 28 patients anaesthetized with cyclopropane. Further, intravenous infusion of epinephrine or *nor*-epinephrine produced similar arrhythmias in six of eight subjects.

The concentration in the blood plasma necessary to produce an arrhythmia by epinephrine and *nor*-epinephrine was greatly lessened if increased carbon dioxide was present in the lungs. Also, bilateral blockade of the stellate ganglion with a local anaesthetic prevented the arrhythmias associated with the increased carbondioxide but had no effect if the arrhythmia was produced by increasing the amount of epinephrine or *nor*-epinephrine in the blood plasma. The effect of the blockade of the stellate ganglia in preventing the arrhythmias was not the result of coincident arterial hypotension, systemic absorption of the local anaesthetic or inadvertent vagal blockade; presumably it resulted from interruption of sympathetic fibres supplying the heart.

On the basis of these experiments, the authors postulate that increased carbondioxide tension in the lungs increases the rate of liberation of catechol amines from the sympathetic nerves terminating in the myocardium, and that this causes the arrhythmias.

Hæmostatic ligature techniques.—(*Arch. Surg.*, 77: 253, 1958, via *G.P.*, December, 1958).

Safe ligation of large arteries may present a major problem during surgery particularly if the segment available for tying is a short one. Weil and State, using dogs as experimental animals, have studied various techniques of ligation. They selected arteries of three sizes: moderate sized systemic arteries, large thin walled intrathoracic arteries and a large thick-walled artery. The vessels were ligated with the following diameters of silk suture: 000, 00 and 0. Four techniques of applying the ligatures were used: (1) a free tie with a square knot, (2) a free tie with a surgeon's knot, (3) a "stick-tie" in which the needle caught the wall of the vessel at two opposite points without entering the lumen and the ligature was tied with a square knot, (4) and the transfixing suture, in which the needle penetrated the lumen in its midpoint and emerged on the opposite side, with completion of the suture application by means of a square knot.

Hæmostasis could be effected satisfactorily at normotensive levels only when the length of segment distal to the ligature was twice the thickness of the vessel wall regardless of the diameter of the vessel and the technique utilized for ligation. The 000 silk could be used satisfactorily for the ligation of the medium-sized arteries, but for the larger vessels 00 or 0 silk was preferable. Of all the four techniques of ligation described, the best results were with the transfixing ligature.

Problems associated with the use of extracorporeal circulation for cardiovascular surgery.—(*Annals of Int. Med.*, Nov. 1958).

Extracorporeal circulation maintained by an artificial heart-lung apparatus is now an essential and established procedure for certain types of cardiovascular surgery. With this new development has come a host of special blood problems, that covers a wide spectrum of hæmatology from coagulation to blood banking techniques.

The post-perfusion bleeding tendency, while occurring less frequently

as more experience is gained and less traumatic heart-lung machines are developed, is still a major factor limiting the duration of safe cardio-pulmonary by-pass. A number of causes of the postoperative bleeding tendencies have been considered; and while multiple factors may be involved, presently available evidence implicates activation of systemic coagulation through liberation of thromboplastic substances in the extracorporeal heart-lung circuit.

The blood platelets are consistently decreased during and following most extracorporeal perfusions. Though usually temporary, the thrombocytopenia may persist for two to four days. Unless the perfusion is unduly prolonged, the platelet level rarely drops to hæmorrhagic levels. White cell counts are also temporarily depressed. Mechanical destruction of red blood cells during perfusion, though occurring to some degree with all types of heart-lung machines, is no longer a serious problem with the most modern pumps and oxygenators. Ordinarily, those red cells which survive the perfusion-period intact exhibit normal *in vivo* survival for at least two to three weeks and sometimes longer. Evidence is presented that certain susceptible recipients of donor-blood which has been exposed to an artificial heart-lung circuit may destroy this blood, presumably through antibody formation to certain lesser antigenic blood-group factors, after permitting varying periods of initial normal red cell survival. Whether this indicates that the exposure of blood to an extracorporeal circuit enhances the antigenicity of certain blood-group factors, or whether this phenomenon occurs with equal frequency among recipients of large transfusions of unexposed blood is yet to be determined.

The importance of maintaining low blood dilution, near normal pH and normal electrolyte pattern, particularly of ionized calcium of the donor blood is emphasized. Blood-banks have to deal with these special requirements in the blood for extra-corporeal circulation.

REVIEWS OF BOOKS

Principles of Medicine and Medical Nursing—(Modern Nursing Series)—J. C. HOUSTON, M.D., F.R.C.P., and MARION STOCKDALE, S.R.N., S.C.M., R.S.C.N., both of Guy's Hospital, London. The English Universities Press Ltd., 102, Newgate St., London E.C.1. through M. S. Orient Longmans Private Ltd., 36-A, Mount Road, Madras-2. Price 15 shillings.

This very well written textbook, the first to be written jointly by a highly qualified physician and a sister tutor both of Guy's Hospital, London, provides at a moderate price a sound and reasonable introduction to present-day medicine, with particular emphasis on those aspects of investigation and treatment of patients which come within the province of the nurse. The book has fourteen useful, concise but lucidly written chapters dealing with diseases affecting the different systems of the human body; and the sole aim has been to explain as simply as possible the symptoms and signs of the various diseases and how they arise. The nurse will be enabled to understand things clearly, instead of having to memorize the details, and will therefore, appreciate the rationale of the procedures she has to follow. It is indeed refreshing to note that considerable stress has been laid at every step on the importance of treating the patient as an individual.

The book conforms to the requirements laid down by the General Nursing Council for the G.N.C. Certificate of General Nursing. The omission in this book of pædiatrics and pædiatric nursing is explained by the fact that they will be the subject of another book to be published in this Modern Nursing Series.

This well got-up book will be very useful to nurses even after they have qualified and will be helpful also to dental students, physio-therapists and radiographers.

Essentials of Human Physiology: With 3 plates in colour and 137 illustrations in the text—By S.M. BANERJI, M.Sc., M.B., Formerly Professor of Physiology, Presidency College,

Calcutta; S.C.B. Medical College, Cuttack; Jabbalpur, Nagpur and Kozhicode Medical Colleges. Pages 490. Published by S. Bhattacharya & Co., 49, Dharamtala Street, Calcutta-13. Price Rs. 20.

This text book of Human Physiology is ably written and well got-up. It is meant primarily for pre-clinical students in the medical colleges and also for the B.Sc. students in the arts colleges. The author has had a wide and varied experience of over 30 years in teaching this subject to students in various parts of Bharat, *e.g.*, Bengal, Orissa, Madhya Pradesh and Kerala, and is therefore, well qualified for the task and his book contains the fruits of his wide and varied experience. The book is concise; and clinical aspects have been given due importance, and well illustrated by charts and diagrams. In 13 well written chapters, the author deals with the structural basis of life; blood circulation; respiration; excretion through kidneys and skin; the physiology of muscles and fibres; the nervous system; the endocrine glands; reproduction and heredity; and the receptors and sense organs.

This text book will adequately serve the purpose for which it has been written and so we recommend it to all students of physiology in the medical and art colleges.

Staphylococcal Infections—By IAN, MACLEAN SMITH, M.D., Ch.B., F.R.F.P.S.C., Assistant Professor and Chief, Infectious Disease Division, Department of Internal Medicine, State University of Iowa. Pp. 180. The Year Book Publishers Inc. 200, East Illinois Street, Chicago. Price \$ 4.25.

The staphylococcus is one of the commonest organisms which gives rise to infection. But the variety of diseases that are caused by this simple organism is really surprising. This book deals with the infections and diseases caused by the staphylococcus not only in the human being but also in animals and the Antibiotics that should be used to combat them. The author has dealt with the various diseases

caused by the *Staphylococcus* in a number of chapters each dealing with a particular system. At the end, the various antibiotics that should be used to counteract these infections are given in very great detail. This is a very small handbook not only on *Staphylococcal* infections but also on the use of antibiotics. So it should prove very useful.

Current Therapy—Specially contributed articles of Dr. S. I. Roy to *Indian Medical Journal*, Volume 1, Published by Dr. A. N. Roy, Editor, *Indian Medical Journal*, Journal of the All India Medical Licentiates' Association, Pages 240. 4-B, Parbati Chakrabarti Lane, Calcutta 26. Printed by Sri Ranajit Kumar Dutta, Nabasakti Press, 123 Lower Circular Road, Calcutta 14. Price Rs. 6/-.

This book which seems to have been compiled almost entirely due to the enthusiasm of Dr. A. N. Roy, Honorary Editor of the *Indian Medical Journal*, contains the articles written by Dr. Santhilal Roy, which were published in the *Indian Medical Journal* from time to time. These articles which had aroused the interest of the medical public are evidently of a high standard and Dr. A. N. Roy has taken special pains to get together these articles in book form. The text of the book has been divided into 12 chapters. The first chapter deals with Lipotropic Drugs and their uses in every day practice. The use of Methionine, Choline, Inositol in infective hepatitis have been specially dealt with and are very useful. The second chapter deals with Sex Hormones

followed by a chapter on Broad Spectrum Anti-biotics. All the newer antibiotics including Panmycin and Polycyclin are described with their dosage and uses. The next chapter is on Fluid Therapy and the portion in this chapter on Plasma Substitutes is highly illustrative. The next chapter is on Anti-Leprosy Drugs followed by a chapter on Anti-Anæmic Drugs. All the hæmatinics including intravenous iron and hæmatinic combinations of iron and liver extracts are described in great detail. This is followed by chapters on Anti-epileptic drugs and Anthelmintics and a chapter on the Use of Radio active isotopes in Medicine is also included which perhaps though rarely of use to general practitioners gives them an idea of the nature of relationship of radio active isotopes to common diseases. A chapter on Anti-filarial drugs and one on Insulin and their uses are also there. The book concludes with a detailed description of Anti-hypertensive drugs and their application in everyday practice. The get up of the book is fair and the book makes interesting reading. Our congratulations to Dr. A. N. Roy for his endeavour to get the articles that were written by Dr. Santhilal Roy published in book form. It should prove a useful handbook to the general practitioner.

BOOKS RECEIVED

Short Text-book of Gynecology—By C. S. DAWN. 1958, Pp. 373 with 99 illustrations. (Scientific Book Agency, 103, Netaji Subhas Road, Calcutta-1). Price Rs. 12-50 nP.

NEWS AND NOTES

National Register (Govt. of India) of Scientific and Technical Personnel

A clearing house for information pertaining to Indian Scientists and Technologists at home and abroad—the National Register:—(1) Compiles comprehensive data regarding our Scientists, Engineers, Technologists and Medical Specialists; (2) Supplies available information about registrants to

employers on request and (3) provides Technical manpower data for planning.

The minimum qualifications for registration are:—(i) a Master's Degree in a Science Subject (incl. Maths. and Geo-Sciences), or (ii) specialization in Medicine or (iii) Bachelor's Degree in Agriculture, Veterinary Science etc; or (iv) Diploma in Engineering or Techno-

logy. If you wish to Register yourself:—Registration Card 'G' may be had from:—National Register Unit, C.S.I.R., Old Mill Road, New Delhi.

Registration is free.

Polyethylene Fabric for Artificial Arteries used by British Surgeons

One of the Exhibits in the British pavilion at the Universal and International Exhibition at Brussels in Belgium was a seamless tube made of yarn based on a special kind of polyethylene; it was an artificial artery. This marks the latest stage in one of the most fascinating stories in the whole field of medicine—the search for new arteries to replace old ones, which began in earnest 50 years ago. Several substitutes were tried and found wanting. The new plastics then came into the picture:—nylon, orlon, terylene and now the special British-invented polyethylene fabric which was on show at Brussels. This newest fabric has certain special features and qualities essential for an artificial artery; it is hard-wearing and flexible. This last feature is the most important because an artery in the leg for instance, must be able to bend easily. It shrinks when placed in boiling water. This is *most important* because, when a surgeon decides to operate on an artery he can never be quite certain until he actually sees the artery at operation how wide it really is. If he can use a tube of this new shrinkable material he knows that if he chooses a size slightly larger than the artery, then at the time of operation he can shrink it to the exact size by placing it in boiling water. The weave in this artificial artery has a net-like structure so that the surrounding tissues of the body can grow in and around it and thereby anchor it firmly. —(B.I.S., Bulletin No. 301, of 11-2-59).

New Methods for Treating Mental Illness under way in Haiti

Details of the Haiti Psychiatric Institute, the world's first hospital in which treatment of the mentally ill will be based primarily on drug therapy, have been recently announced by

Dr. Nathan S. Kline, Director of research at Rockland State Hospital, Orangeburg, New York.

The Institute, will begin operation in February 1959, in Port-au-Prince, Haiti. Dr. Louis Mars, noted psychiatrist and Minister of Foreign Affairs for the country of Haiti, will be in charge.

The project is being financed by leading pharmaceutical companies; Schering Corporation, Bloomfield, N.J.; Hoffmann-Le Roche, Inc., Nutley, N.J.; Weyth International, Radnor, Pa., and the Haitian Government. It will be carried out under the auspices of MEDICO, the Government of Haiti and the Department of Mental Hygiene of the State of New York. Dr. Kline will serve as consultant to the Haitian programme.

The tranquillizers perphenazine (Trilafon) from Schering and meprobamate (Equanil) from Wyeth; and the psychic energizer iproniazid (Marsilid) from Hoffmann-La Roche, will be used in the treatment of mental and emotional disorders.

The idea is to determine if presently available drugs and adequate treatment facilities are not a more economical and more socially constructive method of treatment than the traditional method of institutionalizing mental patients. If successful it will really be a wonderful achievement.

Advanced Study in Medicine

First U.S. Fellowship for Indian

Mr. Ellsworth Bunker, U.S. Ambassador announced on 12th Feb. 1959 at Delhi the grant of a fellowship worth \$ 10,000 a year to an Indian Physician for advanced training in America in physical medicine and rehabilitation of the crippled.

Funds for the fellowship have been provided by Merck, Sharp and Dhome a U.S. Pharmaceutical firm. The first recipient of the fellowship is going to be an Indian.

Mortality Reduction in T.B. due to the New Drugs

New drugs such as I.N.H. and Streptomycin, resulted in a drop of

50% or more in deaths from Tuberculosis in many countries from 1952 to 1957, the World Health Organization announced on February 11, 1959.

Homœopathy

The Madras State Government are considering proposals for according recognition to the Homœopathic system of Medicine in the State.

Mr. M. A. Manickavelu, Minister-in-charge of Health, indicating this to Pressmen on 14th Feb. 1959, said this system claimed consideration because of its cheapness and suitability to rural areas for that reason.

The Government may also consider the question of giving assistance to private bodies which may come forward to provide institutional training in the study of homœopathy.

Research award by Medical Council

At a meeting of the Medical Council of India, on 12-2-59 Dr. C. S. Patel, who presided, said the Council proposed to institute a research award to be granted annually to those whose work in India was adjudged best and original in the field of medical and allied research. The award was being instituted to commemorate the Silver Jubilee of the Association.

Radio-isotopes from Canada

Under Colombo Plan

A consignment of radio-isotopes, the largest to be supplied by a Western nation has been sent to India by the Atomic Energy of Canada Limited.

The freighter "City of Ottawa" which brought the three Cobalt-60 teletherapy units consigned for India early in February to Bombay, also carried a replacement of Cobalt-60 radio-active source for replacement at the Cancer Institute, Madras.

Of the three isotope units supplied under the Colombo Plan to India, one is to be installed at the Tata Memorial Hospital in the City and another at the Christian Medical College, Ludhiana.

Floating Medical School

A Navy hospital ship will be fitted out as a floating medical school for a year-long good will visit to South-East Asia from U.S.A.

The project was the response of a group of doctors to a call by President Eisenhower to private citizens for "people to people" promotion of goodwill between the U.S. and other nations.

The ship would be equipped with 200 doctors, as many nurses and 800 hospital beds.

Jaipur Conferences in January 1959 Plea for National Academy of Medical Sciences

Doctors assembled in a conference here have suggested the establishment of a national academy of medical sciences in the country.

The suggestion was made in a resolution, unanimously passed at the end of January '59 by the joint conference of the Association of Physicians of India, the Association of Paediatricians of India, the Neurological Society and the Cardiological Society of India.

The resolution stated: "The time has now come when an approach be made, along with other associations like that of the Association of Surgeons of India and the Federation of Obstetricians and Gynaecologists of India, to take steps to establish a national academy of medical sciences of India."

Another resolution passed by the conference said that teaching institutions should have whole-time, part-time, and honorary staff on salaries recommended by the Indian Medical Association. The resolution added that if the recommendation of the Central Government for having whole-time teaching staff in medical colleges on the salaries suggested, is given effect to by the State Governments, "there will be further deterioration in the standard of medical education."

Freeze-Dried BCG Vaccine

Test at Guindy Laboratory

Experiments were conducted at the B.C.G. Laboratory, Guindy, on the possibilities of manufacturing freeze-dried B.C.G. vaccine and are still in progress.

It will not require refrigeration, and the vaccine can be kept for about a year. The keeping properties of the

vaccine are such that it cannot be stored for more than about a month from the date of manufacture and it has also to be kept in the cold, and protected from light. The experiments are to get over the problem of refrigeration.

A plant has been erected at a cost of Rs. 1,00,000 for the purpose.

[Note:—It has since been reported that the results have been favourable and that this method will therefore be adopted].

The Madras Government City Pharmacists' Association

This Association on 8-2-59, Dr. K. Narayanamurti, M.D., presiding adopted a resolution requesting the Government to remove the disparity in salaries among pharmacists and put them all on a better scale of pay. The Association also urged that only a nominal fee of 25 nP. be levied for the renewals of registration certificates.

The Dr. B. S. Shroff Memorial Gold Medal of the

Bombay Medical Union 1959

The following subject has been selected by the Bombay Medical Union for competitive thesis for the above Prize for 1959.

"Emergencies in General Medical Practice based on personal observations and supported by reports of cases."

The award will be in the form of a Gold Medal. The competitors must be (i) a duly qualified member of the medical profession holding a degree or degrees and diplomas from Indian and other universities created by statute, or (ii) a duly qualified member of the medical profession holding Diplomas of the College of Physicians and Surgeons of Bombay.

The thesis must be sent in three clear typed copies so as to reach the Honorary Secretaries, Bombay Medical Union, Blavatsky Lodge Building, French Bridge, Chowpatty, Bombay 7, by the 30th June 1959.

The thesis should be designated by a motto instead of the writer's name and should be accompanied by a sealed cover containing the name of the writer

and his Post-Office address. The name of the Prize, the year of the competition, the subject of the thesis, and the writer's motto should be superscribed on the cover.

No study or essay that has been published in the medical press or elsewhere will be considered eligible for the prize, and no contribution, offered in one year will be accepted in any subsequent year unless it includes evidence of further work. The accepted thesis shall be the property of the Bombay Medical Union. All other theses shall be returned if not accepted provided the return postage expenses are paid in advance by the writer.

In the award of the prize to the successful candidate, the decision of the committee shall be final.

The Dr. Sir Bhalchandra Krishna Kt., Memorial Gold Medal of the Bombay Medical Union 1959

At a meeting of the Subscribers of Sir Bhalchandra Krishna Kt., Memorial Fund held on the 11th July 1924 it was resolved:—

"That from the funds collected to perpetuate the memory of the late Dr. Sir Bhalchandra Krishna Kt., a memorial prize medal be founded to be awarded every year on the anniversary of his death to a member of the medical profession who submits a thesis or delivers a lecture on any medical subject before a meeting of the medical profession to be held under the auspices of the Bombay Medical Union, preference being given to one who submits any original or research work especially with reference to indigenous medicine on western lines."

In consonance with the above resolution, members of the profession are invited to submit a thesis or a paper by the 30th June 1959 to the Hon. Secretaries, Bombay Medical Union, Blavatsky Lodge Building, French Bridge, Chowpatty, for submission to a Selection Committee for making the above award. The thesis should be designated by a motto instead of the writer's name and should be accompanied by a sealed cover containing the name of the writer and his Post-Office address. The name of the Prize, the year of competition, the subject of the thesis and the writer's motto should be superscribed on the cover. Three copies of the thesis should be submitted,

The thesis or paper shall have to be read by the prizeman on the day of the award at a meeting of the profession to be held in accordance with the above resolution.

Extension of Drugs Act provisions urged

The Estimates Committee of the Lok Sabha has urged that a much larger percentage of expenditure in the Union and State budgets should be earmarked for medical and public health services in the Third Five-Year Plan.

Stating that the present medical and public health facilities are "totally insufficient" to meet the requirements of a Welfare State, the committee points to the Soviet Union where approximately one-fifth of the total budget is stated to be earmarked for health and medical services.

Another "disconcerting feature" the committee notes in its reports on the Ministry of Health is that in spite of the very limited provision made in the Second Plan, several schemes, for which funds have been provided, have not

progressed according to the schedule. "This clearly points to the urgent necessity of toning up the administrative machinery both at the Central and State levels."

The committee's report deals with drug control, mental health, medical stores depots and the contributory health scheme for Union (Government employees in the Capital.

It is unfortunate, says the Committee that there is no control over the Ayurvedic, Unani and Homœopathic drugs manufactured in India. It has suggested examination of the feasibility of suitably extending to these drugs the provisions contained in the Drugs Act and rules or alternately of a separate legislation for the purpose.

L.T.M. Course at Calcutta

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| 6. Names and addresses of individuals who own the newspaper and partners or shareholders holding more than one per cent of the total capital. | <p>Partners "Antiseptic"</p> <table border="0"> <tr> <td>1. Dr. U. Krishna Rau</td> <td rowspan="3">} 323-24, Thambu Chetty St., Madras-1.</td> </tr> <tr> <td>2. Dr. U. Vasudeva Rau</td> </tr> <tr> <td>3. Sri U. Vyasa Rau</td> </tr> </table> | 1. Dr. U. Krishna Rau | } 323-24, Thambu Chetty St., Madras-1. | 2. Dr. U. Vasudeva Rau | 3. Sri U. Vyasa Rau |
| 1. Dr. U. Krishna Rau | } 323-24, Thambu Chetty St., Madras-1. | | | | |
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I, Dr. U. Vasudeva Rau, hereby declare that the particulars given above are true to the best of my knowledge and belief.

Date }
26th Feb. 1959. }

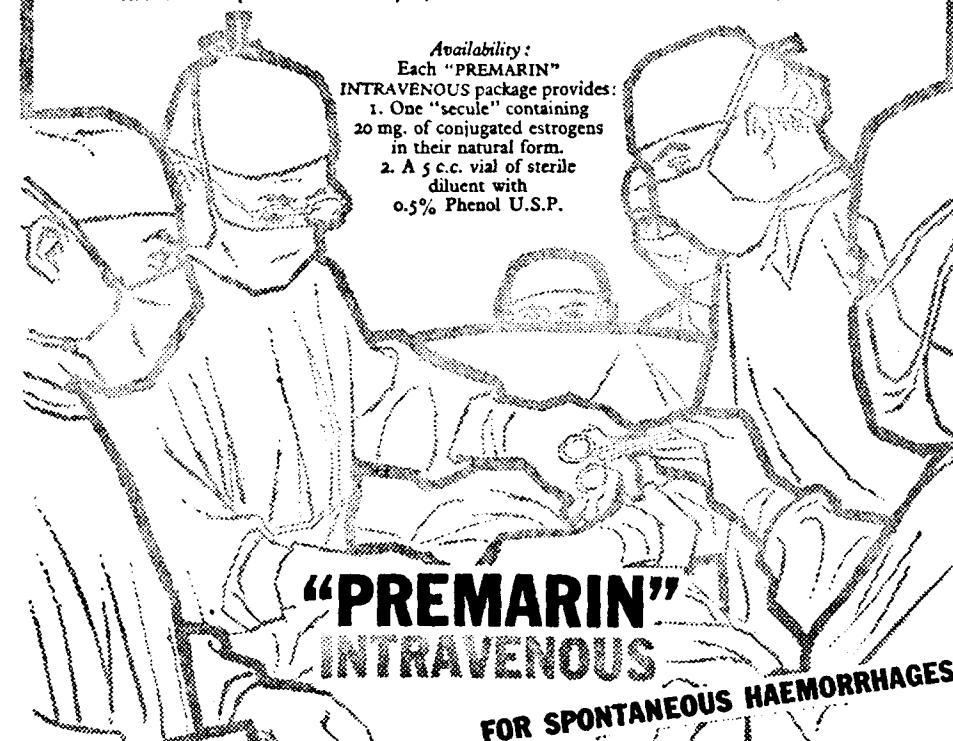
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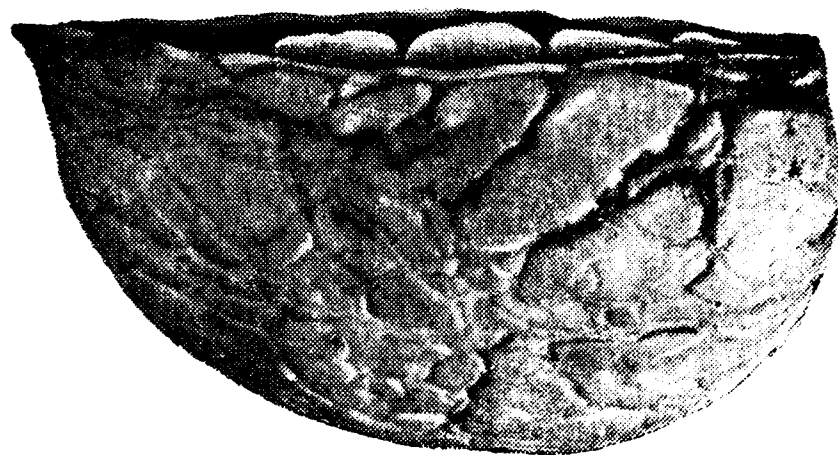




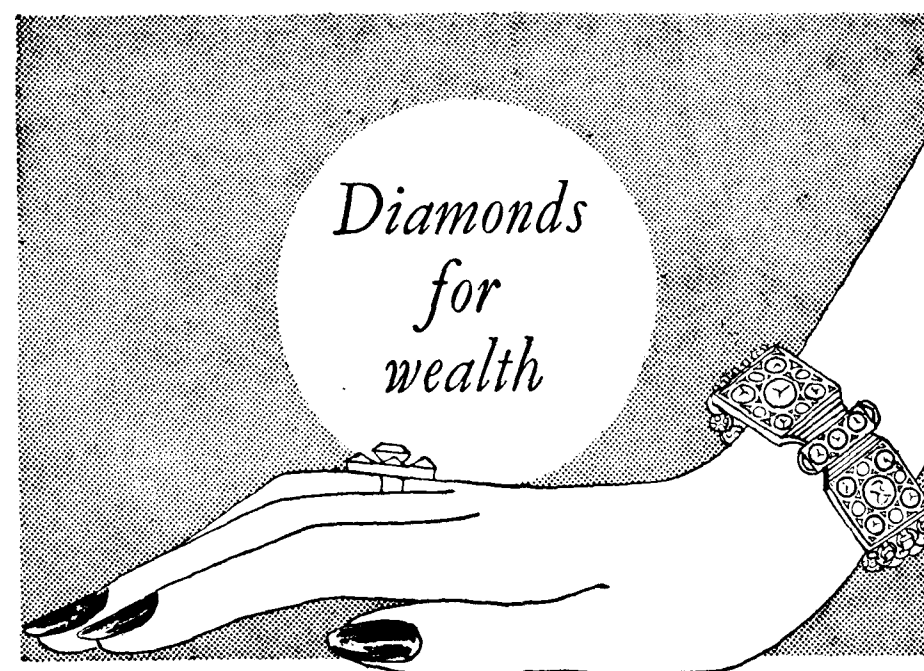
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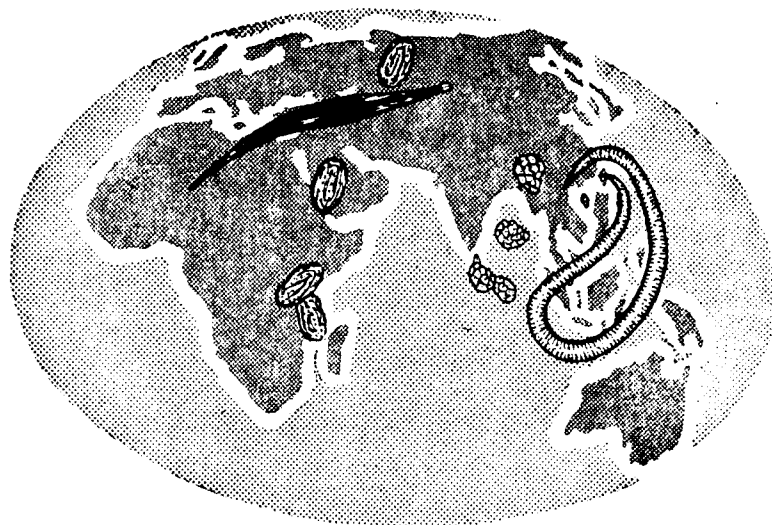
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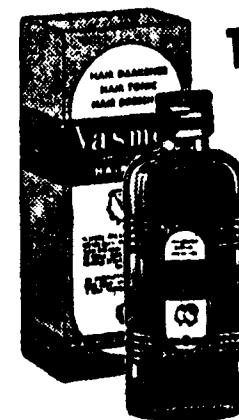
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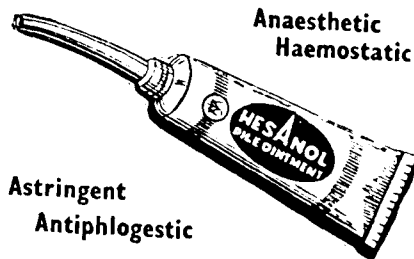
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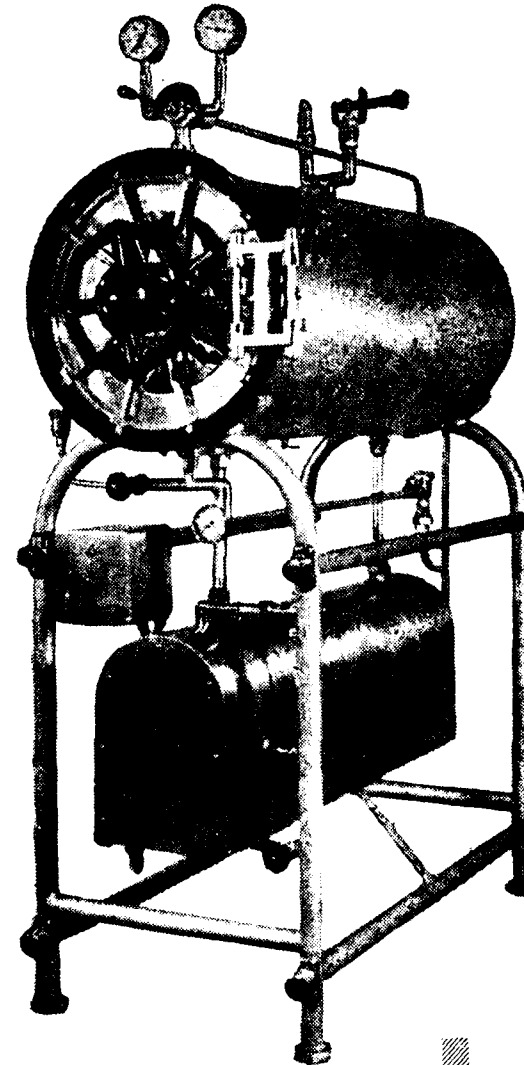
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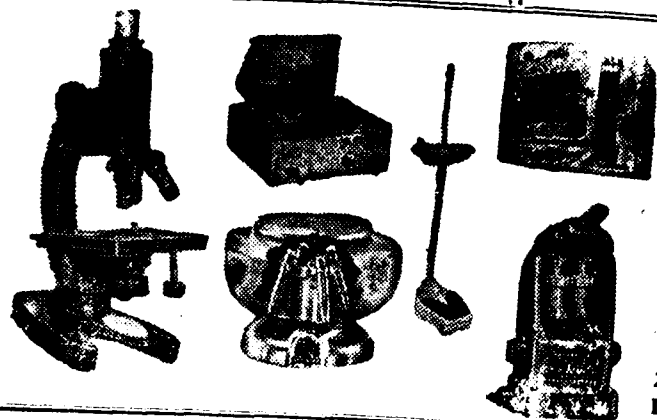
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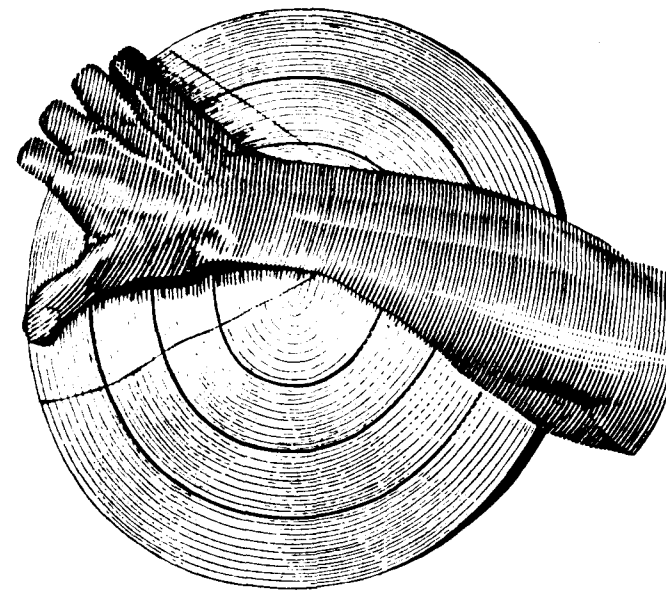
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THE BIAS AGAINST ALL THINGS FACTORY-MADE

"To be biased in the study of any scientific subject is to wear a cork leg in the march to progress."

HORDER

People are conservative. They like what they are used to. Sometimes this protects them from cheap and nasty innovations. Sometimes it leads them to a blind resistance to change. The great discoveries of Lister and Semmelweis and Simpson all met with unreasoning opposition even from scientists.

A notable example of unreasoning conservatism is the prejudice that many people have against all things factory-made. No valid explanation can be offered, especially when one considers that most synthetically manufactured drugs and hormones available today are an improvement on the natural forms; in fact, most of them are cheaper, more effective, more easily standardized and without many of the untoward reactions observed in their 'natural' counterparts. Most illnesses today are treated with such drugs — and with excellent results!

Yet on a subject as vital as Nutrition, we find that there are people, even doctors, who are guided more by old beliefs than scientifically established fact. Hydrogenated fats suffer greatly from such beliefs. It is believed, for instance, that they are inferior to animal fats when used as a cooking medium. Yet numerous workers in this and other countries have concluded that hydrogenated fats are as good as animal fats for cooking, if not better.

Research studies in Europe and the US show that the basic energy and food value of hydrogenated oils is the same as that of the oils from which they are prepared. In the case of DALDA, the leading brand of vanaspati, this means primarily groundnut and til oils — both of which have a long record of excellence as a cooking medium.

These researches also indicate that, as a source of fat, hydrogenated oils like DALDA are equal to butter. Dr. Aykroyd, the former Director of Nutrition Research Laboratories, Coonoor, says: 'Vanaspati is a wholesome food and there is no objection from the nutritional standpoint to an increase in its consumption.'

In the USA, H. J. Deuel has found that products like DALDA, which are made of hydrogenated oils (95% of the oil in DALDA

is partially hydrogenated), are digested and absorbed just as well as butter fat. Langworthy, also in the United States, has proved that the digestibility coefficients of vegetable oils hardened up to a melting point as high as 45° C are as good in humans as those of butter fat. And the melting point of DALDA is never above 37° C — which coincides optimally with body temperature.

DALDA has moreover one great advantage over the oils from which it is made. It is an excellent source of vitamins. Seven hundred International Units of Vitamin A, nearly one quarter of an adult's daily requirement, go into every ounce. And it is well known how deficient the Indian diet is in this vitamin. Besides this, 56 IU of Vitamin D are also added. In normal cooking, these vitamins are well retained, though if subjected to great heat for a long time, they will be lost from DALDA as from any other food.

There is a final point worth remembering. A great deal of medical research has been conducted on the subject of the causation of atherosclerosis and coronary and cerebral thrombosis. Excessive fat intake and faulty fat metabolism have been blamed by some people as factors causing these conditions in later life. Nobody yet knows how true this is. What we do know is that cholesterol when raised in a person's blood (serum) and when raised for a long period of time is definitely incriminated in the pathogenesis of atherosclerosis. Thyroid disorders, diabetes etc are diseases of the human which are characterized by raised serum cholesterol levels in the blood. Atherosclerosis is a very frequent accompanying complication of such diseases.

Much more knowledge is needed, and we welcome, therefore, the Government's announcement that the Indian Council of Medical Research is making investigations to try and establish the facts.

DALDA has been used in India for nearly 30 years. Today it is a part of Indian cooking, accepted both as an excellent fat to cook with and as a good food in its own right. And not the least of the reasons for its success is that it is factory-made, a modern product untouched by hand in manufacture, hygienically packed and made to a strict specification.

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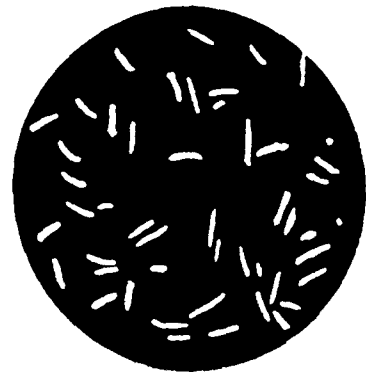
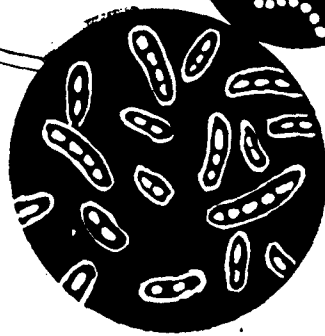
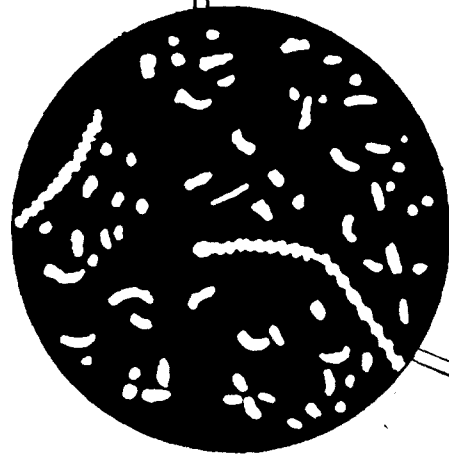
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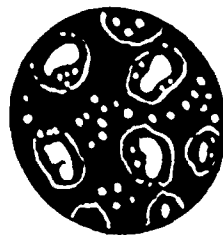
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For Uterine and Menstrual Disorders.
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Menopausal disorders, toxæmia and threatened abortion.
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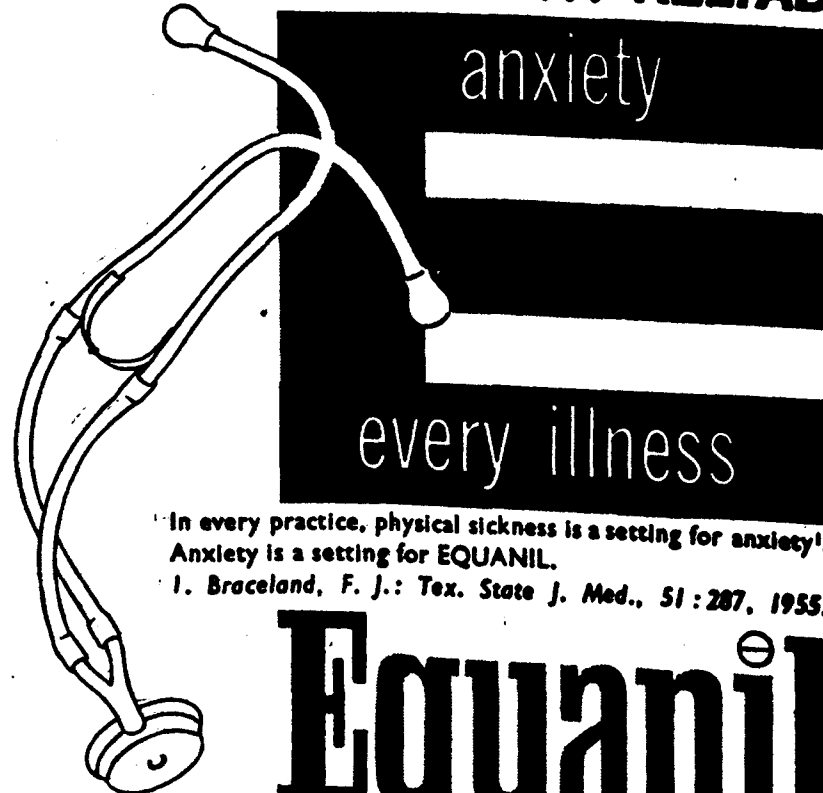
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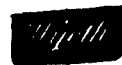
I. Braceland, F. J.: Tex. State J. Med., 51:287, 1955.

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Alcoholism		Myocardial infarction		Lumbago
Behaviour problems		Neurodermatitis		Wry-neck
Neurosis		Allergy		Fibrositis
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SUPPLIED: Bottles of 20 x 400 mg., 100 x 400 mg. and 20 x 200 mg. tablets



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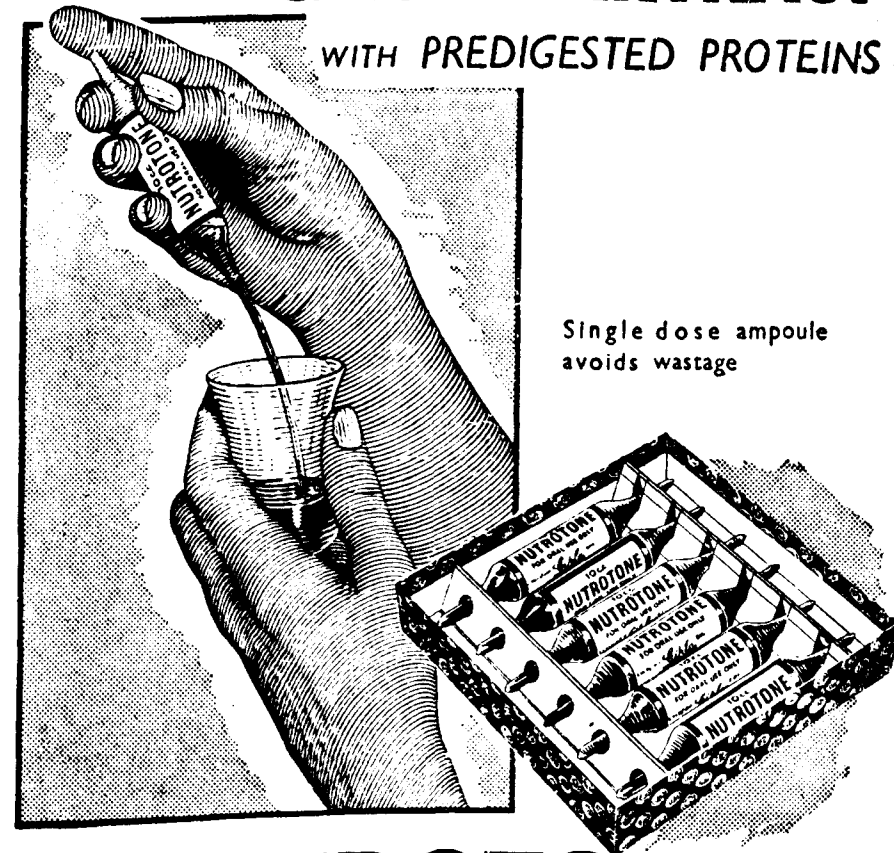
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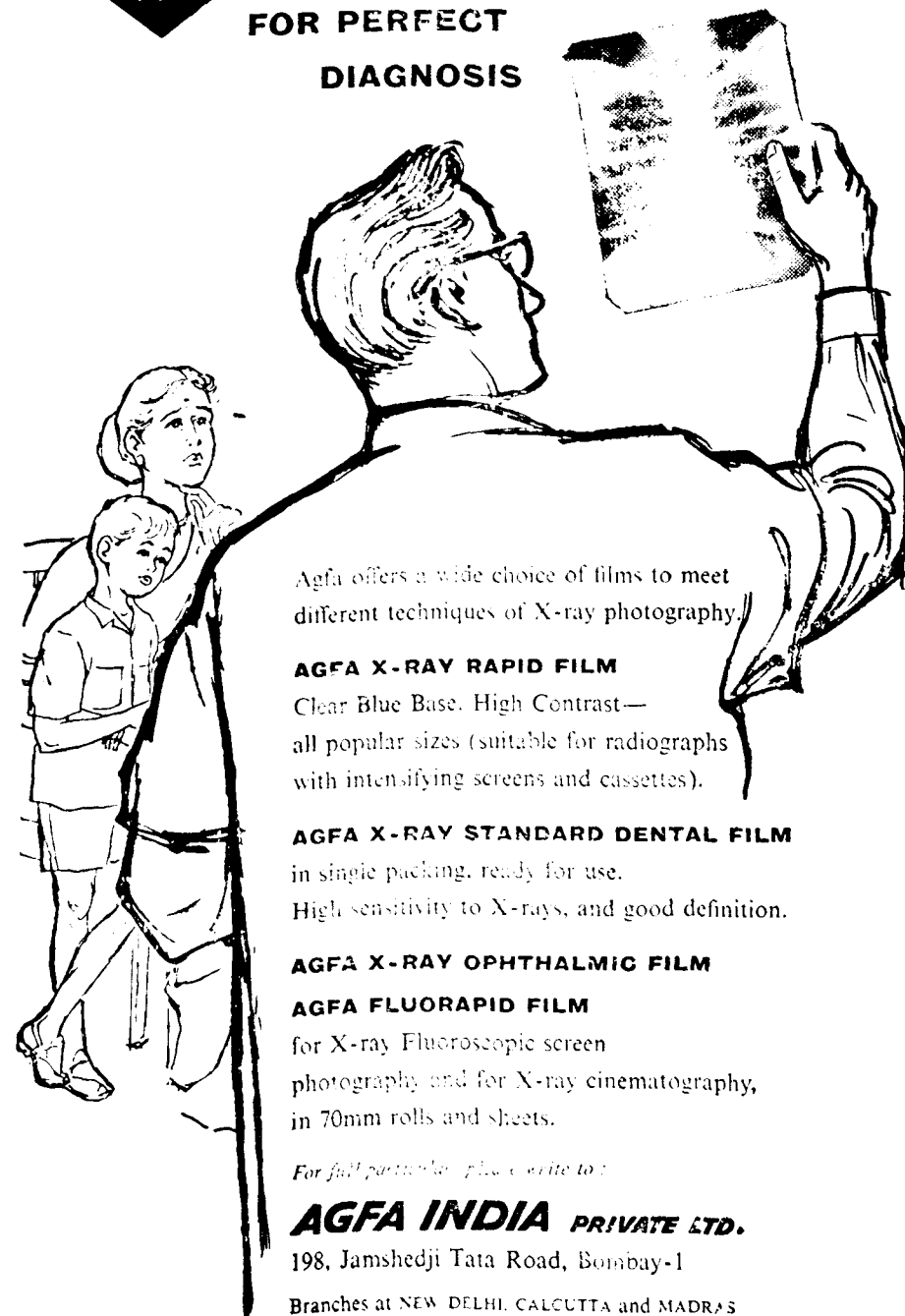
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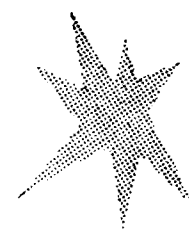
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These 4 medicines provide powerful synergistic action against neuritis, neuralgia, muscular pain, headache, toothache, influenza and dysmenorrhea. 'Anacin' is a non-toxic and clinically dependable preparation with powerful analgesic and antipyretic properties. A single dose of 1 or 2 tablets will achieve a prolonged period of analgesia and impart a sense of well-being.

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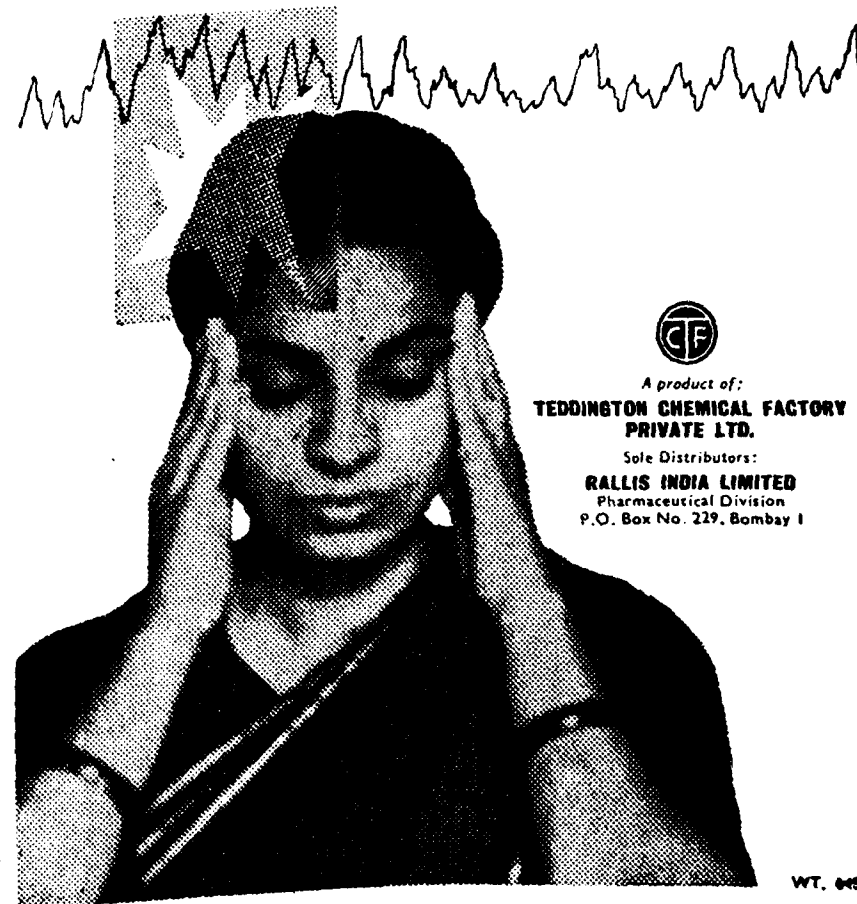
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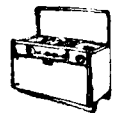
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24

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acts as analgesic agent

Packs:
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Each c. c. contains
the natural active
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25 G. of fresh liver, plus
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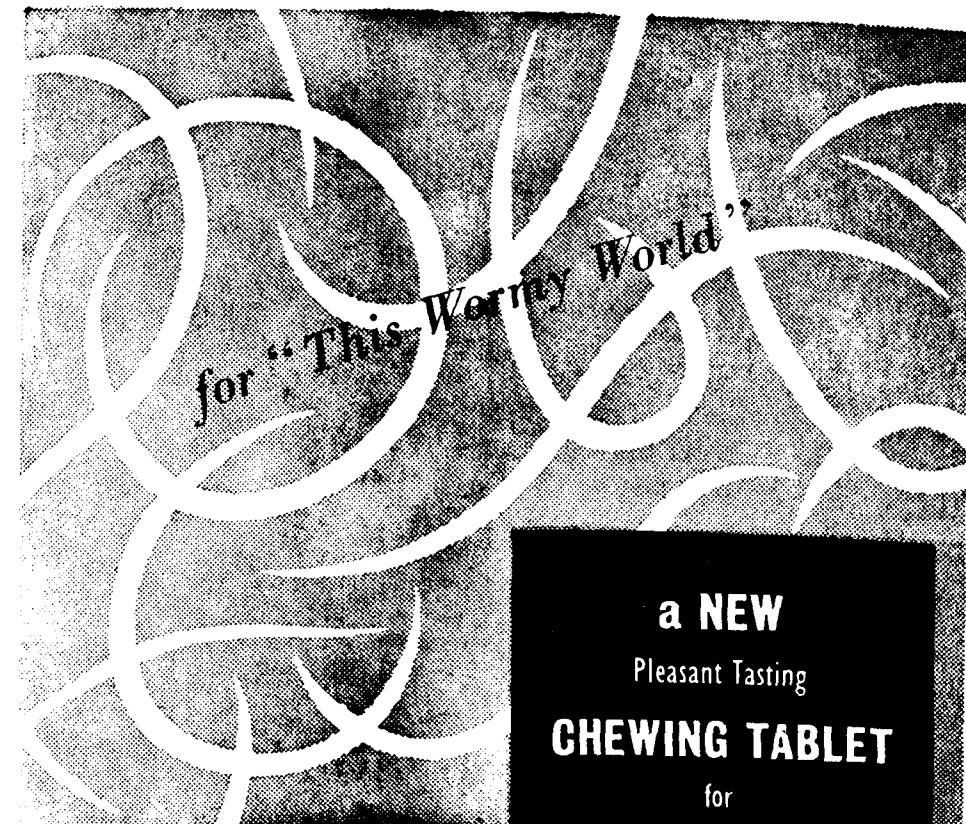
Benzyl Alcohol 1.5%
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a NEW
Pleasant Tasting
CHEWING TABLET
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Roundworms and Threadworms

'ANTEPAR' BRAND PIPERAZINE PHOSPHATE TABLETS

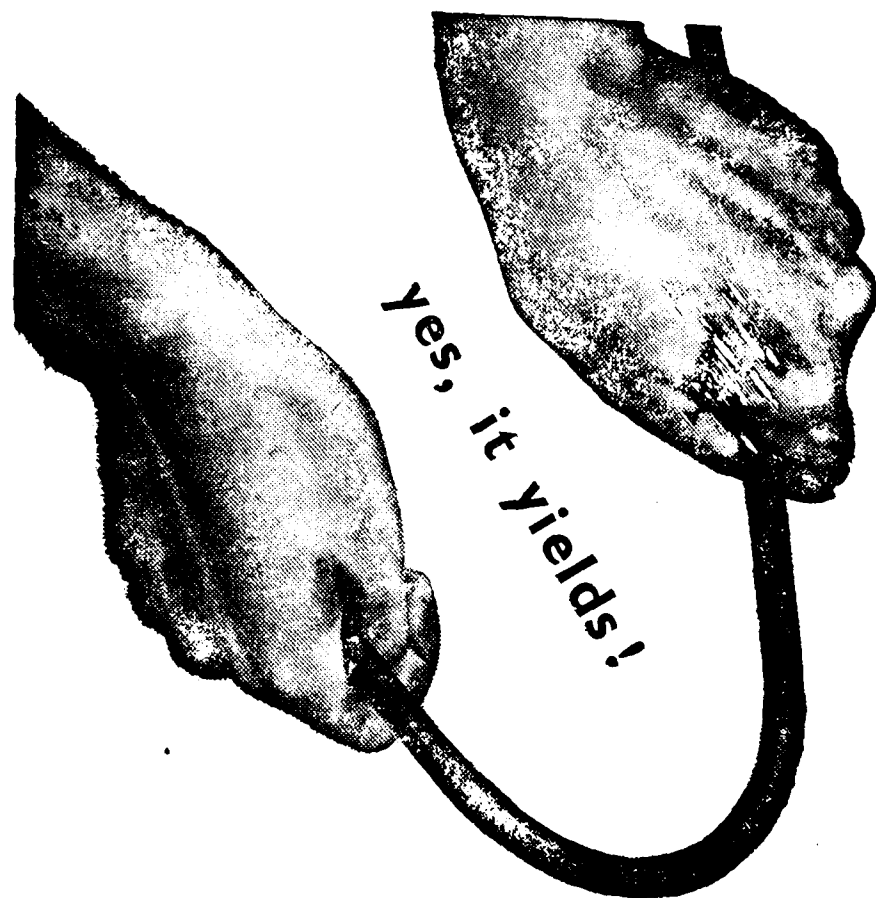
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PACKING : Container of 8 tablets



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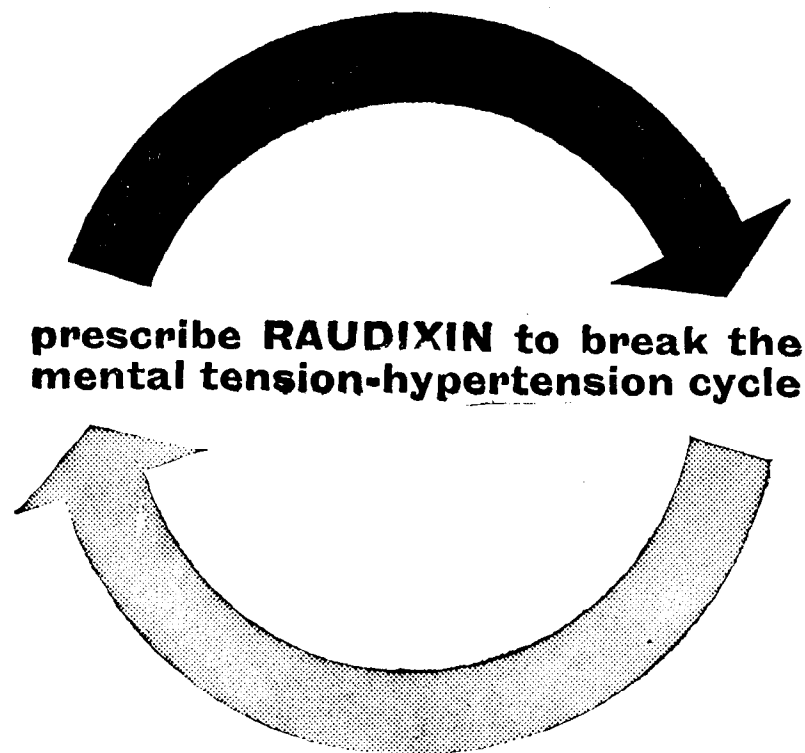
All forms of Koch's Infections also yield to PASOPLON,
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Squibb Whole Root Rauwolfia Serpentina

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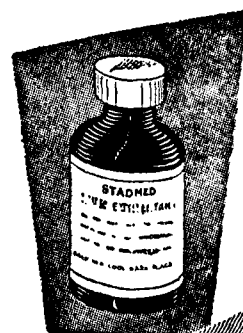
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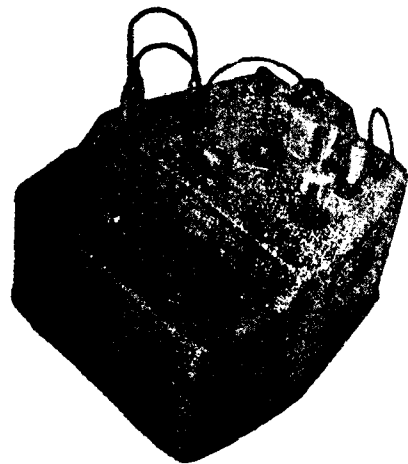
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Liquid extract of Wildcherry	
Glycyrrhiza and Vasaka	q.s.
in palatable syrup base	

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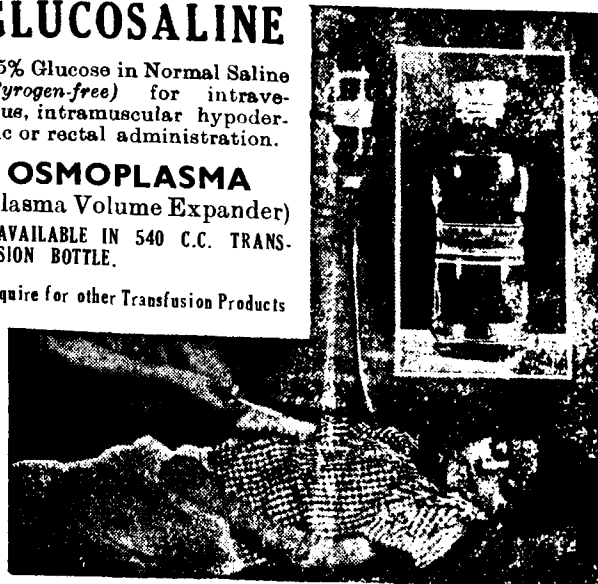
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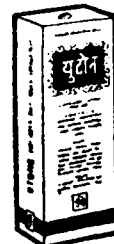
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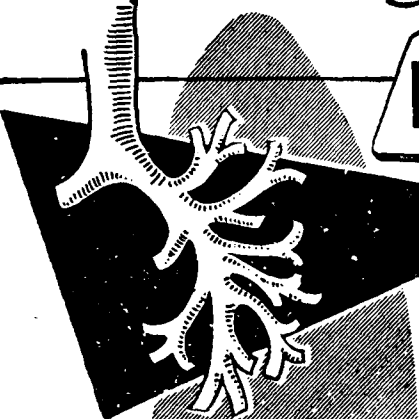


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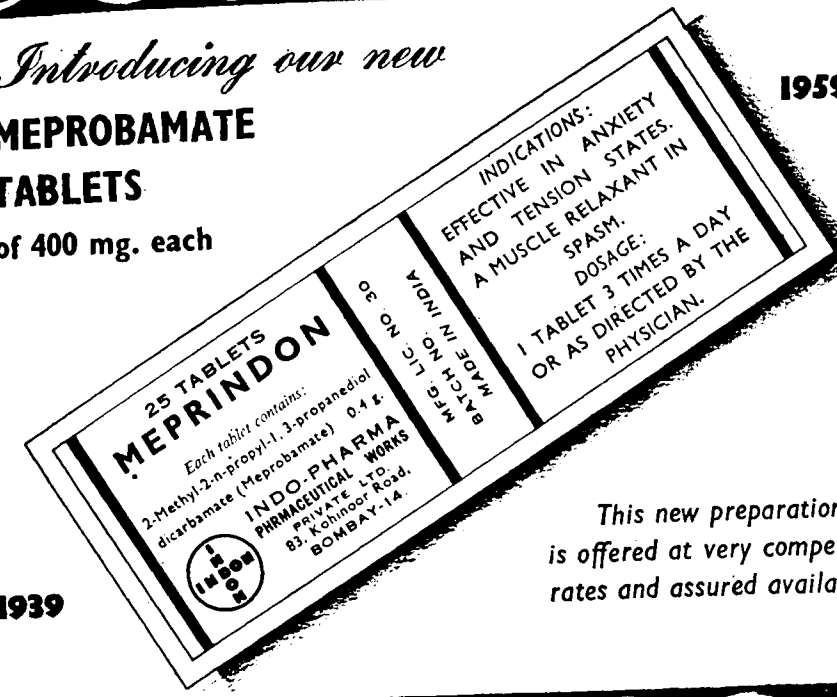
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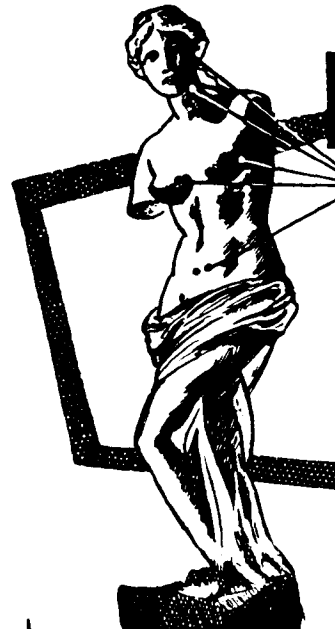
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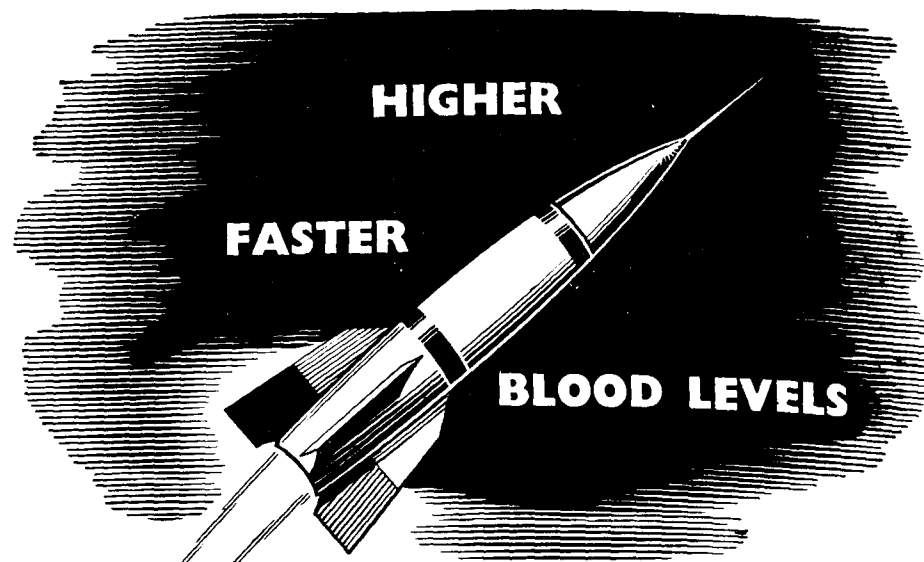
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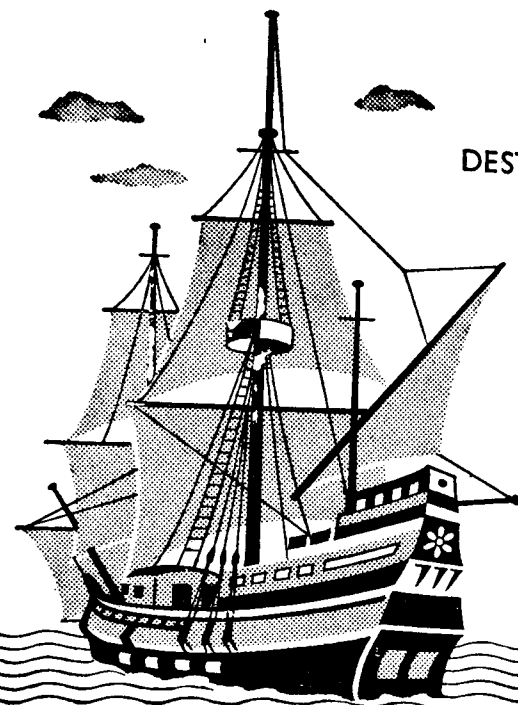
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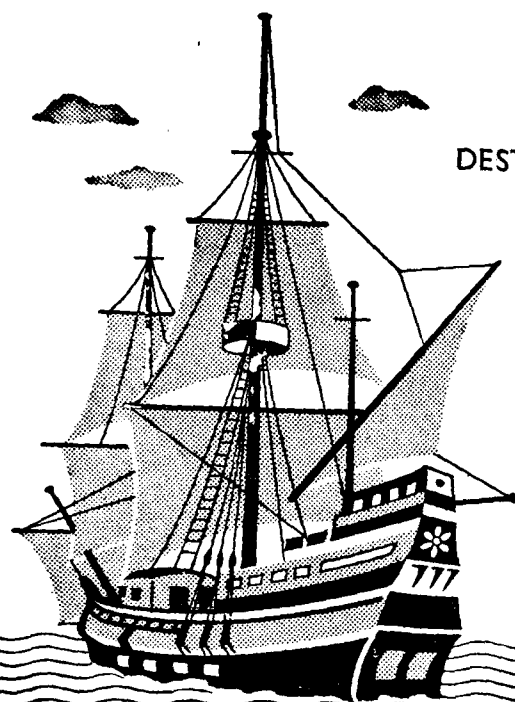
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Original Articles

NEURO-SYPHILIS*

P. KUTUMBIAH, M.D., M.R.C.P.

Aq. Director, Christian Medical College, Vellore, N.A. Dt.

LECTURE I

INTRODUCTION.—It has seemed to me fitting for several reasons to choose for the topic of my lectures on this occasion one important aspect of syphilis. Those who endowed this lectureship have expressed their desire that the discourse should be on a scientific subject bearing on the material prosperity of India, should be mainly clinical and lastly should be such as to encourage post-graduate studies. There is no other subject in the whole range of medicine that so admirably fulfils all the above conditions than syphilis. Everybody will concede that the health of the nation is at the very root of the material prosperity. Syphilis has immense potentialities of undermining the health and well-being of a considerable proportion of the population and incapacitating them for useful work. The man-power loss and economic drain to the nation due to disability from syphilis are assessed to be high in all civilized countries. Syphilis is very prevalent in our big towns and industrial centres. There is every reason to believe that in India, as in other highly industrialized countries, syphilis accounts for a large amount of man-power loss and economic cost. Syphilis is not only the cause of much morbidity but also contributes to the mortality figures. Attempts at reinterpretation of various categories of the listed causes of death have apparently indicated that syphilis outranks both pneumonia and tuberculosis as a fatal disease. Osler's revision of British mortality

* The Maharajah of Travancore Curzon Endowment Lecture : Madras University.
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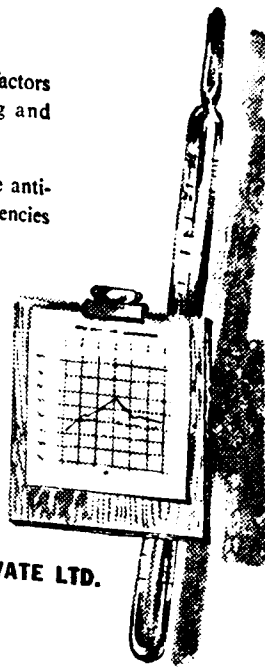
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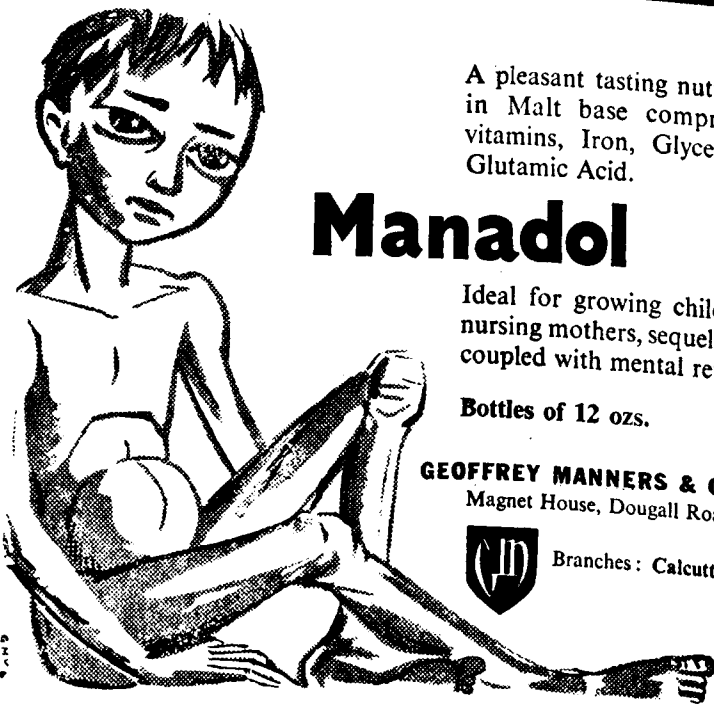


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statistics in terms of syphilis reveals that syphilis is responsible for 11.8% of deaths from nervous and vascular causes. The death curves for acquired syphilis in the United States of America reveal that the life-expectancy of males with acquired syphilis is shortened from that in the general population from the ages of 30 to 60 by 17% in white males and 30% in the Negro males. Actuaries estimate that the average patient with cardiovascular syphilis has 22 years less to live if untreated than his normal contemporary. Neuro-syphilis is an even more serious problem than cardiovascular syphilis; it is probably responsible for as many deaths and certainly for much more partial or complete permanent incapacity. Untreated syphilis may be a major cause of loss of life of the foetus during the latter months of pregnancy and of the infant in the first few months of post-natal life. Statistics for India are not available. It is the experience of physicians that cardiovascular-syphilis, neuro-syphilis and maternal syphilis are fairly common in India and there is no reason to suppose that they are less fatal in India than in other countries. It is apparent from the above considerations that syphilis is a major, if not the major, national health problem.

"Know syphilis in all its manifestations and relations and all other things clinical will be added up to you" observed Osler. Syphilis has always exercised a strange fascination on the clinician. "Syphilis is able to simulate a large proportion of the entities comprising the field of medicine, surgery and other specialities. To this range and to this essentially Machiavellian facility in disguise, deceit and malevolence we owe our interest in syphilis among the medical and scientific men everywhere which is all but unique and which is the mainspring of much of the progress already made against it" remarks Stokes. The history of medicine illustrates this interest in syphilis among the medical men who have contributed to our knowledge of syphilis ever since 1500 A.D. when its study began in Europe: Paracelsus, Fracastro, Astruc, Von Swieten, Margagni, Boerhaave, Balfour, Benjamin-Bell in the 16th, 17th and 18th centuries; John Hutchison, Prefetta and Pellizzari, Virchow, Heubner, Oppolzer, Auspiz and Erb, Taylor, Keyes and Morrow in the 19th century—an arresting galaxy of the giants of medicine.

"The syphilology of the 19th century was fundamentally clinical, that of the first three decades of the twentieth century has found its inspiration primarily in the laboratory under the presiding genius of Schaudinn, of Metchnikoff and Roux, of Bordet and Wassermann, of Neisser and of Erlich" observes Stokes. Beginning with 1903 one important discovery in syphilology followed another with a rapidity that is without parallel in any other disease. Pusey thus sums up these discoveries: "In 1903 Metchnikoff and Roux demonstrated that syphilis was

inoculable in apes. In 1905 Schaudinn and Hoffmann ended the long search for the organism of syphilis by the discovery of the *spirochaeta pallida*. In 1906-1907 Wassermann, Neisser and Bruck applied the serum-complement reaction of Bordet and Gengou to the diagnosis of syphilis and developed a practical test for syphilis, in what is now known as the Wassermann reaction. In 1911 Noguchi succeeded in cultivating *in vitro* the *spirochaeta pallida* and completed the proof of the specificity of the organism by reproducing the disease in animals from his cultures. In the meantime there had been the development of arsenical chemotherapy of syphilis begun by Uhlenhuth and carried forward so amazingly, by Erlich in the introduction in 1909-1910 of arsphenamine. Some of the discoveries reveal the fundamental facts of syphilis and they have opened up the whole subject to exact scientific study. The result is that within thirty years the entire field of clinical syphilis has been critically re-examined. Our clinical knowledge obtained in four centuries of painstaking observation of the disease in man has in a few years been reviewed and controlled by animal experiments. Facts established by clinical study have been confirmed; many problems have been solved which were impossible of solution before and there has been added an immense accumulation of new exact facts." With regard to the advances of the last thirty years Wilson remarks, "During the last thirty years our knowledge and treatment of neuro-syphilis have undergone more radical change than can be said of any other nervous disease. Mystery and empiricism came to an end with the discovery of the cause of syphilis, yet it is hardly an exaggeration to affirm that the research crowned by detection of the *spirochaeta* has started more problems than it has settled." The solution of these problems should form a powerful stimulus to all post-graduate studies and research in syphilis.

There is another reason why I consider the study of syphilis is very opportune. Wars have even been the allies of syphilis in spreading its ravages far and wide. Students of the history of medicine will remember how the first great epidemic of syphilis was spread over Europe by the disorganized troops of Charles VIII as they scattered over Europe. India has mobilized 2 million of her sons to serve in the army either as fighting men or camp followers. The armies of India have fought in the middle East, Iraq, Iran and then in the European theatres of war and lastly in Burma and Indonesia—all countries well known as haunts of syphilis. There has been a tremendous exodus into India from Burma, a country where syphilis is very common. Among the large body of men who eventually will return to India from these various theatres of war there will be a large number who would have acquired syphilis. Schwartz (1946) points out that as combatant activity decreases, a situation analogous to the

experience after the Armistice Day of World War I may well develop. At that time the rate of venereal diseases increased within one year by 60 per cent. Although the present low rate of these diseases in the armed forces is commendable, it was not until after the Great War that the incidence of syphilis and gonorrhœa reached its peak. The recent advances in therapy, although highly effective have introduced new problems for the health administrator, for example, asymptomatic carriers of gonococci and an increased susceptibility to reinfection of patients with early syphilis treated by intensive methods.

The florid manifestations of syphilis are obtrusive and attract the attention of the doctor as well as the patient. But the ubiquitous, insidious and disastrous later consequences of syphilis of the cardiovascular and central nervous systems attract little attention till it is too late. Even our earliest clinical recognition of the involvement of the vascular and nervous system is unhappily comparatively late since there exists no arresting signs for its early recognition. The diagnosis and treatment of syphilis on the most modern lines is a costly and time-consuming affair and this can be undertaken only in highly organized centres under the expert guidance of syphilologists. Such centres are few and far between and are literally worked to a stand-still. Though the mounting numbers of the patients suffering from syphilis flocking to the out-patients of these centres reveal a welcome consciousness on the part of the public at large as to the early treatment of syphilis—treatment is seldom carried out to the standard extent laid down by modern research. Follow-up of these vast number of patients is imperfect, if not impossible, except in a very small percentage of cases. As a result of this substandard treatment and lack of follow-up many of the victims of syphilis infection run the risk of cardiovascular and central nervous system complications. The lack of co-operation between the venereal departments, the various general hospitals and the mental hospitals, produce a gap in the study of these cases so that the syphilologist very rarely sees the cases of neuro-syphilis or cardiovascular-syphilis. The internist and the syphilologist are scarcely consulted about the mental sequelæ of syphilis. Patients suffering from cardiovascular and nervous diseases are not scarce in our clinics. Syphilis is responsible for 10·5 per cent of nervous cases in Western countries. A study of the Indian medical literature reveals very few critical studies of neuro-syphilis. This has in a way contributed to the generally held opinion in Western countries that syphilis of the nervous system is rare in India. In these lectures I want to present the evidence gathered from our clinics as to the prevalence of neuro-syphilis in our State and its various manifestations.

Incidence of neuro-syphilis.—The incidence of neuro-syphilis has been variously estimated by different groups of workers at different periods in different countries. One of the most interesting statistics is that published by Prof. Bruusgaard of Oslo. For a period of 20 years from 1891 to 1910 at the Riks Hospital, Oslo, little or no specific treatment was given to patients suffering from primary or secondary syphilis for the reason that Prof. Boeck, the chief of the clinic at that time, believed that little or nothing was accomplished by the mercury and iodide treatment of syphilis and that the patient was better able to overcome the harmful effects of infection by his own natural defence mechanism! During these years 2,181 cases of primary and secondary syphilis were dealt with and disposed off without any treatment. During the later years 1925-27 Prof. Bruusgaard, the successor of Boeck set out to determine the fate of these individuals. He succeeded in re-examining 309 of the original number at intervals ranging from 3 to 40 years after the infection. In addition he was able to determine the cause of death of 164 others. All the living patients were submitted to a thorough physical examination. All had blood tests performed on them. The percentage of patients showing at the time of the re-examination evidences of neuro-syphilis was 9·5.

The standard citation in the field is from the group of 4134 syphilitic Austrian officers observed by Mattauscheck and Pilez (1920), for over a period of 22 years (1890-1912). Of these 132 (3·2%) developed cerebrospinal-syphilis; 113 (2·77%) developed tabes; 198 (4·7%) developed G.P.I. The total number developing neuro-syphilis was 443, i.e. 10·67%.

This tabulation has to do with the pre-salversan period and there is little reason to suppose present-day treatment has altered the position fundamentally. Some contemporary writers affirm that neuro-syphilis is actually on the increase, though evidence therefor has not been adduced; in any case earlier and better recognition must not be overlooked as a possible factor. The question has been submitted to analysis by Smith; taking (1) the population of Copenhagen from 1870 to 1927, (2) the number of cases of syphilis, and (3) of general paralysis in the city for the same period, he finds that while the first has steadily increased, and with variations the second, the third has not the incident-curves of syphilis and the metasyphilitic diseases are not parallel. Viewing the data from another angle, he has shown that under old treatment 4·3% of syphilitics developed paresis, in the transitional years 4·8%, and after new methods have become general 3·5%. He concludes, however, that this decrease is not due to salversan, but somehow connected with prior fluctuation in syphilis itself. Among 13,191 cases of syphilis observed by Lees in 12 years were 603 of neuro-syphilis, a percentage of 4·5. Grouping

together all patients infected with syphilis, disregarding the factors of race and sex, and whether untreated or treated by the older methods preceding the introduction of arsphenamines, about 25% will ultimately develop clinical evidence of involvement of the nervous system. The incidence of neuro-syphilis in patients treated by more modern methods cannot as yet be so accurately determined; the interval between infection and the development of neurologic symptoms is long (12 to 25 years) and the mass employment of modern methods have been in use for so short a time for definite facts to be available on a large scale. The type of neuro-syphilis will be parietic in about 5% of those infected, tabetic in about 5% and diffuse meningovascular in about 15% (Moore).

Racial distribution.—It has been held by some that in certain countries where syphilis is rife, neuro-syphilis is conspicuous by its relative absence. For example, tabes was held to be rare in North American Negroes, in the Central Africans, among Arabs, in China and in Persia. But most of such claims are proving false in the light of advancing knowledge. In 1926 Plaut showed that the incidence of general paralysis among American Negroes is actually higher than among Whites and cerebral-syphilis four times as common (Hubbard, Foster); neuro-syphilis is more widespread in China than in Europe and just as frequently seen in Arabs as in Europeans. On the other hand, it still appears decidedly rare among North American Indians (Plaut, Adams and Kanner) and in Hayati (Parsons); the latter observer attributes the absence of tabes and general paralysis in the Hayatian Negro to the universal malaria of the island, a similar explanation being offered by Dumolard *et al* for the infrequency of parenchymatous neuro-syphilis among native Algerians.

Statistics with regard to the incidence of the various types of neuro-syphilis are very scarce in Indian medical literature. There are a few scattered references to the incidence of tabes and G.P.I. but very few with regard to the other types of neuro-syphilis. According to the Madras General Hospital reports, the incidence of neuro-syphilis among the syphilitics attending its Venereal Clinic for the years 1934 and 1935 is given as 4.5% and 3.6% respectively. Rajam (1930) in an article entitled "Syphilis in Madras" gives the percentage of neuro-syphilis as 2% of the total number of syphilitics. The statistics of the Venereal Clinic of King George Hospital gives the incidence as approximately 7 to 9% among the male syphilitics. The majority of the cases are of the cerebrospinal type; tabes and G.P.I. are only occasionally met with.

Manohar (1935) in the course of a detailed examination of 882 autopsies found evidence of central nervous infection in 19% of the syphilitics. Shaw (1926) Superintendent, Central Mental

Hospital, Poona, writes: "I have seen 20 cases of G.P.I. among Indians. There can be no doubt that G.P.I. exists among Indians, though it is nothing like so common as it is among Europeans." Prasad (1926) during six years of venereal practice in Karachi came across only 2 cases of tabes—one in a Hindu and the other in an Indian Christian. He refers to 5 cases of G.P.I. in the Mental Hospital, Agra. Fraser (1934) from his experience of Burma writes: "The classical form of G.P.I. is relatively common in Burma, accounting for 6 to 19% of admissions into the Mental Hospital between the years 1931 and 1933. According to the report of the Mental Hospital, Madras, there were 36 cases of G.P.I. undergoing treatment in the hospital in the year 1936. The nationality of these cases are not noted. Vad and Kulkarni (1929) report 16 cases of tabes from Bombay by far the largest number ever reported in Indian literature of which 5 were treated by malarial therapy. Here also the nationality of the patients is not noted except in one instance—a Chinese. The most recent statistics I owe to my friend Dr. Rajam. In the period between 1931 and 1940 the total number of syphilis admissions were 24,999. Of this total, the number of neuro-syphilis cases were 851—3.4%; the total syphilis admissions, males 778 and females 73. Out of this number 23 were cases of paresis, 28 of tabes, 21 of primary optic atrophy and the rest were meningo-vascular, G.P.I. 2.7% and tabes 3.2%. Optic atrophy 2.4%.

Out of a total admission of 6,370 into the medical wards, of the King George Hospital, 392 were neurological cases and of these 75 were cases of neuro-syphilis. The percentage of nervous cases to the total admissions works out to 6.5 per cent and the proportion of neuro-syphilitic cases worked out to 1.2% of the total admissions and 19% of the neurological cases. The few available statistics bring out the following facts with regard to neuro-syphilis as observed in India among the Indians. In European countries a commonly accepted view, with regard to the incidence of syphilis and of its nervous sequelae, puts the incidence of the latter at only some 3 to 5 per cent. Among 13,191 cases of syphilis observed by Lees in 12 years were 603 of neuro-syphilis—a percentage of 4.5. In India among 24,999 cases of syphilis observed by Dr. Rajam in 10 years, 851 were of neuro-syphilis, a percentage of 3.4. This brings out the fact that there is only a slight difference between the incidence of neuro-syphilis among Indians suffering from syphilis and those of European countries. But even the incidence of parenchymatous syphilis, G.P.I., tabes, etc., are not very much less than what it obtains in European countries (2.7 per cent G.P.I., 5.6 per cent tabes including optic atrophy).

Dr. Rajam makes the following observations:—

"In our series of 334 cases, early meningeal neuro-syphilis mostly in the form neuro-recurrences of one or more cranial

nerves is nearly 10 times as frequent and is directly the result of grossly inadequate treatment of early syphilis with the arsenicals.

"In late vascular and meningo-vascular neuro-syphilis the spinal cord was involved in 62 per cent as compared to 38 per cent of cerebral affection.

"The very low incidence of parenchymatous disease, about 8% of the total neuro-syphilis, does not in any manner indicate its true incidence. A large percentage of cases of mental disease due to syphilis find their place in mental hospitals. A fair number of tabes cases are to be found seeking relief for progressive blindness in an Eye Institute and out of 49 tabes cases in our records, 21 were cases of advanced primary optic atrophy referred to us from the Ophthalmic Hospital.

"There is a striking disparity in the age-incidence in all forms of neuro-syphilis, 89% occurring below 40 years of age, and 11 per cent above 40 years.

"Many potential neuro-syphilitics in our country do not live long enough to manifest grave syphilis of neuro-axis involvement."

An interesting problem about which there has been much controversy is the disproportion between the incidence of syphilis and its nervous sequelæ. Various lines of evidence appear to support a hypothesis foreshadowed by Fournier and often advanced since, to the effect that neuro-syphilis is caused by a neurotropic strain distinct from that including cutaneous syphilis which is held to be dermatropic. Wilson (1940) summarizes the argument for and against as follows:—

(1) In the experience of most qualified observers the infection on which tabes and general paralysis ensue is commonly of a benign type; 'mild syphilis is nervous syphilis.'

(2) Skin and mucous lesions are not seen in many juvenile cases of these varieties, parental syphilis affecting solely the nervous tissues of the offspring.

(3) Examples of conjugal tabes, taboparesis and general paralysis are met with at times, 69 case-reports having been collected by Raecke in 1899 and 39 personal instances published by Junius and Arndt in 1908; every neurologist could add to the total.

(4) From personal and other sources, data have been compiled by Nonne showing that among syphilitic children of infected parents, a lack of primary and secondary symptoms is the rule.

(5) A few rather impressive cases are known where persons infected by the same virus have subsequently developed only the neuro-syphilitic form.

(6) In other families, persons contracting syphilis from different sources have all at a later period exhibited nervous

signs, the suggestion being that in each instance the virus has had a special affinity for the nervous system.

(7) A dermatropic strain of organism was procured by Levaditi and Marie from a testicular chancre in the guinea-pig (inoculated with human chancrous material), and a *neutropic strain* from a similar guinea-pig chancre (infected with blood from general paralytic); they found that (a) a longer period is required for the development of lesions in the rabbit after inoculation with the second than with the first; (b) the types of tissue reaction are different, and (c) also their relative virulence, since injection of the former produces a typical chancre in monkeys but not the latter. Further experiments by the same workers seem to point to an absence of crossed immunity between infections with each of the two strains. The inference is that the spirochæte of general paralysis is not identical with that found in syphilitic lesions of the skin and mucosæ.

*The objections to this view of spirochaetal plurality:—*1. Somatic syphilitic lesions are often found in cases of general paralysis, e.g., fibrosis of spleen, kidneys, liver, arteritis of cerebral and other vessels etc. Syphilitic aortitis was observed in 302 of 529 autopsies on cases of that disease.

2. Considering the frequency of both tabes and general paralysis, conjugal examples are by contrast quite rare, the offspring of parents suffering from either may show signs only of somatic infection, as many sibs of juvenile paralytics.

3. The argument based on multiple appearance of the same para-syphilitic type of infection at one source is rebutted by ignorance of the subsequent state of the person from whom the disease was contracted.

4. When syphilis affecting different members of a family at different times and places is followed by the same nervous type in all of them, a familiar predisposition to nervous disease accounts for the fact much more simply than the conjecture that by some singular chance a neurotropic virus has been the cause of each.

5. Arguments founded on the alleged rarity of neuro-syphilis in certain countries where the constitutional variety is rampant are losing any significance they may have once possessed.

6. Levaditi and Marie's experiments fail to exclude the possibility that human chancrous material from which their dermatrope was derived might have harboured the neurotrope as well. Reactive differences between the two strains may depend on divergent life-conditions for the spirochæte in dissimilar structures.

7. Meningeal and fluid changes often occur at the very time when skin and mucosæ are the seat of secondary rashes.

8. In 81.9 per cent of 72 cases of general paralysis strong evidence of psychopathic heredity was secured, discounting the need for a neurotropic hypothesis. The persons who become affected are "dementable psychopaths" and not individuals tainted haphazardly. Wilson sums up the discussion with the following significant remarks: It is clear, then, that the terrain is at least as important as the germ, if not indeed more so; more depends on receptivity, preparedness, amount of inoculum, and other intrinsic and extrinsic factors than on the quality of the virus.

Another question of great importance at the present day is the question of induced neurotropism through the use of arsphenamines in treatment. There is no convincing evidence that the adequate and effective use of arsenicals predisposes in any way to syphilis of the nervous system. On the other hand, there is abundant evidence that an increase in the incidence of neurosyphilis is predisposed to by inadequate use of the arsphenamines although treatment may shorten the incubation of some forms of neurosyphilis. Moore's study of neuro-recurrence showed clearly that this manifestation of neurotropism is confined practically entirely to inadequately treated patients and that its incidence rapidly decreases with increase in the amount of treatment, including arsphenamine. The consensus of European authoritative opinion was collected by the German Dermatological Society in 1928 through a questionnaire yielding 120 replies from the foremost experts of Europe. On the basis of their opinion the Society unhesitatingly announced that modern treatment for syphilis, especially with the arsphenamines, when properly used in conjunction with mercury and bismuth, is not responsible for any increase in neurosyphilis; and that neuro-recurrence is steadily on the decline.

The syphilology of the 19th century was fundamentally clinical while that of the 20th century was mostly laboratory. The laboratory study of experimental syphilis in animals has shed new light on our knowledge of the mechanism of syphilis and have re-oriented our ideas of the disease. The old conception that syphilis as a disease whose course can be divided into three water-tight compartments to which a fourth was added, has been shown to be inadequate. The newer experimental evidence makes us conceive syphilis not as a static but as a dynamic process. Even since its introduction into the tissues there begins a real duel between the spirochæte and the tissues of the patient. It is not necessary that there should be any local reaction at the portal of the entry in all cases; and it is not correct to imagine that the spirochætes were held to the point of entry for some time till a local reaction called "Chancre" manifests itself. The new evidence shows that spirochætes injected into the testicle of a rabbit or rubbed into

the scarifications in the scrotum of the same animal appear in the inguinal glands within 5 minutes and in the blood in an hour. Where trauma of any description paves the way and dissemination of the infection is exceedingly rapid and the disease is indeed systematic from the very beginning. Two routes of distribution are clinically important, one by the way of the lymphatic system and the other by the way of the vascular system. *The blood*: The blood of the experimental animal shows that it is capable of transmitting the disease to normal rabbits a week after the intra-testicular inoculation. The cerebro-spinal fluid is known to contain the spirochætes even in the sero-negative primary syphilis. The organism has been repeatedly found in the spinal fluids of syphilitics in whom the cell counts globulin content, Wassermann reaction and colloidal tests were negative. According to published reports the organism may be recovered in from 15 to 40 per cent of normal spinal fluids in early syphilis. The spirochætes have been found in the semen by a succession of investigators.

The reaction of the body to the spirochæte involves two phases: The local reaction to a spirochætal focus whether it be chancre, secondary papule or late gumma and the general immunological reaction of the organism as a whole. Trauma and abrasion are not essential to the invasion of the body by the spirochæta pallida; neither is it necessary that any visible reaction should occur at the point of the entry of the organism. The chancre is only a visible proto-type of many millions of local reactions occurring throughout the body during the course of syphilitic infection. The local reactions may be modified by allergic phenomena as in the case of gumma but the fundamental pathology of the original lesion runs true to form and is the same whether it occurs in the viscera or in different tissues during the various phases of the disease. After penetration, the invasion of the perivascular lymphatics by the spirochætes is followed by a vascular reaction which assumes the form of endothelial swelling with proliferation and development of an obliterative endarteritis. This is accompanied by peri-vascular infiltration with lymphocytes, appearance of plasma cells and finally by fibro-blastic proliferation and healing. Immediately following invasion and during the stage of vascular and peri-vascular reactions the spirochætes increase rapidly in number. Penetration of the surrounding lymphatic channels and the escape of the rapidly reproducing invaders into the blood stream where they continue to reproduce, go on to an increasing extent. At the height of its development the local focus, whether a chancre on the genitalia or a colony of spirochætes in the liver, becomes a contributor to the systemic infection and to the local area of lymphatic infection to a degree proportionate to its size and the reproductive activity of the parasite. Then changes take place as the histological signs of healing begin to appear. Fragmentation of the spirochætes

occurs followed by phagocytosis of the granules by the lymphocytes. Focal infection too begins to subside. The successive inoculation of adjacent and distant tissues produced by the multiplying, penetrating and escaping spirochaetes, prolongs the disease almost indefinitely, while the fact that structural healing does not necessarily mean sterilization, prepares the way for a certain percentage of local relapses. It cannot be too strongly emphasized that even though the activity of the surviving organism at the side of a healing reaction may be temporarily suspended sooner or later in a considerable proportion of the foci some degree of relapse occurs. The defensive mechanism which has developed loses its effect, the tissue immunity wears off and the reproduction of virulent organisms may be resumed followed by re-inoculation of the local lymphatic area or even the blood-stream. A fresh reaction in the newly infected tissues then begins and syphilis once more resumes its cycle of infection, reproduction, reaction, suppression and relapse. Relapse is distinctive of syphilis from the chancre to paresis. It is probably each time at the outset, a local process. A local focus with its ability to harbour spirochaetes in quiescence not only makes the patient with syphilis a relapser, a carrier, but perpetuates his danger to the community years after the disappearance of the early superficial grossly infectious disease. The local lesion whether it be initial chancre or a subsequent event in some distant tissue like the wall of a blood vessel or the meninges holds an extremely important, if not a crucial place, in the general defence of the body against the invading spirochaete. This local immunity reaction is due not merely to the presence of organisms but to the reaction of the tissue and that if no reaction takes place no immunity or protection develops. A given tissue may through extensive involvement of reaction develop a high degree of local immunity. The local lesion especially if it is extensive may make an important contribution to a general mechanism of defence which, to some extent protects distant tissues even though they may not have been, up to that time in the life history of the individual's disease, invaded by the spirochaete itself. If the local tissue reaction be suppressed, as it can be done therapeutically by the use of some drugs, the infection freed by the restraining influence excited by the local reaction, disseminates throughout the body. It thus becomes apparent that the almost infinite number of local tissue reactions occurring in the parts of the infected animal or human body are the contributors to whatever general defence may exist in the patient against this disease. There is much evidence to support the belief that so far as the individual is concerned multiple focal reaction in the skin permanently and favourably influences the subsequent course of his infection. Nothing definite is known of the general systemic reactions. Both clinical and experimental knowledge tends to support the importance of the

lymphatic defence mechanism; the reticulo-endothelial system has been presumed to bear an important part in this mechanism. The testis, the bones, the skin and the eye, successively take up the protection of the body as a whole and provide by their local-reaction-mechanism the source of much of the general physiological defence. Observations of this sort substantiate the clinical tradition that human patients who have had extensive syphilis of the skin, bones and parenchymatous viscera such as the liver and spleen shall escape the most serious forms of damage to the vascular and nervous systems whose reactivity to infection is comparatively low and whose intrinsic defence is therefore, weak. All attempts to discover any signs of a general serological immunity reaction to the disease which might be utilized in treatment have failed. The inference is that such general defence as existed against syphilis, resides in the tissues and in the cellular mechanisms and is not present or distributed as a circulating substance or property. Another question which is of great interest relates to the persistence of the spirochaete as a necessary condition of immunity to reinfection. Neisser and his co-workers held the view that resistance to re-infection is dependent on the persistence of the original infection. An animal which cannot be re-inoculated is still infected. Chesney and his co-workers held the view that an actual resistance to re-infection develops independently of the mere persistence of spirochaetes and that an animal may be apparently immune to infection while co-incidentally free from the first infection. A complete suppression of a syphilitic infection in a rabbit can be accomplished by treatment; but there may persist after this infection an immunity to re-infection which makes it impossible to use re-infectability as a test of the cure of the original infection. It would appear that sub-curative treatment, instead of extinguishing an animal infection, may merely reduce it to latency and that the animal may then be super-infected and develop new lesions while the original infection still persists in the tissue. Re-infection even in cured animals can only take place in those cases in which the chancre immunity and subsequent resistance developed are imperfect or of short duration. Super-infection is the engrafting of a skin infection upon a first one still persistent in the body.

It is necessary to reconcile the refractoriness of human beings to a second inoculation of the organism from without, with the fact that such individuals develop lesions in the skin and various other tissues as a response to the same organisms coming from within. The generally accepted hypothetical explanation of this interesting phenomenon is that the spirochaetes develop a resistance against the spirochaeticidal agents of the host and themselves become immunized and in this manner are able to resist a defensive mechanism which is fully capable of dealing with and

destroying foreign organisms. Thus a balance is struck between the host and the parasite, a mutual immunization, whereby the latter remains viable for decades in the body of the former without exerting any tissue reaction and perhaps without increasing in numbers, yet is ever able and ready to initiate an inflammatory reaction should conditions (as yet imperfectly understood) favour the development of new generations of organisms and retains, as a parasite, the ability to infect and produce disease in a new host.

"When for reasons as yet obscure, the balance is disturbed and new inflammatory reactions are set up with the development of microscopic lesions, do these new lesions represent an increase in the number of spirochaetes or an exaltation of their virulence or both and is the reaction similar to that which would be exhibited by a normal individual or one in the early stages of the disease? Or, is there evidence that the body of the syphilitic individual, by reason of the existence of syphilitic infection within it for some time, has been changed and now reacts in an altogether different manner? All the evidence is in favour of the latter view. Clinical and pathological experience shows that the tissues of the syphilitic individual, who has carried his infection for some time, react towards his own organisms in a manner altogether different from that of a normal person. The character of the late lesions is markedly different from that of the early ones destructive and proliferative changes are in the ascendancy in the case of the former and yet it is the universal experience that spirochaetes are extremely scarce in tertiary lesions. The inflammatory response in late syphilis is indeed out of proportion apparently to the size of the stimulus, and this indication is sufficient to place the tertiary lesions in the category of allergic phenomena. Moreover, animal inoculation has demonstrated that the organisms found in these lesions do not possess an exalted virulence; hence there is no reason to ascribe to changes in the virulence of the organism, the greater tissue response exhibited by the late lesion. Rather, on the other hand, should it be ascribed to changes in the host.

It appears, then, that there develops in the syphilitic individual in course of time, a state characterized by an alteration in the way in which his tissues react to his own or a foreign organism. The alteration may take the form either of overactivity or of indifference towards the organism. The changed reaction capacity as manifested by over-activity, has been called by Neisser "allergy." To that altered reaction capacity which manifests itself as indifference to organism, he has given the term "anergy." It is his idea that the allergic and anergic states are not fixed states in the body of the individual, but that they are continually undergoing alteration.

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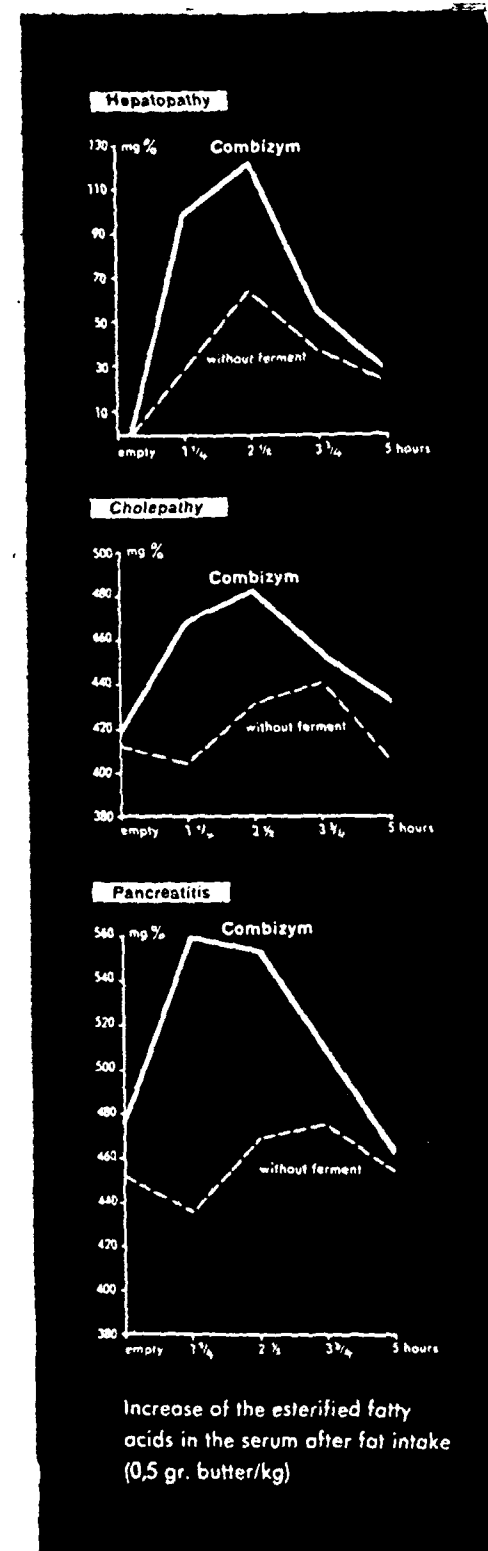
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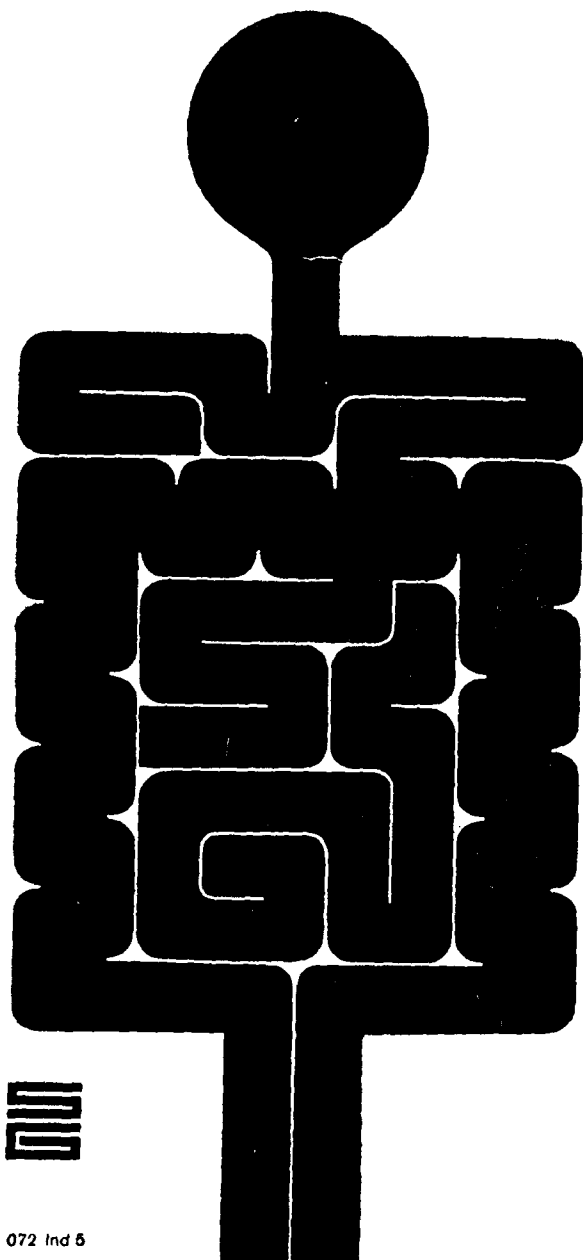
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RANDOM REFLECTIONS OF A RETIRED MEDICAL TEACHER*

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ALTHOUGH I represent a very restricted narrow speciality which occupies the lowest rung in the hierarchical ladder of medical specialities, lacking the social prestige of the others, I have been interested throughout the period of my professional life in the broad aspects of medicine in trying to keep myself informed of the ever-widening horizon of modern scientific medicine. I deliberately desist from talking about my own speciality but crave your indulgence on certain random thoughts and reflections on the *status and function of a medical college and teaching hospital*.

Let me begin my address by quoting the words of Sir William Osler that great scholar physician uttered fifty years ago with reference to the Johns Hopkins Hospital. "The type of school I have always felt the hospital should be and which we tried to make it—a place where the best that is known is taught to a group of the best students—a place where new thought is materialized in research—a school where men are encouraged to base the art upon the science of medicine—a fountain to which teachers in every subject would come for inspiration—a place with a hearty welcome to every practitioner who seeks help—a consulting centre for the whole country in cases of obscurity."

You are all aware that during the last fifty years and particularly in the post-war era, the art and science of medicine have been increasing rapidly in scope and complexity. Dr. Barrywood aptly described the present phenomenal increase in knowledge as analogous to the logarithmic phase of growth of a bacterial culture. Specialization and splintering of medical science and practice have become inevitable and constitute both the cause and the consequence of the accumulated knowledge. The concept that medicine is applied biology is gaining recognition. The social, preventive and ecologic outlooks on health and disease are being increasingly recognized in the training and practice of medicine. In the practice of medicine during the past 150 years the target has been changing from the treatment of symptoms to the treatment of disease, to the treatment of the patient as a whole, and in the current era to the treatment of the community. "Much will have to be accomplished by medical educationists before the satisfaction the average physician finds in his direct relation to his patient can be replaced by his satisfaction in his service to the community as a whole." Our leaders have opted for a socialistic state of society and community medicine will be

* Farewell address delivered to the staff of the Madras Medical College and Government General Hospital by Dr. R. V. Rajam M.S., F.R.C.P., F.R.S. in April 1959.
Specially contributed to the ANTISEPTIC.

in keeping with it. In medical and public health education and practice, the trend is to study man and his environment as a whole and to interpret the dynamic interrelations in the man—environment interactions. In other words, it is the ecologic approach to health and disease. The science of epidemiology in its broadest sense is coming into its own, and we may, by the epidemiological method, paralleled with physiological and biochemical studies, identify disease-prone individuals in a community before they become sick. Such a study will help to understand the concept of variation in immunity and vulnerability as a characteristic of the individual. It is an oft-repeated truism, which has not grown stale by repetition, that prevention of disease should be the continuing aim and the ultimate goal of medicine.

The triumph in the art of surgery in recent decades, with its hand-maiden, the science and art of anaesthesiology have been made possible only with the help of the basic sciences and the advent of the antibiotics. It is true that by and large, surgery is mostly of the extirpative character although reparative and replacement surgery are being attempted with a certain measure of success. The wise-crack comparison between a lawyer and a surgeon may be quoted in this context. Whenever a lawyer finishes his case, he says to himself "now have I left anything out?" whereas the surgeon at the end of an operation says "have I left anything in?". With the exploitation of atomic energy with man-made machines and radio-isotopes, the metabolic and genetic factors of health and disease may be uncovered and surgery without tears is not an impossibility.

In the organization of medical education and teaching hospitals, we have followed the British pattern without reference to our regional and national needs. I shall be treading on controversial ground if I question whether the type and duration of under-graduate medical education we are giving in our medical colleges, are likely to meet the vast needs of our mounting population for the prevention and cure of disease. There has been a divorce, almost a schizophrenia, between the preventive and curative aspects in our medical education, practice and organization. But the quantum of disease in the country is overwhelming, most of them are infectious or of nutritional aetiology and so, by and large are preventable.

There have been global, regional, national conferences, committees and memoranda by individual leaders of medicine within the past decade on the various aspects of under-graduate and post-graduate medical education—the objective, the duration of training, the content, the methodology, what to teach, how much to teach, how much to be left untaught, the integration, correlation and co-ordination between the pre-medical, pre-clinical and clinical departments and between the several

disciplines of the latter. The subject of medical education has become a hardy perennial. Blue prints and reports have been produced in profusion. Points of view sometimes contradicting each other have been frequently appearing in the medical press during the last 10 years.

It is not my intention to enter into a detailed discussion on the various aspects of medical education nor do I pretend to have the capacity to do so. In spite of the pressing need of the country for a very large number of doctors, we have wisely or unwisely decided to give a liberal scientific education of long duration to our undergraduates and post-graduates and discarded shortcuts to education, either in content or length of course.

Modern medical science encompasses all of the basic natural sciences, and the social sciences. Science is an attitude of mind. It is the intelligent employment of techniques rather than the technical employment of intelligence. There ought not to be any essential difference between the attitude of mind of the scientist and of the clinician. Both should be people trained to observe, to reflect on their observations and to draw tentative conclusions on which they could base an experimental procedure or a therapeutic regimen. In both the experimental and clinical situation, the mental attitudes are identical.

The unity of medicine should not be lost sight of, in educating the future physician although in the ever-widening frontiers of medicine, specialism and specialization have become inevitable.

The scientific study of disease, the scientific training of students, and the scientific diagnosis, prevention and cure of disease are the triple functions of a medical college with its associated hospitals.

In order to fulfil these triple functions effectively and continuously, a corporate unity of the college and hospitals is a *desideratum* in which the administration, the staff and students should be united, if it is to achieve its purpose. It has been observed that professional jealousy offers hindrance to the development and efficiency of a teaching hospital. It is now accepted that all the teachers of a medical college and hospital should be appointed on a whole-time basis and adequately remunerated to enable them to devote their waking time to the study, teaching, and research in medicine and to the care of the patients. A better and lasting *esprit-de-corps* will prevail not only between the staff of the pre-clinical departments and those of the clinical departments but also among the several specialities of the clinical departments.

In the present context, a solution must be evolved for the problem of the tyranny of numbers whether they are the students

to be taught or the patients to be given medical care. One solution for the former is the raising of the teacher-student ratio which, at present in most of the medical colleges and hospitals, is depressingly low. It is a curious psychology of administrators that while they are ready to spend lakhs on buildings, they shy at appointing an extra teacher.

To relieve the enormous patient load of out-patients and in-patients, a reorganization of a teaching hospital is urgently necessary. An expanded out-patient service of a teaching hospital will include a clinical laboratory for the immediate diagnosis and ambulatory treatment of patients, a number of peripheral dispensaries to screen and dispose of patients with minor illnesses who form the bulk of the out-patient load, physical facilities for separate and simultaneous examination of patients by the students under the supervision of the teacher. I consider *out-patient teaching a vital part* of the student's education, which could be effectively carried out *only* if the patients are limited in numbers. It is not sufficiently realized by those in authority that the cost of an expanded out-patient service is much less than that of providing hospital beds, both in capital and in maintenance. The unedifying spectacle of too many extra patients lying on the floor should not be a feature of a teaching hospital. In order to bring down the load of in-patient care still further, there should be established hospitals for infectious diseases, for the chronic incurable indigent patients and homes for the convalescent patients.

The Indian Medical Council may follow the recent example of the General Medical Council of Great Britain in liberalizing the rigid, detailed regulations on the medical curriculum to give scope to the medical colleges for the exercise of initiative and experiment. The new recommendations of the General Medical Council indicate "the minimum length of the whole period of professional study, but refrain from specifying the period of time to be allotted to particular subjects and the sequence in which they should be taught. Specialities and sub-divisions of the principal subjects are no longer specified and no attempt has been made to indicate precisely the scope of the instruction which should be given in particular branches." Freedom to experiment in education should be the right of every medical college within the total period of study fixed by the medical college. It will reduce the congestion of the crowded curriculum. The present practice of pumping a lot of predigested often homogenized factual information into the hapless student from morning till night, should give way to educating the student, to learn *'not what to think, but how to think.'*

From the point of view of undergraduate teaching and training, general medicine, preventive and social medicine, general surgery, midwifery and paediatrics should be considered as the

only major specialities. It is my considered opinion that all the other specialities, though functioning as separate units, should be incorporated with one or the other of the major specialities and preferably taught by the latter. Educational perspective will be lost, if the student is taught by every specialist in the minutiae of his narrow field. Our aim, I take it, is to produce an undifferentiated physician and not an elementary "*chota*" specialist.

In the pre-clinical sciences, a broad division of physiology comprising physiology proper, pharmacology, biochemistry and the latest biophysics could be created. All the members of the division would share the responsibility for teaching these subjects in an integrated coordinated manner.

The disciplines of pathology and pharmacology are both clinical and pre-clinical subjects encompassing the entire field of medicine. They occupy strategic positions between the pre-clinical and clinical departments and serve as a sort of bridge between the hospital and the general practitioner. In the new set-up, it would be desirable that the three professors of preventive and social medicine, of pathology and pharmacology be provided with beds in the hospital. They would serve as correctives to the empiricism and polypharmacy of the pure clinician and will help to reduce the cost of the drug bills which are mounting every year in all teaching hospitals.

I have some views on the question of post-graduate diplomas in the specialities. The current practice of conferring a university diploma in a speciality after training for one calendar year on a graduate with a limited house experience, has given rise to the caustic definition of a specialist who knows more and more about less and less until he knows everything about nothing. My definition of a specialist would be a mature general physician or surgeon who has added to his knowledge of general medicine a more profound study of one of the specialities. Hence it would be desirable in the interest of the individual aspirant and that of the speciality that he should obtain the highest post-graduate qualification in general medicine or general surgery before he chooses to specialize in one of the specialities.

A word about the under-graduate and post-graduate university examinations. Examinations have been recognized as necessary evils, but why such a large number of casualties both in the under-graduate and post-graduate examinations? It is high time that the epidemiology of failures is thoroughly investigated, as in the case of an infectious disease where the host, the parasite and the environment are interacting factors. In the case of the examination there is the same triple factor of the student, the teacher and the examiner. While in U.S.A. and Russia 9 10th of the students pass out successfully with a failure rate of only

1/10th, the reverse seems to hold true in our undergraduate and post-graduate examinations. There is something grievously wrong in the spectacle of about 40 post-graduates appearing for an M.D. examination in the University with only 1 or 2 coming out successful. This occurs inspite of special selection and training for over 2 years of post-graduate training which the examinee in M.D. or M.S. undergoes before he is permitted to sit for the examination. It would appear that in Russia if the failure-rate should exceed 15 per cent, teachers are reprimanded, demoted and sometimes their salaries are cut, although I do not advocate such drastic measures here and it is time that the University authorities sit up and take notice.

It is common knowledge that accurate statistics of morbidity and mortality are woefully lacking in our country. A teaching hospital should set an example by organizing a central statistical department, with if necessary sectional ones, to collect, classify compile and index the vast clinical material according to recognized plan. Clinical research will be greatly handicapped in the absence of such an organization.

I would like to see the following words of Professor Mackintosh emblazoned in the wards and corridors of a teaching college hospital—"The appropriate field of study of a hospital is not sickness in the narrow sense, but life in the broad sense. Sickness is an incident, grave, troublesome, or restful, in the life of a person, but to the hospital and its staff and students, is a challenge, a focus of enquiry from which prevention should radiate as well as cure of the individual."

Research.—There are three categories of human beings, who could be identified in literature, art and science including medical science—creators of knowledge, transmuters of knowledge and transmitters of knowledge. Most of us belong to the last category of mere transmitters without adding anything of our own to the sum total of knowledge. But in a teaching institution, it should be possible to create and transmute knowledge to the progress of the medical science and the ultimate well-being of our people, provided the right type of personnel are recruited to man the key departments of the institution and the proper environmental climate created to encourage scientific investigations. The number of research projects and the papers contributed to scientific journals from our college and hospital do no credit to our century-old institution.

A distinction is made between discovery and research between fundamental and applied research. Many of the discoveries in medical and other sciences were not the result of planned laborious investigation, but rather of an accident or chance. A rather unmusical word 'Serendipity' first coined by Horace Walpole in 1754 and revived by Cannon in 1945, has come

into use to describe such discoveries by accident or intuition, of things which they were not in quest of. Many examples can be re-called to mind—the discovery of liver extract in pernicious anaemia, the discovery of the potent but now much-abused penicillin, the discovery of insulin, which came from the accidental finding by Von Mehring and Minkowski that the urine of pancreatectomized dogs was attracting a swarm of flies and the subsequent scientific exploitation of the phenomenon by Banting and Best, the discovery by Pasteur that fowls inoculated with an old culture of bacteria causing chicken cholera became ill but did not die, while fresh cultures were extremely virulent and caused fatal disease; that led him to work on the deliberate attenuation of the cultures for immunizing against infections and the subsequent exploitation of the principle of immunization in many infectious diseases is common knowledge. The latest is the accidental discovery of the antihyperglycemic effect of a sulphonamide derivative by Fuchs, a young resident physician in a Berlin hospital when he was engaged in a clinical study of the antibacterial activity of B.55 (Carbutamide). He noted that certain patients under treatment with the drug exhibited symptoms of an insulin reaction and further study indicated that these effects were associated with a fall in the blood-sugar concentration. 'Seeing correlation between items of knowledge at first apparently quite unrelated requires a mental activity which is the essence of genius.

But it is worth remembering that the vast accumulated knowledge and techniques in medicine are the result of patient scientific research on a planned basis by a team of workers in which chance or serendipity played a very little part. Research in medicine offers the thoughtful and curious person, a challenge because of the infinitely various complexity of its problems. Its intellectual satisfactions are great, apart from the acclaim which it may receive from the public and the benefit it may confer on humanity. "Research in a teaching institution is essential not only to enrich and stimulate teaching, but also to implant on the minds of our students an enquiring, sceptical and judicious attitude for the problems in medicine." No one can teach well who only teaches. There are two types of research, fundamental and applied. The elucidation of the structure of Vitamin B₁₂ by Mrs. Dorothy Hodgkin or of insulin by Dr. Sanger are rightly held to be exceptional scientific feats and come under the category of fundamental research. The development by Dr. Jonas Salk of the poliomyelitis vaccine, regarded as one of the great advances of the century, is a piece of applied research, since it embodied no fundamentally novel ideas.

In the present context of the immediacy of our country's problems of health and disease, it is a point for careful thought

and consideration whether our medical scientists and teachers should give a certain priority to applied research for the liquidation or control of the vast quantum of preventable disease in the population, utilizing in its research, the accumulated available knowledge and techniques. This does not mean that we have no problems requiring solution by fundamental research. A medical college will be untrue to its avowed tradition, if it should neglect probing into fundamental problems of epidemiology, immunity, pathogenesis, bio-chemical and metabolic studies of disease and disease-proneness and so on. It is a sad unedifying commentary on the state of affairs in our country that we still have epidemics of small-pox, cholera, gastro-intestinal disorders against which modern medical science has provided effective measures.

Apart from laboratory studies and research at the bedside, the scope for field-research should be exploited in connection with our National Programmes for the Control of Communicable Diseases. While we are struggling to get enough food to meet the metabolic needs of the population and attempting to control the microbiological environment, we are multiplying like fish. Birth has become a chronic habit with us and fecundity seems to be in inverse relation to malnutrition and under-nutrition. Research on the reproductive cell is an urgent 'must' and medical scientists must be concerned with problems of natality as well as morbidity and mortality. Let us turn our attention a little from death-control to birth-control.

A word about medical care and treatment of patients. There is an erroneous impression fostered at times honestly but sometime maliciously that in teaching hospitals, the scientific care of the patients dries up the milk of human kindness and that scientifically trained clinicians lack sympathy, understanding and respect for the human personality. The fault is probably in the mental make-up of the individual physician rather than in the scientific training he has received.

We are living in the era of promiscuous therapeutics. The advent of chemotherapeutic and antibiotic drugs, the transformation of endocrine therapy, the isolation of vitamins in bewildering abundance which soon threaten to outrun the known vitamin deficiency disorders, the development of drugs with potent effect on emotion, the hypotensives, the tranquillizers, the energisers, the sedatives, the pain-killers, all these have made it difficult, if not impossible, for the most conscientious and critical physician to keep up with the torrent which has now become a flood. A teaching hospital has a great responsibility to set the standard for scientific therapeutics and in spreading the truth about drugs in order to avoid therapeutic shunts.

Poly-pharmacy and "parenteritis" (the habit of treating all diseases with parenteral injections) are two iatrogenic diseases of modern times and remind us of the treatment procedures of bygone centuries. I would refer you to a recent book "Call the Doctor" written by Mr. Ernest Turner, wherein he depicts the horrible inhuman treatment procedures which patients including Royalty had to undergo at the hands of the physician of the 17th and 18th centuries. The cupping, the bleeding, the scarification, the blistering, the administration of purgatives, emetics, sedatives in succession read like a horror comic. One may think this is a far cry to the modern method of humane scientific treatment of the patient. But the polypharmacy of the unthinking physician by a battery of active powerful remedies, which are poured into their mouths, their veins and their muscles, may seem humane but at the cost of sensitization, drug intoxication, change in the pattern of disease, and appearance of new disease syndromes. Hence the cynical definition of Voltaire that a doctor is a person 'who pours drugs of which he knows little into a body of which he knows less' may still have some validity in the current era of promiscuous therapeutics unless the teachers and leaders of medicine set their face against this tendency and educate the future doctors in the scientific treatment of disease.

Longfellow in one of his famous quotable quotes, said "Trust no future however pleasant, let the dead past bury its dead. Act, act in the living present. Heart within and God overhead." For an individual after retirement from active work with its regular hours and dead routine, the first line of the poem is superfluous, as there is no future except trying to grow old well with moderate muscular activity, a certain amount of intellectual exercise and developing a certain equanimity of temper, and the contemplative turn of mind. But the 2nd line is an impossible injunction, as the older one grows, the greater is the tendency to indulge in reminiscences and exploits of the past as a sop to one's vanity. Of course, the discreditable and the unpalatable things of the past, will be conveniently forgotten and buried deep in the subconscious mind. There is not much of a scope for action in the living present for old people.

Looking back over the long vista of about 40 years of my association with the medical college and general hospital, both as an alumnus and one of the staff, I have no regrets and it has pleased Providence to keep and maintain my connection with the Institutions uninterruptedly for over 30 years of my professional life. I have witnessed the centenary of the college, the bicentenary of the hospital and the centenary of our University. These are unforgettable things in the life of Institutions. For men may come and men may go, but these institutions go on for ever, marching from strength to more strength in the years ahead.

There is one redeeming feature in the life of a retired medical man. He can keep in touch with the ever-expanding knowledge and discoveries in medicine, and if he has gathered any wisdom over the years, he might even act as an elder consultant to the other consultants.

It is an unique privilege to have taught two generations, father and son or daughter, over a period of 34 years, and if probably the second generation had married earlier, I might have had the privilege of having taught the third generation as well.

In bidding farewell to you all, and to the Institutions which I have served to the best of my capacity, I render my sincere and grateful thanks for the co-operation, help and regard which I received from each one of you and I wish you the best of everything and want you to hold aloft the glory that is the Madras Medical College and associated hospitals. I have retired with malice towards none and charity towards all.

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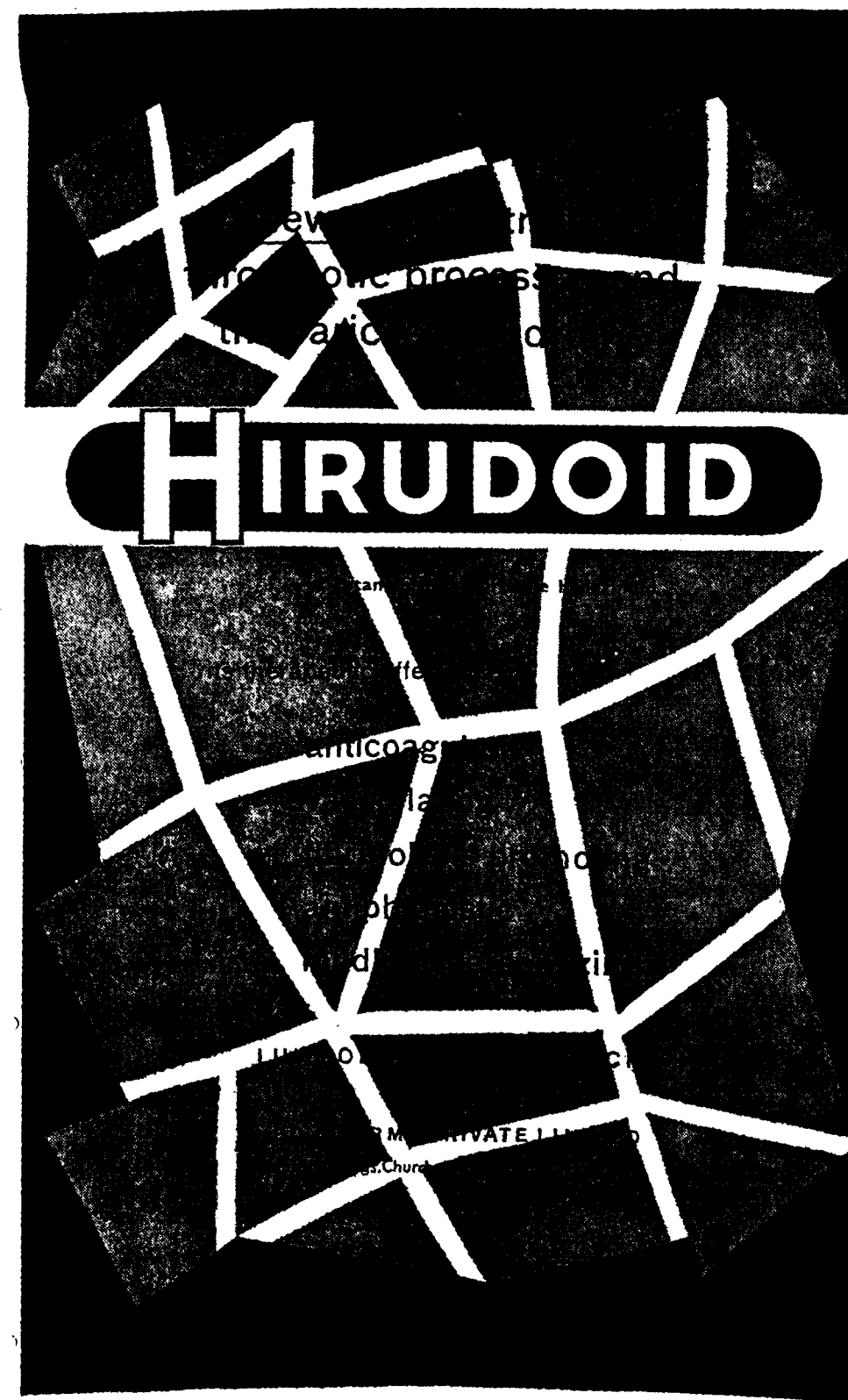
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CARCINOMA OF THE PROSTATE: METASTASES, THERAPY AND SURVIVAL

A statistical analysis of 500 cases of carcinoma of the prostate revealed that the lesion had metastasized in 340 (68 per cent) when the patient was first seen. Most of these malignant transfers were to the skeleton: in this series 325 patients (65 per cent) showed 506 sites of bony metastases, whereas 96 (19.2 per cent) were to the soft tissues. The authors, Dr. Lowrain E. M:Crea and Dr. Lester Karafin of Philadelphia, analyse the case material for age, symptoms, race, phosphatase levels, treatment, and survival.

The longest average period of survival (thirty-four months) occurred after a combination of prostatectomy, orchidectomy, and administration of oestrogens. The shortest followed the use of oestrogens alone. There were 40 patients (8 per cent) who survived five years or longer regardless of the type of treatment. One of these lived nineteen years during which he was given intense roentgen therapy to the lumbar spine, pelvis, and pituitary before the advent of the endocrine therapy era. Ultimately he was given stilboestrol.

The authors feel that the oestrogen of choice for routine use is Valles-tril (Searle), particularly when tolerance and/or side-effects are compared with other oestrogenic preparations in similar doses.—(*Journal of the International College of Surgeons*, June 1958).



Facts and Figures



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A BICORNUATE UTERUS ASSOCIATED WITH MALPOSITION OF THE FOETUS*

(Report of a case)

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CONGENITAL abnormalities of the uterus favour malposition of the foetus. The most common of these conditions is the association of an arcuate or bicornuate uterus with a transverse lie of the foetus.

A 25 year old patient pregnant for the fifth time was admitted to the hospital on 22-6-1957. She gave a history of being in labour, the pains having commenced 2 hours prior to admission.

The previous obstetric history was quite interesting. Five years ago she had had a full-term delivery of a live male child which died soon after birth. Four years ago she had delivered a dead-born premature foetus at about the seventh month. Three years ago she had presented at this hospital with the complication of a transverse lie and a type two placenta praevia, for which a classical caesarean section was performed. A live child was delivered. There is no record at the time whether the uterus was found to be arcuate in shape or not. Two years ago the patient gave birth to one child at full term but it died soon after birth. Labour was not prolonged.

General examination showed the patient to be slightly anæmic. Obstetric examination showed the presence of a previous classical caesarean scar on the abdomen. The shape of the uterus was abnormal. It was somewhat widened from side to side and reduced in height. The contour of the uterus was abnormal being arcuate (See Fig. 1, p. 601). The height of the uterus corresponded approximately to a 30 weeks' pregnancy. The patient was having mild pains. The foetal head could be felt on the right side and the breech was on the left side. The foetal limbs could be readily palpated over the front of the uterus. It was concluded therefore, that the foetus was in the dorso-posterior position. The pelvic grip showed that the pelvic cavity was empty. The foetal heart beats were heard almost in the mid-line just above the pubic symphysis. An X-ray was taken. The antero-posterior view (See Fig. 2, p. 601) showed the foetus to be lying transversely with the convexity of its back downwards and the limbs pointing towards the fundus of the uterus. There was a soft tissue shadow on the superior aspect of the uterus which was thought to represent the placenta. A vaginal examination was performed. This showed the vulva, vagina, urethra and

*Specially contributed to the ANTISEPTIC.

perineum to be normal. The cervix was pointing downwards and was partially effaced. It was 3 cms. dilated. A tense bag of membranes was present. No presenting part could be made out. The pelvis was normal and the cavity adequate.

In view of the previous classical caesarean-section-scar and the fact that the patient had an arcuate uterus as well as an oblique lie of the foetus, it was decided to deliver the child by caesarean section. The abdomen was opened by a right paramedian incision. The foetus occupied a position which had already been accurately diagnosed prenatally. The head was on the right side of the uterus and the breech was directed towards the left side. The uterus was arcuate in shape. The bladder was adherent to the anterior wall of the uterus and rose to the level of the depression representing the fusion of the two horns of the uterus (See Fig. 3, p 602). At the apex it was continuous with a ligament (vesico-rectal ligament?). A lower segment caesarean section was performed and a live male child was delivered. It weighed 6 pounds 10 ounces. The placenta was situated in the right horn of the uterus. (See Fig. 4, p. 602). The separation of the placenta was somewhat difficult because it was adherent to a structure which was identified as a septum protruding into the uterine cavity. The diagnosis of a septum uterus was made. It was thought desirable to sterilize the patient and this was carried out by Pomeroy's technique. The post-operative course was complicated by mild pyrexia which responded readily to the customary methods of treatment as well as by the use of antibiotics. Both the baby and the mother were in good health when they were discharged.

Comment.—This case is of considerable interest for several reasons. An arcuate uterus often predisposes to an oblique lie. This malformation of the uterus can readily be diagnosed by careful prenatal examination. This case is remarkable in that there had been a previous history not only of oblique lies but of an abnormal situation of the placenta (placenta praevia). For these reasons a caesarean route for delivery was chosen. In the case of an arcuate uterus one should always suspect the possibility of a septum being present within the uterus. This septum may make it difficult to perform an internal podalic version safely. Even if no previous caesarean-scar was present this septum complicates matters in another way. The placenta may become attached to this relatively avascular septum and there may be considerable difficulty in spontaneous separation.

This case also demonstrates that prenatal radiography is a valuable confirmatory procedure in diagnosing not only the presence of a foetus but in determining its exact lie and position. It can also help in discovering whether skeletal abnormalities of



FIG. 1. This photograph of the abdomen of the patient shows the abnormal contour of an arcuate uterus. The scar of a previous caesarean section can also be seen.
—(Courtesy: The Govt. Women and Children's Hospital, Egmore, Madras).



FIG. 2. This X-ray picture demonstrates the foetus lying obliquely with the head to the right and the breech towards the mother's left side. The limbs are pointing upwards. — (Courtesy: The Govt. Women and Children's Hospital, Egmore, Madras).



FIG. 3. This unique photograph demonstrates the arcuate appearance of the uterus. A band of tissue running from the anterior aspect of the rectum towards the fundus of the bladder (Recto-vesical ligament) can be seen.—(Courtesy: The Govt. Women and Children's Hospital, Egmore, Madras).



FIG. 4. This figure of unusual clarity demonstrates not only the arcuate form of the uterus but the fact that the placenta was situated in the right horn of the uterus. Unfortunately the lighting arrangement in the theatre at that time did not permit photographs to be obtained of the septum within the uterine cavity.—(Courtesy: The Govt. Women and Children's Hospital, Egmore, Madras).

the foetus are present and may even enable accurate localization of the placental site.

All these aspects make this case, although not exceptionally rare, well worth reporting.

Acknowledgement.—I wish to acknowledge my gratitude to Dr. S. Abraham, M.D., Professor of Obstetrics and Gynaecology, Madras University, and Superintendent, The Government Women and Children's Hospital, Egmore, Madras for her generous consent to my making use of clinical material from the hospital.

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NIL NOCERE! DEAFNESS CAUSED BY INTRAMUSCULAR ADMINISTRATION OF NEOMYCIN

The authors report on 2 men and 2 women in whom severe disturbances of hearing resulted from the intramuscular administration of neomycin. Two of the patients were less than 30 years of age. The first patient had an inflammation of the urinary passages and was given 0.5 g. of neomycin intramuscularly twice a day for 5 days; the total dose of the drug administered was 5 g. On the 6th day she complained of tinnitus and difficulty of hearing. Administration of the drug was discontinued, but the disturbance became worse. The excitability of the apparatus concerned with maintaining equilibrium remained normal in both ears. The second patient who had chronic renal disease received the same neomycin therapy as the first patient and complained of tinnitus and poor hearing on the 9th day after the institution of the treatment; the difficulty of hearing increased within the following 11 days. The third patient had a recurrent furunculosis associated with cardiac disease for which he was treated with neomycin for 8 days; the total dose of the drug given intramuscularly was 7.5 gm. Difficulty of hearing which began on the 11th day after the institution of neomycin therapy progressed to deafness; the excitability of the vestibular apparatus remained normal. The fourth patient had osteomyelitis and was treated with neomycin for 25 days; the total dose of the drug given intramuscularly was 12.5 gm. Ten days after the cessation of treatment and on the 35th day after its institution, the patient complained for the first time of difficulty of hearing. The caloric excitability of the apparatus concerned with equilibrium remained normal in both ears.

These findings showed that the period elapsing from the institution of neomycin therapy to the onset of the disturbances of hearing was short. The difficulty of hearing increased after the withdrawal of the drug. Since there was evidence of a renal disorder (partly only mild) in all 4 patients, it has been emphasized again that intra-muscular administration of neomycin is contraindicated in patients in whom renal disease is merely suspected.—(S. Kortge-Stoppler and G. Mittag, *Munchen. Med. Wchnschr.*, 100: 1189-1192, Aug. 8, 1958, Munich, Germany, via *J.A.M.A.*, Nov. 1, 1958).

THE USE OF PROMAZINE AND MEPERIDINE IN LABOUR

This study comprises 344 labour patients admitted to the Multnomah Hospital unit of the University of Oregon Medical School Hospitals and Clinics during 1956-1957. All patients who required analgesia received 50 mg. of promazine hydrochloride and 50 mg. meperidine hydrochloride intravenously. Only a few received the drugs intramuscularly. They have not been eliminated because the results were the same, though slightly less prompt. Cases of premature labour were excluded as often as possible. Seventy-one primiparas and 273 multi-paras are included in this series. Prematurity (under 2,500 gm.) was noted in 20. There were three sets of twins.

The medication was repeated in 90 minutes, or later when necessary. The analgesic mixture was given in one syringe when labour was established and cervical dilation had progressed to at least four centimetres. Most of the patients were semi-somnolent promptly after administration of the medication. Some slept during the entire labour and resented being awakened even to move to the delivery table. The majority were cooperative and relaxed to varying degrees. This also proved to be excellent premedication for light nitrous oxide-oxygen anaesthesia. Induction was smooth, and there was a marked decrease in the number of patients who were excited thereby. It was easy to provide complete anaesthesia with nitrous oxide alone.

Promazine and meperidine in equal dosage of 50 mg. (mixed) were given intravenously to 344 patients in labour. Analgesia was enhanced, the hypnotic effect was marked, smooth and consistent. The amount of the analgesic agent is reduced thereby.

Hypotension was severe in two patients, and marked in eight. The blood-pressure must be followed closely if this drug-combination is used. Other minor side-effects were noted, but none was serious and all patients responded well to conservative therapy.

Early labour is slowed by this combination, and medication should be withheld until cervical dilation is notable and the contractions are strong and regular. As a premedication for local and nitrous oxide anaesthesia, this combination is excellent. Foetal depression is not entirely eliminated when promazine and even small doses of meperidine are used. The time-proven tenets of analgesia-timing must be followed if an occasional case of severe depression is to be avoided. Premature infants do not tolerate this medication well. For this reason, we believe promazine should be avoided when the fetus is premature.—(*The Western Journal of Surgery, Obstetrics and Gynaecology*, 66: 5, 1958).

PULMONARY TUBERCULOSIS AND PREGNANCY

The presence of pulmonary tuberculosis during pregnancy is unanimously considered to have become far less serious now than it used to be, thanks to chemotherapy. It is now possible for the pregnancy to be completed without any harm to the mother not only in cases of pulmonary tuberculosis but also in cases of specific meningitis, miliary and other haematogenous forms of tuberculosis. Chemotherapy does not however prevent aggravations of disease any more than did therapeutic abortion. Anyhow the usual combined therapy is no more hazardous than in other types of case, though the doses of streptomycin must be reduced to a minimum in order to avoid any injury to the foetus. Careful attention must be paid to matters of hygiene and specialist supervision during the pregnancy and confinement, and also effective treatment of the tuberculous condition should also form part of the regimen employed in the management of pregnant patients.—(*Internat. Tuberc. Year-book*, 29: 1-2, 1959).

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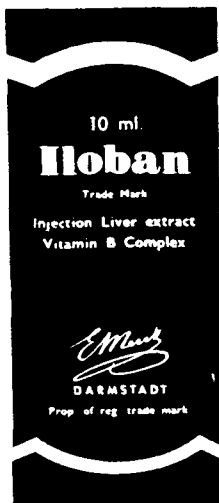


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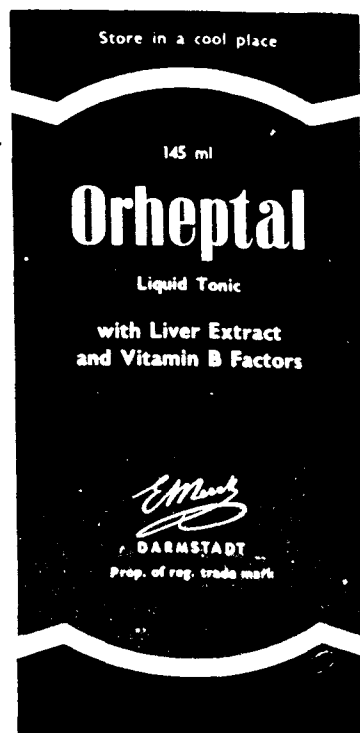
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THE MANAGEMENT OF TETANUS*

MAJOR P. GOVINDA RAU, M.B., B.S., F.R.C.S., F.I.C.S.,

Associate Member of the British Association of Urological Surgeons,
Madurai

TETANUS or lockjaw, is a common disease in our country. Whereas for the whole of England and Wales, a total case incidence of 200 was reported for one of the post-war years, here in India, in the Government Erskine Hospital at Madurai alone, 256 cases with tetanus were admitted during 1957. So the problem being an important one the prophylaxis and treatment aspects should be studied carefully.

Aetiology.—Tetanus is a toxæmia due to a local infection by the *Bacillus tetani*. The disease may be associated with any wound, but is specially likely to occur after wounds contaminated with cultivated soil, or after punctured or infected wounds. Road accidents, wounds occurring in agricultural and stable workers, and war wounds must be considered as likely to cause tetanus. Tetanus can arise from middle-ear infections, and sometimes there may be no history of any wound at all in a case of tetanus. Occasionally tetanus may be due to improperly cleaned injection needle, surgical instruments, catgut, or even from sulphonamide dusting powder infected probably from its card-board container.

The bacillus of tetanus occurs in ordinary garden earth and in road sweepings. It consists of a delicate straight rod, which develops a spore at one end (drum-stick bacillus) and in this spore-form it can survive for long periods, and can even withstand ordinary methods of antiseptics. It is a normal inhabitant of the intestines of horse, sheep, and other animals, and it is because of this, that catgut (when improperly sterilized) occasionally produces tetanus. The tetanus bacillus does not invade tissues, but at the site of infection it produces a very powerful exo-toxin. The toxin can produce a local intoxication of the muscles or motor nerve-endings, or spread either along the motor neurons, or along the lymphatics, and later by the blood-stream to the anterior horn cells of the spinal cord, where getting fixed in the cells they give rise to the characteristic features of the disease.

Prophylaxis.—Two methods of prophylaxis are in use—passive and active immunization.

Passive immunization against tetanus was first used on a large scale during the First World War, and as a result the incidence came down from 8 to 1 per 1000. Tetanus in the words of an ancient writer is "an inhuman calamity! an unseemly sight! a spectacle even painful to the beholder—"; with this picture

*Specially contributed to the ANTISEPTIC.

[605]

in his mind, the surgeon naturally turns to the prophylactic use of antitoxin even in the most trivial wounds. But tetanus antitoxin should not be given blindly as a routine for all open wounds, as reactions are not uncommon, sometimes even fatal. Prophylactic injections for tetanus need not be given in cases of clean superficial wounds or abrasions, not more than 3 or 4 hours old, which have been thoroughly cleaned for three or four minutes, and subsequently protected from contamination by a good cover dressing. This is also the modern teaching for treatment for superficial wounds; and the application of Tr. Iodine or Dettol or other irritant antiseptic to fresh uncleaned wounds is considered even harmful. Prophylactic injection is given for: (1) wounds more than three or four hours old; (2) wounds already infected by pyogenic organisms; (3) wounds through the skin that has been infected by soil or manure; (4) wounds in children, (5) deep and punctured wounds; and (6) wounds where tissues have been crushed.

The usual dose for prophylaxis is 1500 units of A. T. serum, given subcutaneously, or intramuscularly. It has been recommended that if A. T. serum is given within two days after the infliction of the wound, the dose should be 3000 units; if three days after, 6,000 units and so on, up to a maximum of 10,000 units. The effects of an A. T. serum prophylactic dose last only for three weeks; and a second injection of serum gives protection for possibly less than a week as it has been found that excretion is very rapid, when the patient has had a previous injection of the antitoxin serum.

A. T. serum should not be given without having adrenalin (1 in 1000 solution) at hand; as only by so doing regrettable fatalities can be avoided. It is possibly best to mix adrenalin, $\frac{1}{2}$ cc. for adults, and $\frac{1}{4}$ cc. for children, [along with the serum before injecting it.

Formerly complicated methods were recommended for giving serum in suspected cases of allergy, to prevent anaphylactic shock. It has since been found that these methods were neither reliable nor useful; and the present recommendations are, to give a trial dose of 0.2 cc. of undiluted serum subcutaneously, to any patient who has had previous injection of serum or an allergic diathesis. If no symptoms develop within 30 minutes, then the full dose of A. T. serum is given; if reactions like rash, dyspnoea, etc. occur, the treatment for it is to inject adrenalin intramuscularly, an antihistamine like phenargan intravenously; and in severe cases to administer intravenously hydrocortisone, and an intravenous drip of *nor*-adrenalin in normal saline, which is used to raise the greatly lowered blood-pressure in these cases [of severe anaphylactic shock. After the symptoms subside another trial dose is given 6 to 12 hours later, and if no reaction occurs this time,

within 30 minutes, then the rest of the dose of the serum is given to the patient. Details have been given about passive immunization as this is the common method adopted in our country.

The ideal method, however, for prevention of tetanus, is active immunization. Active immunization is produced by giving three doses of $\frac{1}{2}$ to 1 cc. of tetanus toxoid, subcutaneously or intramuscularly, at intervals of 6 to 12 weeks between the first and the second injections and 6 to 12 months between the second and third injections. This gives a five year immunity, and an injection of 1 cc. at the end of every 5 years maintains the immunity. The American Army never used antitoxin but relied only on toxoid, and only 5 cases of tetanus occurred during World War II, of which only 2 died. During this same period, 1500 people died from tetanus in the United States. At present, a combined prophylactic for children against diphtheria, whooping cough, and tetanus, a triple antigen is available which will be very useful because a fair number of cases of tetanus occur in children.

Signs and symptoms.—The usual incubation period for tetanus is one to 21 days. Patients who have had prophylactic serum may present an incubation period of 3 to 12 months. Any operation on a wound area is liable to light up a latent tetanus infection, and should therefore be preceded by an injection of serum. This precaution is liable to be forgotten sometimes, and tetanus occurring after operation in an old wound is not uncommon.

The most important early symptom is painless stiffness of the jaw, or trismus. This is due to tonic spasm of the masseter and interferes with swallowing. At this stage too, there is a peculiar facial expression—*risus sardonicus* (the cynical smile)—; in this the corners of the mouth are drawn upwards and backwards, and the forehead wrinkled transversely, the effect becoming more marked when the patient tries to open his mouth. These two features are important aids to diagnosis. Later in the course of the disease, tonic rigidity develops in other muscles of the body, and the abdominal muscles are seen to be rigid. This tonic rigidity can often be increased by manipulation, and in acute cases examination of the patient, as palpating the abdomen etc., can start clonic (intermittent spasms) spasms in the muscles of the neck, spine and trunk. During these clonic spasms, rigidity of the chest muscles is present, causing great difficulty in respiration. A constant symptom is copious perspiration.

These clonic or reflex spasms occur in acute cases about 24 hours after the first appearance of trismus. When reflex spasms occur, the whole body suddenly becomes rigid, the jaws are tightly clenched, the neck and trunk are arched backwards, and respiration may stop. Such an attack may last from a few

seconds to 3 or 4 minutes. These clonic spasms are important in assessing the prognosis of a patient; a patient who gets spasms within 48 hours of the onset of trismus is a serious case with a high mortality rate.

Diagnosis.—The trismus, the tonic and clonic spasms, the opisthotonus (the backward arching of the back), and the copious perspiration give a characteristic picture which cannot be missed. The painless trismus of tetanus must be distinguished from local lesions of the mouth, teeth and throat; the convulsions of strychnine poisoning affect the muscles of the extremities much more, and there is also complete relaxation between attacks (there is absence of any tonic spasm as in tetanus); in hydrophobia, there is the history of a dog-bite, and the intermittent spasm affects mainly the muscles of respiration, and deglutition; and lastly, meningitis is distinguished by the absence of trismus.

TREATMENT.—Prophylactic treatment has already been discussed. Curative treatment is governed by three broad principles, *viz.*, (1) Neutralization of the toxin by preventing any further production; (2) the prevention of spasms responsible for the respiratory paralysis and (3) the prevention of pneumonia and other complications.

It is to be noted that no treatment is of any avail, against the toxin which has already been fixed in the central nervous system. The further production of toxin is stopped by the giving of a suitable dose of antitoxin serum, and the recommended dose is 100,000 units of antitoxin intramuscularly, and half an hour later, 100,000 units intravenously. For children below 5 years of age, 100,000 units is considered sufficient, and for tetanus neonatorum, 50,000 units has been recommended. Higher and lower dosages have been given, and in one Mission hospital no A.T. serum is given at all, and still they have reported fair results. After the initial dosage, no more A.T. serum will be necessary for a week, after which one dose of 50,000 units may be given intramuscularly if spasms still persist.

The treatment of the wound is a matter of judgement, but generally conservative measures like antiseptic dressings after cleansing, are recommended rather than an excision of the wound.

Avoidance of spasm is achieved by the patient being kept in a quiet darkened room, as any stimulus such as the banging of a door, may set off a spasm. Drugs used for the purpose of controlling spasms are:—chloral, bromides, paraldehyde, and even chloroform. Muscle relaxants like curare have been used but are risky to use except by trained and qualified personnel. Largactil and barbiturates have been most helpful in this aspect of therapy. In the adult 50 mg. of largactil intramuscularly four times a day,

and 3 grains of Sodium phenobarbitone intramuscularly every six hours, have made the lot of the patient more comfortable, and the absence of respiratory distress has made recovery from the disease easier. In severe distress due to clonic and tonic spasms of the respiratory muscles, the intravenous use of about 25 mg. of largactil (chlorpromazine) affords almost instantaneous relief. In severe cases with almost continuous spasms, largactil has been used as an intravenous drip and quantities up to 900 mg. have been used in a single day.

Penicillin and other antibiotics like streptomycin, help to control secondary infection in wounds and to prevent lung infection. In severe cases of tetanus, the use of muscle relaxants like curare, tracheotomy, artificial respiration, and complete replacement of oral by parenteral feedings have given good results. The use of largactil however, lessens respiratory spasm so much that artificial respiration becomes unnecessary, although other procedures such as tracheotomy, aspiration of tracheobronchial secretions, and parenteral feeding, are still useful in the treatment of severe cases.

Prognosis.—Tetanus is one of the few infections still causing a high mortality. Four grades of the disease have been recognized ranging from mild cases (spasm confined to the jaw, face and neck) with no mortality, to fulminating cases with a mortality of 100%. The degree of severity varies inversely with the length of the incubation period. When the incubation period is under ten days, 96% die, whereas if it is three weeks or more, there is a 55% mortality. Prognosis is also dependent upon the amount of specialist help the patient can get. The Mayo Clinic has a tetanus team, consisting of consultants in internal medicine, paediatrics, neurology, orthopaedics, plastic surgery, bacteriology, clinical pathology, biochemistry, and physiology, together with the Medical Director of the Rochester Health Department, and their mortality in the last ten years has been reduced to 27% for all cases of tetanus. In our own state, there has been an attempt in one city hospital, to treat cases with muscle relaxants as curariform drugs, intermittent positive-pressure respiration with tracheotomy etc., but this involved such an amount of team work that it was found that there was not sufficient specialist personnel to run it efficiently, and the method was abandoned. So in our country, the only way we can improve the prognosis is to give proper advice with regard to the treatment of wounds and abrasions, give prophylactic injections of A. T. serum when necessary, make an early diagnosis of tetanus, and when recognized, give appropriate treatment, which will involve adequate dosage of serum, intelligent use of anticonvulsants and sedatives, like largactil and barbiturates, and penicillin in sufficient dosage to avoid septic complications in the chest and elsewhere.

Only by these methods can we hope to lessen the incidence of tetanus, and reduce the mortality of the disease, and the suffering of those who fall victims to this terrifying disease.

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PULMONARY EMPHYSEMA

Diffuse obstructive emphysema is principally a disease of middle age and later years. The increasing average length of life has led to a greater number of patients being afflicted with this disease.

There are many problems yet to be solved before our knowledge of emphysema will be adequate. The aetiology itself is still a matter of controversy. Most investigators have thought that chronic bronchial obstruction, usually due to chronic bronchitis or severe asthma, was the principal cause. Others have felt the degenerative vascular disease of older years is the cause of emphysema, at least in some cases. Both factors may be important with one predominant in some cases and the other in others. The smoking habit has been considered important by many investigators, since it causes chronic bronchial irritation.

Modern methods in pulmonary physiology have brought to light the many physiological alterations in this disease. The chief defect is in ventilation with decreased vital capacity, especially the 0.5 and 1 second capacity, and decreased maximal breathing capacity. Loss of elasticity with bronchial obstruction leads to increased airway resistance on expiration and decreased lung compliance. Ventilation is more efficient in some areas than in others, producing uneven distribution of air. The residual volume is increased.

In some cases diffusing capacity may be decreased. The circulation may be affected because of disruption of alveolar septums, thereby decreasing the total pulmonary capillary bed. Hypoxæmia and carbon dioxide retention occur in advanced stages. The latter may lead to respiratory acidosis, especially in the patients with acute infections who are given barbiturates and narcotics. The danger of incautious use of oxygen in this situation needs particularly to be emphasized.

TREATMENT:—Although the basic tissue damage is permanent, much can be done to give symptomatic relief. Most of the treatment is directed toward relieving bronchial obstruction. Antibiotics, mucolytic agents, and bronchodilators are very useful, and may be given orally, parenterally, or by inhalation. Steroids are helpful in some cases. Instruction in diaphragmatic breathing exercises enables the patient to breathe more efficiently. The course of this type of emphysema tends to be gradually progressive. Frequent episodes of bronchitis or pneumonia seem to make deterioration more rapid. If these infections can be prevented with prophylactic therapy or treated intensively at the onset, the progression of the disease can be retarded and there may be no obvious change in the basic condition over long periods of time.—(Editorial, *Texas St. J. Med.*, 65: 4, Apr. 1959).

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"SYNERMYCIN" IN RESPIRATORY DISEASES*

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THE management of cases infected with resistant organisms is a therapeutic problem to the clinician. Some organisms are initially resistant to known therapeutic agents; some develop resistance to them during their haphazard administration. The usefulness of a combination of drugs was emphasized by Garrod (1953); such use is claimed to have the following advantages:— (i) a synergistic effect *i.e.*, the total therapeutic effect of the combination is greater than the additive effect of the constituent antibiotics; (ii) an enhanced margin of safety since a smaller dosage is used in combination than when used separately; (iii) the delay in the emergence of resistant strains—as the duration of medication necessary to control and cure the infection is shorter. The prolonged administration of a drug in subtherapeutic dosage is a potent factor in the production of resistant organism.

"Synermycin" is a combination of two drugs—Tetracycline and Oleandomycin in the proportion of 2:1 and has been claimed to have a synergistic effect with reduced toxicity. Therapeutic trials with 'Synermycin' have shown its usefulness in diseases of different systems of the body. Chronic bronchitis and bronchiectasis beyond certain stages, preclude hope of permanent cure; the treatment of such conditions consists in ameliorating the discomfort of the patient, ensuring for him a useful life. Such cases are often victims of haphazard antibiotic therapy with its attendant injurious effects. When such cases are complicated with heart failure, lung abscess or diabetes mellitus, the therapy becomes still more difficult. Pulmonary infection established in a post-operative debilitated patient even receiving antibiotic or chemotherapeutic measures, calls for urgent and effective measures. Pulmonary infection established in an area handicapped with bronchial pathology like a tumour is not easily amenable to treatment.

Our present study includes a few cases of respiratory infection resistant to penicillin, streptomycin and sulphonamide alone or in combination. The assessment made is essentially from the point of view of the clinician.

Materials and method.—Ten cases were included in the trial, 7 males and 3 females, their ages ranging from 15 to 60 years. There were 3 cases of bronchiectasis with emphysema, 2 cases of cor-pulmonale one of which was complicated by diabetes mellitus,

* Specially contributed to the ANTISEPTIC.

TABLE

S. No.	Name, age, sex, date of admission	Before Synermycin Treatment						
		Complaints with duration	Relevant past history	Physical examination	Sputum in 24 hrs.	Blood picture Hb. % (Hellige) T.C., D.C., E.S.R.	Diagnosis	Treatment prior to synermycin
4	A., 28, M., 26-8-'58	Breathlessness on exertion: 1 month swelling of legs: 1 month	Cough with expectoration 12 years, gradually increasing in frequency and severity	Hurried respiration, cyanosed. Full-neck veins with pulsation. Emphysematous chest; crepitation and rhonchi from apex to base of both lungs; vesicular breath sound, distant in character at the bases. Liver: 2 F below costal margin, tender, smooth, oedematous legs, oliguria P: 110/min. regular low tension. BP: 118/70 mm. Hg. T: normal. Radiologically enlarged heart	Sputum about 1/4 in the spittoon; thick, greenish white, adherent to the bottom; no foul smell. No A F B	78, 7,200/cmm 66, 29, 1.4 6 mm./1st hour	Cor pulmonale (chronic bronchitis emphysema complicated with failure)	Penicillin and sulphamizole before admission. No effect on sputum or any other complaint
5	B., 58, M., 11-10-'58	Cough with expectoration mainly in morning and during winter 12 years; occasional attacks of dyspnoea: 1 year	Nothing particular	Slightly cyanosed. Barrel-shaped chest, with bilaterally restricted expansion. Hyperresonant note at the upper parts, diminished percussion note at bases. Cardiac and hepatic dullness obliterated, vesicular breath sound with prolonged expiration, at the bases, distant vesicular. Rhonchi and crepitation both lungs, with bubbling rales at the bases. Clubbing of fingers	1 1/2 th of the spittoon. Bad smelling greenish yellow tonaceous no A.F.B.	62, 4,500/cmm 59, 32, 6.3	Bronchiectasis with emphysema	Used to be treated with expectorants and occasional courses of penicillin used to give some relief

I—(Contd.)

After Synermycin Treatment						
Synermycin dosage and duration	Any adjuvant treatment	Subjective evaluation	Physical examination	Sputum in 24 hours	Blood picture Hb. % T.C., D.C., E.S.R.	Remarks
1 cap 6 hourly for 7 days	Vitamins sedative. Iodide mixture, mersalyl and salt free diet	3 days later—patient felt markedly improved. After the course, patient greatly relieved of breathlessness and cough. Patient was happy pulse 90/min.	Except at the bases, the lung field clear. Cyanosis not detectable	Very little sputum, mucoid in character	70, 7,800/cm. 44, 52, 8, 6 25 mm. 1st hour	Relief of dyspnoea, cyanosis, cough may be to some extent due to rest, sedatives, and diuretic, salt free diet. But to a great extent relief was due to synermycin which cleared the bronchial tree of infection and improved, thereby, the vital capacity. Sulpha penicillin, though used earlier along with similar adjuvant therapy did not help the patients as they could not control the pulmonary infection satisfactorily
1 cap 6 hourly for 7 days.	Cod liver oil, Iron tonic and expectorant	Marked improvement. No breathlessness	Except a few moist sounds at the bases no other added sounds. No wheeze	Only about 1 oz. in 24 hrs. Mucoid in nature. No smell	65, 5,000/cm. 65, 30, 4, 1	Relief of symptoms and signs was due to control of infection. Penicillin administered outside, did not afford similar relief as it could not control the infection effectively

TABLE

Before Synermycin Treatment								
S. No.	Name, age, sex, date of admission	Complaints with duration	Relevant past history	Physical examination	Sputum in 24 hrs.	Blood picture Hb. % (Hellige) T.C., L.C., E.S.R.	Diagnosis	Treatment prior to synermycin
6	J., 38, F., 14-10-'58	Cough with expectoration: 10 yrs. more at night and during winter. Breathlessness on exertion: 1 year	Pneumonia: 12 years back	Slightly cyanosed somewhat emphysematous chest: Both bases vocal fremitus diminished, percussion note somewhat dull. Distant vesicular breath sounds with bubbling moist sounds	About 1/2 spittoon. Thick, yellow sputum, blood-tinged. Foul smelling	50, 7, 200/ cms. 60, 35, 2, 3, 44 mm/ 1st hour	Chronic bronchitis with emphysema	Penicillin and sulpha, with indifference of cough somewhat reduced; also the amount
7	P., 45, M., 3-1-'59	Cough with expectoration: 2 years. Pain right side of chest occasionally 2 years. Pain stabbing in nature right side, with temperature and rapid deterioration of health for last 3 months. Sputum increased in quantity	Nil relevant	Respiration shallow, hurried; clubbing of fingers. Tympanitic upper chest: <i>Right side</i> : tenderness lower part, percussion note distant, bronchial breath sound with moist sound lower part. <i>Left side</i> : D. pulmonary breath sound with some moist sound at base; Breath: foul his smelling. P: 104/ mm. T: 98.8° F. BP: 85/50 mm. Hg. X-ray chest: left lung a small area of mottling. Right side: An area of homogeneous opacity with signs of breakdown, midzone; lower zone—some mottling	About a 50 ful of sputum. Greenish-yellow, thick, pus very foul smelling. No A F B. growth of D. pneumoniae and N. catarrhalis	50 13,500/ cms. 66, 22, 8, 2 139 mm. 1st hour	Bronchiectasis with right sided lung abscess	Penicillin and sulpha and streptomycin not much improved either in expectoration or in subjective feeling
8	A., 50, M., 4-4-'58	Cough with expectoration and occasional hemoptysis 8 m.	Influenzal attack 1 yr. back following which hemoptysis treated with penicillin and streptomycin: X-ray chest: a pneumonic patch right lung near hilum	Right chest posteriorly bronchial breath sound with few crepitations and slightly diminished percussion note. X-ray chest: about a pneumonic patch extending outwards fanwise from the right hilum. Bronchoscopy examination: a rough elevation in the right middle bronchus. Biopsy shows round cell infiltration.	Mucopurulent with froth, blood-stained sputum. No foul smell. No A.F.D. on repeated examination	—	Non-tuberculous pneumonitis predisposed by (?) non-malignant growth	Penicillin and streptomycin treated outside with streptomycin and isonicotinic acid hydrazide

I—(Contd.)

Synermycin dosage and duration	Any adjuvant treatment	After Synermycin Treatment				Remarks
		Subjective evaluation	Physical examination	Sputum in 24 hours	Blood picture Hb. % T.C., D.C., E.S.R.	
1 cap 6 hourly for 7 days	Vitamins and Iodide mixture	Greatly relieved of cough, though not completely. Breathlessness however slightly improved	Vesicular breath sound with few crepitations at bases	Very small amount, mucoid in character. No smell	64, 8,000/ cms. 75, 16, 8, 1.	Penicillin and sulpha were not effective in eradicating pulmonary infection; synermycin was however effective
1 cap 6 hourly for 10 days	Vitamins I.V. glucose and calcium gluconate and vitamin C; stimulant	Markedly improved no chest pain	Temperature varying between 97° F 99° F right side chest: no tenderness; breath sound—bronchial. Few moist sounds: left side—occasional moist sounds; breath not foul smelling. Radiologically: regression of opacity	Less than 52 3 oz. mucoid with some yellowish tinge; no foul smell	52 12, 500/ cms. 68, 26, 6, 0	The patient showed some response but complete cure was not obtained. The duration of synermycin administration was for 10 days only; the patient had right sided lung abscess. Longer duration would have been very likely effective in producing complete cure
1 cap 6 hourly for 10 days	Vitamins	Cough abated, much improved	Clinically a few crepitations and vesicular breath sounds; radiologically: the extent of opacity about 1/3rd the original one	Scanty	—	Patient followed up for about 10 months keeping fit. Doing active work. Penicillin and streptomycin failed to control the infection

TABLE

S. No.	Name, age, sex, date of admission	Before Synermycin Treatment					Diagnosis	Treatment prior to synermycin
		Complaints with duration	Relevant past history	Physical examination	Sputum in 24 hrs.	Blood picture Hb. % (Hellige) T.C., D.C., E.S.R.		
9	M., 40, M.	Cough, ineffectual; husky voice. Cough more with at night disturbing sleep. Breathlessness, wheeze present: 10 days. Had exposure to cold, chill and fog which precipitated the present attack	An asthmatic on control with "Sedonal"	Right chest posteriorly: a few rhonchi only with prolonged expiration. Foul breath. X-ray chest: a patch of pneumonitis near the right hilum	Scanty thick, dirty colour, tenacious, AFB: -ve	85, 7,600/cmm 69, 28, 3. 0.	Non-tuberculous pneumonitis	Procaine penicillin expectorant mixture. No improvement
10	P., 55, M.	Cough, expectoration. Dyspnoea on exertion: 1 month following an attack of cold	Diabetes mellitus not controlled for last 5 years. Cough with expectoration for a few years more during winter	Cyanosis, neck veins prominent, emphysematous chest. Crepitations at the bases. Liver enlarged and tender. Pitting oedema on legs. P 110/min. X-ray chest: enlarged heart. Urine: 5% sugar	Yellowish 4th spittoon	—	Cor pulmonale with diabetes mellitus	Penicillin and insulin, and diabetic diet: salt free diet: 7 days not much improved

one case of lung abscess in a bronchiectatic lung, 3 cases of non-tubercular pneumonitis, one being associated with a bronchial (?) growth and one with rheumatic valvular disease and one case of post-operative pulmonary infection complicated with (?) segmental collapse. All the cases had courses of penicillin streptomycin and or sulphonamide earlier, but the response was far from satisfactory.

Synermycin was administered in the dosage of one capsule (250 mg.) 6 hourly after food for 7 to 10 days. The patients were examined before and after the course and special attention was directed to spotting any fungal infection. Full details of the trial have been embodied in a tabular statement (See Table I on pp. 612-619).

It will be seen that the results of treatment have been very encouraging. All the cases felt marked improvement on synermycin and the physical examination corroborated the subjective assessment. Cases of bronchiectasis with emphysema and of

I—(Contd.)

Synermycin dosage and duration	Any adjuvant treatment	After Synermycin Treatment				Remarks
		Subjective evaluation	Physical examination	Sputum in 24 hours	Blood picture Hb. % T.C., D.C., E.S.R.	
1 cap 6 hourly for 7 days	Vitamins	Cough relieved almost completely; no breathlessness. No foul breath	Clinically no abnormality. Radiologically lung fields clear except prominent bronchovascular marking right lung	Nil	55, 6,800/cmm. 65, 30, 4, 1	Patient used to take various antibiotics except synermycin haphazardly whenever any lung infection occurred
1 cap 6 hourly for 6 days	As before except penicillin	Cough abated greatly, breathlessness improved; oedema of legs disappeared	Few crepitations at lung bases. Urine sugar: 2%	Very scanty	—	Treatment of infection effectively is an important therapeutic measure in the management of cor. pulmonale, specially so when complicated with diabetes mellitus. The infection which was not controlled with penicillin responded to synermycin

cor-pulmonale could be cured of their disabilities; but the improvement observed with synermycin indicates that the therapy was successful. The case with lung abscess showed marked resolution but ten days' treatment was probably too short to produce complete resolution. The remaining cases of pulmonary infection showed complete clearance of the lung fields.

No untoward manifestations were noticed. Peripheral blood-picture did not show evidence of any toxic effect; the urinary findings did not reveal signs of kidney damage. Fungal infection which is usually very much dreaded in antibiotic therapy was not noted.

Conclusion.—Synermycin was found to be effective in the management of pulmonary infections that proved resistant to penicillin, streptomycin and sulphonamide alone or in combination. Synermycin is likely to play an important role in the treatment of chronic bronchitis and bronchiectasis, with or without heart failure and in lung abscesses.

No toxic effect was noticed in our series of cases treated with the drug.

Acknowledgement.—Our thanks are due to the Superintendent, Assam Medical College Hospital, to the House-staff of M.W.II and also to Mr. P. Sarma of M's. Chas Pfizer & Co. Inc., who supplied the drug for therapeutic trial in this study.

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A NEW TREATMENT FOR OSTEOMYELITIS: EXTREMITY PERFUSION WITH ANTIBIOTICS

Dr. R. F. Ryan and his colleagues of the Department of Surgery, Tulane University School of Medicine, New Orleans, report on a new technique (isolation-perfusion). Most of the causative organisms in chronic osteomyelitis are resistant to the commonly-used antibiotics. If the bacteria are sensitive only to antibiotics which produce systemic toxicity, such treatment must be modified or withheld. Yet this systemic toxicity can be avoided or minimized by the use of the isolation-perfusion technique. This has been demonstrated repeatedly in the treatment of malignancies with chemotherapeutic drugs.

Animal experiments were begun in 1957 to determine the maximum amount of various antibiotics possessing systemic toxicity that could be administered by the isolation-perfusion technique. This report comprises a summary of these animal experiments and a case report in which these techniques were used for the administration of massive doses of bacitracin and chloromycetin in a case of chronic osteomyelitis.

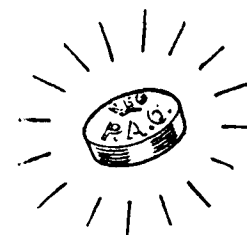
A 37 year old male sustained a fracture of the left femur at age 7, following which he developed intramedullary osteomyelitis. Multiple sinus tracts formed, but eighteen months following fracture the patient was ambulated. Ten years later, at the age of 17, he refractured the left femur and again multiple sinus tracts developed. Although the fracture healed after a period of immobilization, draining sinus tracts have persisted for the past twenty years. On July 21, 1958, and again on August 14, exploration of the sinus tracts and saucerization of the proximal and midportions of the femur were performed. However, the tract over the medial femoral condyle persisted.

On December 8, 1958 an isolated perfusion was performed on the left lower extremity. Cannulae were placed in the left common femoral artery and vein following heparinization of the patient, and the cannulae were connected to a pump-oxygenator circuit. Bacitracin in a dosage of 3000 units/kg. body weight and chloromycetin in a dosage of 65 mg./kg. body weight were added to the perfusate and perfusion continued for thirty minutes. Following perfusion the cannulae were removed and the artery and vein were repaired. Saucerization of the distal left femur was performed and the incisions closed. Post-operative healing was uneventful and there has been no evidence of recurrent osteomyelitis to date (April 1959).

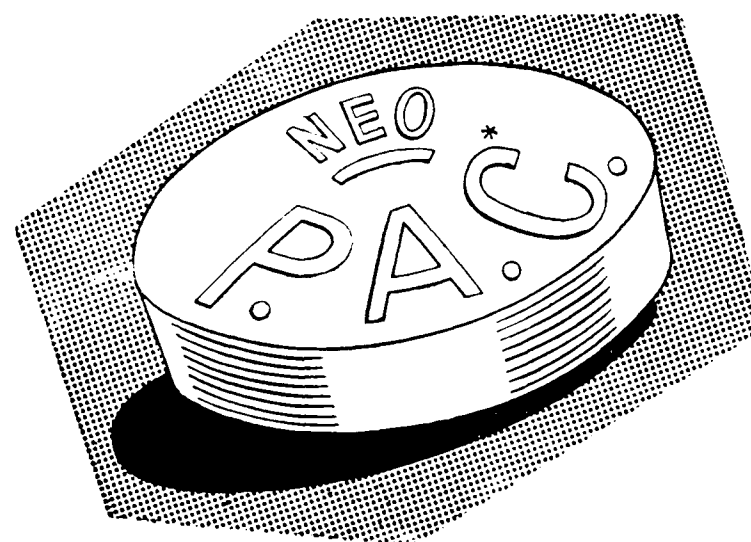
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TOXICITY TO CHLORAMPHENICOL*

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THE following toxic reactions have been observed during chloramphenicol therapy:—

A. HAEMOPOIETIC SYSTEM:—(1) Aplastic anaemia; (2) hypoplastic anaemia with secondary thrombocytopaenic purpura; (3) agranulocytosis; (4) purpura; (5) a reduction of platelets, accompanied by a fall in both erythrocytes and granulocytes and (6) a fall in platelets, accompanied by granulocytopenia without anaemia.

B. CARDIOVASCULAR SYSTEM:—Peripheral vascular failure.

C. ALIMENTARY SYSTEM:—Gastro-intestinal disturbances.

D. EXCRETORY SYSTEM:—(1) Toxic haematuria; and
(2) toxic haemoglobinuria.

E. METABOLIC:—Abnormalities of iron-metabolism.

Introduction.—Chloramphenicol is considered by most workers as a potentially dangerous drug, capable of producing severe bone-marrow depression. Great caution has therefore, been suggested. It should be used only in circumstances in which specific indications exist and the beneficial effects of the drug outweigh the potential hazards of bone-marrow depression. Its toxic effects on the bone-marrow in rare individuals are considered as "sensitization" reaction.

Four cases of advanced cancer were given chloramphenicol orally. The dosage was increased gradually until the maximum tolerance-dose was reached. They were watched carefully for toxic manifestations and the following observations were noted:—(a) the tongue became reddened, oedematous and painful. The buccal and pharyngeal mucosa were similarly affected; (b) with a high dosage, nausea and vomiting occurred; (c) reticulocytopenia (a fall in the reticulocyte count) was the earliest sign of bone-marrow intoxication; and (d) haemoglobin level decreased. In one case, there was leucopenia, reticulopenia, thrombocytopenia and anaemia.

Whenever the drug is exhibited, the blood picture must be followed closely. Chloramphenicol is not indicated for minor infections and in diseases for which other antibiotics will be found equally satisfactory. It should never be used as a prophylactic. Pickard and Rosenblatt have reported the case of a man, 57 years of age, who noticed red spots on different parts of the body and

*Presented at the Joint Conference of Specialists, 1959, Jaipur, during the Symposium on "Antibiotics."

Specially contributed to the ANTISEPTIC.

[621]

gingival bleeding. On examination, his blood-pressure was 140 and 80 mm. Hg.; pulse 78/m and regular; E.S.R. 29 mm Hr. Peripheral blood smear and bone-marrow showed hypoplastic anæmia with pancytopenia. He has been receiving chloramphenicol for bladder infection intermittently. In order to deal with the complication, blood transfusion, penicillin, corticotropin, and vitamins were administered. However, his leucopenia, neutropenia, and thrombocytopenia persisted, and ultimately he died of profuse gastro-intestinal hæmorrhage.

Kenneth Watson has observed that chloramphenicol is unable to pass the (human red) cell-wall-barrier in active form, in the concentrations employed.

Aplastic anaemia:—Pickard and Rosenblatt have reviewed 33 cases of chloramphenicol poisoning. The patients are sensitized by the first course of the drug and subsequent exhibition of chloramphenicol produces damage to the organs sensitized, especially the hæmopoietic system. Extreme fatigue occurred in severe cases as a prodromal symptom. The presenting symptoms in most cases were petechiæ, purpuric spots and epistaxis. In the majority of cases, gastro-intestinal or cerebral hæmorrhage was found to be the cause of death. The amount of drug given, the period of administration of the drug, and the time taken for symptoms to develop after the last dose of the drug was taken, had no significance on the course of the disease. Symptomatic measures of treatment included whole-blood transfusion, hæmatics, vitamins; occasionally cortisone, ACTH and testosterone were also used.

Peyman reports a case of pernicious anæmia in a woman of 65, who was treated with chloramphenicol for urinary infection. The patient subsequently developed aplastic anæmia and died 5 months after the second course of the drug.

Hypoplastic anaemia:—Thompson and Rowe have reported a case of hypoplastic anæmia with secondary thrombocytopenic purpura, following chloramphenicol therapy. A woman of 48 received the drug on six occasions, of short duration each, over a period of 2 years. She suddenly developed petechial hæmorrhages with rapidly increasing generalized malaise. Investigations yielded the following findings:—Thrombocytic count 26,000; erythrocytes 2,84,000; hæmoglobin 10.2 g.; W.B.C. 4,500 cmm.; normal differential count; clot retraction-time negative in 24 hours; marrow picture was that of secondary thrombocytopenia (*viz.*, diminished cellularity, markedly diminished megakaryocytes); serum-proteins 5.5 g.; (alb. 3.8; glob. 1.7); serum calcium 10.1 mg.%; alkaline phosphatase 3.0 Bodansky units. Blood Wassermann was negative. There were no pathological changes noted in X-rays of the long bones.

Six blood transfusions, ACTH intravenously 30 mg. daily for 5 days followed by 50 mg. cortisone orally twice a day for a week, and massive doses of vitamin B; liver extract and vitamins were given. Bone-marrow depression persisted and the patient died 8 months after the onset of the illness, showing that even relatively small and intermittent doses of chloramphenicol can produce marked and irreversible change in the hæmopoietic system of a susceptible individual.

Thrombocytopaenic purpura:—A five-year old boy was given 60 minims of chloromycetin palmitate three times a day for symptoms of whooping cough. After taking 2 ounces, he developed widespread purpura; temperature was 101.2 F; tachycardia with occasional extra-systole was noticed: WBC count was 13,500 cmm. with a differential count of P. 32; L. 64 and M. 4; platelets were 5,000 cmm. Bleeding time was below 10 minutes. Chloramphenicol was discontinued, penicillin was given intramuscularly and the patient recovered. It would appear therefore, that chloramphenicol given to a child for 7 days should not exceed 100 mg. per kg. of body weight per day.

Changes in iron-metabolism:—Rubin, Weisberger, and Botti have spoken about alterations in iron-metabolism during the early stages of chloramphenicol toxicity. Abnormalities of iron-metabolism were observed to precede the onset of anæmia. Delay in the disappearance of iron from the plasma, appearance of radioactivity in the reticulo-endothelial system, and failure of radioactivity to appear in the circulating erythrocytes for 8 or more days were noticed. The plasma iron-binding globulin was found to be highly saturated with iron.

Case reports.—Haematuria and haemoglobinuria during chloramphenicol therapy.

CASE 1:—D., female, aged 7 years, was admitted on 29-10-'58 with complaint of continuous fever with rigor of 5 days' duration. During the last 3 days of the illness, she passed reddish-coloured urine. On the night before admission she passed a tarry motion and was also delirious. Prior to admission she was put on chloramphenicol by a general practitioner. On admission the patient was semiconscious; her temperature was 104 F, pulse 130/m., volume and tension fair, rapid but regular; no neck rigidity; was not apparently anæmic, nor jaundiced. Blood-pressure was 95 and 60 mm. Hg; abdomen scaphoid, moving with respiration, liver palpable 2 fingers' breadth. soft and not tender; spleen not palpable and no free fluid in the abdomen. The cardiovascular and respiratory systems were normal.

Laboratory investigations:—*Urine*—frank hæmaturia; R.B.C. —1.5 m cmm., W.B.C.—21,800 cmm. *Differential count*:—P. 56, L. 44; bleeding-time was 5 minutes; clotting time was 3 minutes;

Prothrombin-time was 21 seconds. Platelet count—2.16 lakhs/cmm.; mean corpuscular volume 145 cub. mic; mean corpuscular Hb. 36 micro-micrograms. Colour-index 1.2; mean corpuscular Hb. conc: 25%; Hb. g. 8%; clot retraction time was normal within 24 hours, serum proteins—6.4 g. % (alb. 3.3 g. %; glob. 3.1 g. %); vanDenberg—negative; icteric index—3 units; thymol turbidity 5 units; fragility test: lysis began at 0.44% and was complete at 0.34%; blood-urea was 32 mg. %. Peripheral blood smear showed a general picture of macrocytic hypochromic anaemia, marked anisocytosis (numerous erythroblasts, mostly normoblasts and a few megaloblasts), fairly marked leucocytosis with a good percentage of myelocytes but no earlier forms. The picture was one of leukæmoid reaction. There were no malarial parasites. Spectroscopic examination of the urine showed bands of oxyhæmoglobin. Intravenous pyelogram revealed no gross pathology.

TREATMENT AND PROGRESS:—Clauden intravenously, dicrysticin intramuscularly, cortisone 2 cc. intramuscularly; vitamin C 500 mg. intramuscularly; Mist. Pot. citras; and finally blood transfusion 150 cc. followed a week later by 350 cc. 'B' group were given. The patient became less toxic, was slightly jaundiced, her urine continued to be cherry-red in colour but showed no bile salts or pigments. The temperature rapidly returned to normal. Certain hæmatological tests were repeated. RBC count was 3.1 m cmm.; blood smear showed a practically normal picture except for slight macrocytosis and an occasional normoblast with moderate leucocytosis. No immature leucocytes were seen. 18 days after admission, the urine became normal. The patient was discharged on 23-11-1958. A diagnosis of toxic hæmaturia following chloramphenicol was made.

On 15-5-1959 the patient was readmitted for a check-up. The following investigations were carried out with the results noted:—R.B.C. count 3.2 m cmm., W.B.C. count 6,500/cmm.; Hb. 11.5%; Differential count:—P. 52, L. 46, E. 2; packed cell volume 24%; E.S.R. 18 mm/hour; platelet count 1,82,000/cmm.; reticulocyte count 22,400/cmm. (0.7%); colour index 1.1; volume index 0.85; mean corpuscular volume 72 cub mic; mean corpuscular Hb. 35 micro-micrograms; mean corpuscular Hb. conc. 38%; blood-tibial puncture was done and the marrow smear revealed:—Myeloblasts 5%; premyelocytes 4%; myelocytes 6%; eosinophilic metamyelocytes 3%; neutrophilic metamyelocytes 6%; basophilic metamyelocytes 0%; band neutrophils 9%; segmented neutrophils 18%; lymphocytes 9%; eosinophils 3%; megakaryocytes 0%; plasma cells 1% and reticulocytes 0%. The normal

myeloid-erythroid ratio of about 4:1 was altered to 1:1 indicating hyperplasia of erythrocytic elements. The megaloblasts and erythroblasts were increased three times and two times their maximum normal percentages, respectively.

CASE 2.—S., male, aged 20 years, was admitted on 31-12-58 with complaint of fever for 4 days. For this he was given 8 tablets of Irgaphen and 8 capsules of chloramphenicol by a general practitioner. Subsequently he passed high-coloured urine. On admission, he looked anæmic, slightly jaundiced, tongue dry and coated, abdomen tender over left iliac fossa; liver and spleen palpable 2 fingers' breadth, soft and tender. He passed high-coloured urine; his temperature was raised; his B.P. was 108 and 70. mm Hg.

Laboratory investigations:—Urine showed no albumin, no bile salts or pigments, but deposits were granular and epithelial casts. Spectroscopic examination revealed an oxyhæmoglobin band. Motion showed macroscopic melena. R.B.C. count: 3.9 m/cmm.; Hb. 66%; W.B.C.: count 10,300/cmm.; Differential count: P. 51; L. 17; E. 7; M. 3; neutrophil myelocytes 19; metamyelocytes 1 and abnormal lymphocytes. 2. Platelets 1,60,000/cmm. Bleeding-time was 1 minute, coagulation time was 3 minutes; plasma proteins were 6.83 g. % (alb. 4.1, glob. 2.7); alkaline phosphatase 5 units; vanDenberg was direct immediate positive; icteric index showed 51 units; thymol turbidity 2 units; peripheral blood smear: R.B.Cs. showed marked hypochromia, slight anisocytosis and poikilocytosis; leucocytes showed a considerable number of neutrophil myelocytes and a few erythroblasts; no malarial parasites were seen. Platelets were normal in number but were of large size. Blood for Widal was negative.

TREATMENT AND PROGRESS:—The patient had Achromycin 100 mg. as intravenous drip, glucose with vitamin C intravenously, and blood transfusion 'A' Group. The urine became yellow in colour on the 8th day, the liver continued to be palpable for sometime, jaundice completely disappeared on the 7th day of his illness, and the temperature touched normal on the 2nd day. The patient was discharged from hospital on 13-1-1959. A diagnosis of toxic hæmoglobinuria due to chloramphenicol was made.

The patient was readmitted on 24-3-1959 and the hæmatological tests were repeated with the following results:—R.B.C. 4.3 m cmm.; packed cell-vol 33%; Hb. 10 g. %; mean corpuscular vol. 80 cubic microns; mean corpuscular Hb. was 25 micrograms; mean corpuscular Hb. conc. was 30%; colour index was 0.82; volume index 0.9; saturation index 0.91; Aver. diameter of erythrocyte 7.4 microns; W.B.C. 7,200/cmm. Differential count:—P. 70, L. 22, E. 8; platelet count 3,20,000/cmm., reticulocyte count 32,250/cmm. (0.75%); E.S.R. 16 mm. hour; a

sternal puncture was done and the bone-marrow picture revealed the following: Myeloblasts 4%; promyelocytes 6%; myelocytes 13%; metamyelocytes (neutrophilic) 13%; metamyelocytes (eosinophilic) 1%; metamyelocytes (basophilic) 0%; band neutrophils 11%; band eosinophils 0%; segmented neutrophils 28%; segmented eosinophils 2%; segmented basophils 0%; lymphocytes 1%; monocytes 0%; megaloblasts 2%; erythroblasts 8%; normoblasts 10%; megakaryocytes 0%; plasma cells 0%; and reticulocytes 0%. The normal myeloid-erythroid ratio of about 4:1 was maintained in the smear. There was no erythroid hyperplasia. The picture appeared normal.

Conclusions.—As early as 1950-1952, it was observed that the administration of chloramphenicol resulted in the development of aplastic anaemia and pancytopenia. There was however, no increase in the frequency of blood dyscrasias in 8 million Americans who received chloramphenicol prior to 1953. In addition Welch, Lewis, and Kerlan stated that the frequency of haemopoietic depression related to chloramphenicol was low. The deleterious action of the drug has ranged from fatal aplastic anaemia to minimal marrow-depression.

Hypoplastic anaemia with secondary thrombocytopenic purpura, alterations in iron metabolism, thrombocytopenic purpura and aplastic anaemia have been encountered as haematological abnormalities during chloramphenicol therapy. In addition, pancytopenia, agranulocytosis and gastro-intestinal disturbances have been observed.

I have also seen a few cases of peripheral vascular failure terminating fatally, with small doses of chloramphenicol given in conditions which lacked indication. Two cases of toxic haematuria and haemoglobinuria following chloramphenicol are reported.

Chloramphenicol should never be given in those mild infections where other drugs would prove effective. And chloramphenicol should *never be used prophylactically*.

Acknowledgement.—I thank the Secretary of the Association of Physicians of India for permission to utilize the case records. My thanks are also due to Dr. V. S. Meenakshi, M.D., Physician, Government Erskine Hospital, for allowing me to study Case No. 2 and I am grateful to Dr. T. D. Mohannathan, M.B., B.S., Pathologist, Madura Medical College, for the haematological reports.

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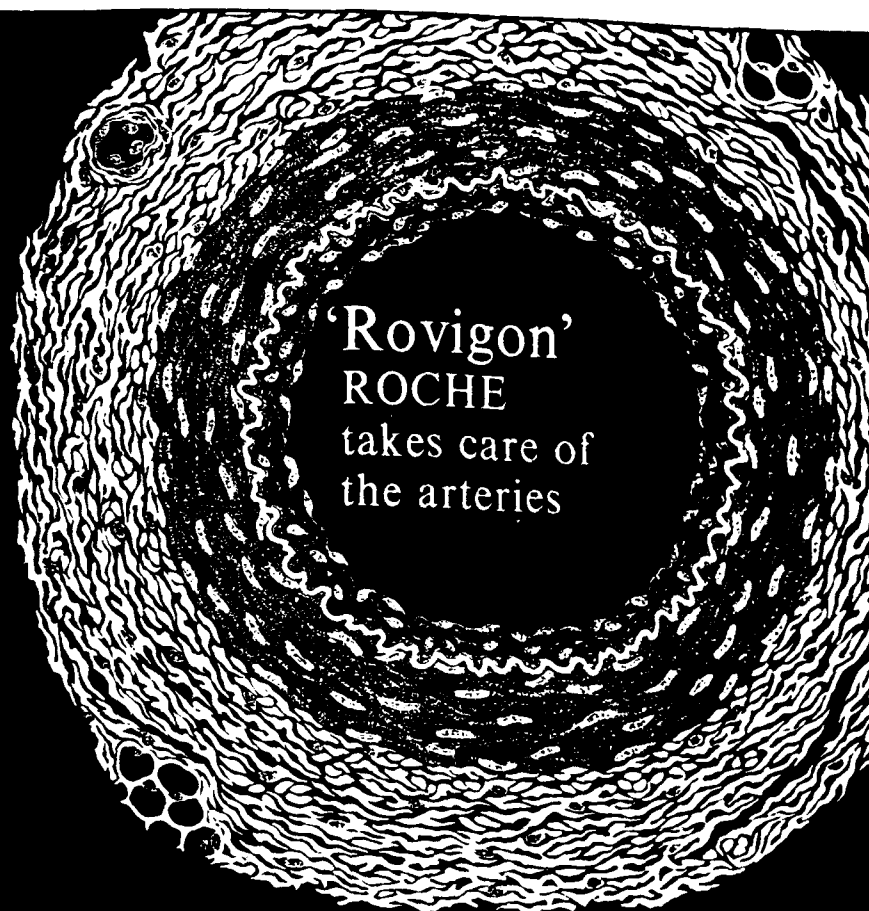
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TETRACYCLINE-THERAPY IN LUNG ABSCESS*

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A BRIEF review of the history of the therapy of lung abscess reveals that prior to 1940, the treatment of pulmonary abscess by either medical or surgical means was highly unsatisfactory. The mortality-rate with either type of therapy was around 35% and the patients who survived were chronically ill, in many instances for prolonged periods¹. Medical therapy consisted of supportive measures and measures to promote bronchial drainage. An occasional patient seemed to respond to arsenicals. Surgical therapy consisted of external drainage, artificial pneumothorax, thoracoplasty or resection. These procedures were often complicated by empyema, brain abscess, extension of infection and a high operative mortality-rate.

In 1938, Neuhof and Touroff² began to report good results obtained from external drainage of the acute uncomplicated putrid lung abscess. By 1945, they had treated 172 cases with extremely low mortality of 2.3%. This was probably the first real advance made in the treatment of lung abscess.

There remained, however, the chronic or complicated lung abscesses with extensive pulmonary fibrosis bronchiectasis and multiloculated cavities for which there was no effective therapy.

When sulphonamides became available, they were tried but found to be of doubtful value. The advent of penicillin, marked the second major advance in treatment. Both acute and the chronic abscesses were treated with it.

It has been generally stated that when antibiotic therapy was ineffective in curing the patient, this was due to inability to maintain bronchial drainage or to the development of resistant microorganisms. With the introduction of streptomycin and other broad-spectrum antibiotics, we were provided with the means of treating those patients in whom resistant organisms developed during treatment.

The results obtained in the medical treatment of acute lung abscesses have been good, with up to 90% cure rate. Chronic lung abscesses have also been more successfully treated, with fewer complications, less morbidity and fewer deaths. Problems in therapy however still exist, empyema and bronchopleural fistulae sometimes occur postoperatively and post-operative pain is often distressing, to say nothing of the expense involved and also the risk and discomfort of surgery. In many instances, pulmonary function is reduced as a result of resection, and there

*Specially contributed to the ANTISEPTIC.

are some patients who refuse surgical therapy, particularly when they are feeling improved on medical management.

It is because of these disadvantages of surgery and because of some rather impressive results obtained from medical treatment of chronic pulmonary abscesses that it was decided to study further the medical management of such cases with Achromycin (Tetracycline brand of Lederle).

Clinical material.—Eleven cases of lung abscesses admitted in S. M. S. Hospital, Jaipur, were selected for Achromycin therapy given as one capsule four hourly.

TABLE I

No.	Name	Age in years	Sex	Duration of abscess	Site of abscess	Sputum culture	Clinical cure time in days	Total cure-time in days
1	C. K.	37	M	10 days	Left upper and midzone cavitation with fluid level	Staphylococci grown	13 days	33 days
2	H. L.	40	M	2½ months	Left midzone	Staphylococci and Friedlander's bacilli	5 days	26 days
3	S. L.	32	M	2 months	Right upper-zone	Staphylococci	9 days	52 days
4	U. S.	20	M	25 days	Right lower zone	Streptococcus viridans and staphylo-pyogenes	6 days	82 days
5	N. R.	35	M	10 days	do	do	3 days	53 days
6	J. K.	38	M	3 months	Right upper zone	Candida albicans	12 days	31 days
7	D.	25	M	3 months	Left lower zone	Friedlander's bacilli and staphylococci	12 days	27 days
8	K.	50	M	2 months	Left mid and lower zone	Staphylococci and N. catarrhalis	17 days	92 days
9	B. D.	48	F	2½ months	Left upper and mid zones	Staphylococci and candida albicans	27 days	76 days
10	S. N.	40	M	6 months	Both lower zones	Streptococci and Friedlander's	16 days	36 days
11	N.	40	M	5 months	Rt. mid-zone	Strepto-pyogenes	27 days	67 days

They were followed till their clinical and/or total cure. The term clinical cure is used to designate the minimum duration of therapy required to reverse all signs and symptoms of toxicity, to diminish sputum output to less than 30 cc. daily and to produce the first perceptible roentgenographic evidence of clearing. Total cure-time indicates the clinical cure-time plus the time required to produce complete roentgenographic clearing with the

exception of minor non-infectious fibrotic residues and other irreparable anatomic changes such as emphysema or atelectasis due to permanent fibrosis.

Observations.—The effectiveness of therapy can be judged from the febrile response, decrease in toxæmia and leucocytes and weight-gain; the quantity of sputum progressively diminishes and the cough is less severe, the appetite is improved and also the anæmia.

Discussions.—The results obtained with medical management are of considerable interest and value, for Brock¹ (1948) reported that acute lung abscess was an essentially surgical disease with medical management to be used only as an expectant temporization. Further Sweet⁴ (1950) expressed the opinion that surgery should be performed early. Now the pendulum is definitely swinging to the belief that acute uncomplicated lung abscess is primarily a medical disease.

Organisms responsible for primary pulmonary abscess, in general, are staphylococcus aureus, staphylococcus albus, spirochates, fusiform bacilli, vibrios, anærobic gram-positive cocci, m. catarrhalis and candida albicans. With the increasing number of available antibiotics, experience suggests that all primary pulmonary abscesses, regardless of duration, can be managed medically. The availability of broad-spectrum antimicrobial drugs has made it possible to cure lung abscesses in a relatively short time without the need for surgery.

The demonstrated fact that gram-negative as well as gram-positive organisms were susceptible to Achromycin suggested that a therapeutic effect might be achieved in chronic pulmonary abscesses superior to that obtained with the administration of penicillin.

Gittens and Mihaly⁵ reported that in a number of their cases, they were successful in effecting a cure of an abscess with tetracycline in cases in which penicillin had apparently failed. In some of our cases, e.g., U.S. (See Table I, p. 628) penicillin was given a fair trial for a sufficiently long time with almost negligible results, but when we switched over to tetracycline therapy, clinical as well as total cure was achieved. Wolcott and Murphy⁶ used broad-spectrum antibiotics. In their series, it was shown that mortality and morbidity both decreased with tetracycline as compared to penicillin treatment, the average period for hospitalization with penicillin was 4.2 months and with the tetracyclines it was 3.2 months; with penicillin, the mortality came down to 17.2% while with tetracycline the mortality rate was zero. In our series of cases, all cases had clinical as well as total cure. In some of the cases total cure could be achieved in nearly three months. For this series, difficult cases were chosen.

Even then, the longest hospitalization period was 92 days (in K., Case No. 8, *See Table I*, p. 628) Gittens and Mihaly were also of this opinion that tetracycline, because of its greater antimicrobial range, seems to succeed more often than penicillin. With tetracycline, the response in very critical patients was so spectacular and impressive that it seemed to be the drug of choice for uncomplicated lung abscess. In the experience of Brindaban⁸ with penicillin therapy many of the cases became chronic and required surgery, while with tetracycline, all were cured and showed remarkable clinical and roentgenologic healing.

Chandler and Co-workers⁹ (1949) reported a patient with multiple lung abscesses which responded to tetracycline, while penicillin, streptomycin and the sulpha drugs, did not alter the course. Gruber and associates¹⁰ (1950) also described a case of an infant with multiple cavities which showed an impressive response under a combination of streptomycin and tetracycline, with sterilization of the sputum and a closure of the cavities. Case No. 4, U.S., (*loc cit*) in our series, was given penicillin therapy initially but his condition rapidly deteriorated, hence tetracycline was started and in 82 days, a total cure was achieved. King and his group¹¹ demonstrated the beneficial effect of the tetracycline group of drugs on two patients with lung abscesses, who showed radiological evidence of healing after failure to heal with penicillin and sulphonamides.

The clinical effectiveness of Achromycin related not only to its widespread bacterial inhibition but also to the fact that it is excreted in small amounts in the sputum across the bronchial barrier which is quite in contrast to that of penicillin which is not found in the sputum after parenteral administration.

Coagulase-positive strains of hæmolytic *M. pyogenes* var. *aureus* are sensitive to Achromycin but highly resistant to penicillin. According to Chandler and his associates¹², tetracycline eliminates the penicillin of quality producing resistant strains of *M. pyogenes* var. *aureus*, rendering them thereby sensitive to penicillin.

An approach to this problem, as suggested by Barach, may be the development of a basic penicillin regimen interrupted by brief periods of Achromycin therapy. This method ingeniously harnesses the natural antagonism of the bacterial groups, first allowing the gram-negative organisms to aid in the elimination of their gram-positive antagonists already belaboured by penicillin, and then conquering the conquerors through Achromycin.

The use of a broad-spectrum antibiotic like Achromycin, is advisable to counteract the invasion with gram-negative bacteria or penicillinase-production in the event of failure of adequate benefit from penicillin alone.

Conclusion.—In our institution, before the trial of Achromycin in this series of cases, penicillin therapy was given as a routine in cases of lung abscess. It is our impression now that cases in the present series required much less hospitalization, their recovery was uncomplicated and a cure was achieved earlier and in a larger percentage of cases.

Acknowledgement.—We are thankful to Messrs. Lederle & Co. for the generous supply of Achromycin for this trial. We thank Dr. K. C. Kotia for his help.

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MANAGEMENT OF HYPERTENSION AND ANXIETY NEUROSIS

Deserpidine is an alkaloid from *Rauwolfia serpentina* similar pharmacologically and clinically to reserpine but differing from it by the absence of a methoxy group at the 11 position e.g., Harmony (Abbot Laboratories).

Since the *Rauwolfia* alkaloids appear to have such a varied action, it is possible that one or more analogues may prove superior to others in controlling hypertension or anxiety without some of the disabling collateral ergotropic effects seen with the whole powdered root or reserpine. From our own clinical observations it would appear that deserpidine is the most desirable compound among those presently available. It apparently induces a satisfactory reduction of anxiety, psychic reactivity, and arterial hypertension without burdening the patient with intolerable side-effects often seen with the other alkaloids.

1. A study of 40 patients (average age sixty-three years) treated with deserpidine is reported.
2. Diagnoses include hypertension in 30 cases, 19 with and 11 without symptoms of anxiety neurosis.
3. The usual dosage of deserpidine was 0.1 mg. three times daily after meals sometimes with an additional dose at bedtime. The average duration of treatment was five months.
4. All of the 30 hypertensive patients experienced a reduction in blood-pressure, the average fall being 33 mm. Hg. systolic and 14 mm. Hg. diastolic.
5. Of the 29 patients having symptoms of anxiety neurosis, 11 experienced complete relief and 10 partial relief.
6. Ten of the 11 patients who had previously experienced undesirable side-effects while under treatment with reserpine tolerated 0.3 mg. or more daily, but 1 tolerated only 0.2 mg. daily. Two patients on 0.3 mg. daily experienced a mild drowsiness, but this did not require stopping or reducing the dose.
7. It is concluded that deserpidine is an effective agent for the management of essential hypertension and anxiety neurosis. Benefit

appears comparable to that obtained by equal doses of reserpine, but there is a significant and worth-while reduction in the incidence of side-effects.—(*New York St. J. Med.*, 1-5-1959).

ACUTE INTESTINAL OBSTRUCTION

The high mortality attending the acute obstructions prompted a very avalanche of research which is now almost ancient history. As a result, the morbid physiology of ileus is reasonably well comprehended. Though there has been a steady decline in the overall mortality, in many places the death-rate from strangulation has not lessened, and some centres have actually recorded an increase.

The reason for this is all too obvious. It is a direct consequences of delay in identifying those types of obstruction that can be properly treated only by early operation.

Differentiation between the several forms of acute small bowel obstruction was formerly an academic exercise, since early surgical intervention was the rule in all varieties. Unfortunately, a simple surgical issue has been clouded by the success that sometimes attends the modern non-operative techniques of gastro-intestinal suction and intravenous fluid therapy.

Used in the correct circumstances—simple occlusion and paralytic ileus—these procedures may be effective and life-saving; they are quite ineffective—indeed, lethal—in strangulation, save as a part of the preparation for speedy operation.

It is unfortunate, perhaps, that even the patient with strangulation may be improved temporarily by suction and drip. This may appear to sanction delay in surgical intervention; but in the meanwhile the inexorable and inevitable progression to peritonitis and gangrene is not stayed, and ultimate recovery may be seriously jeopardized.

It is high time we revised our current practice. The diagnosis of strangulation is sometimes easy—the “shock” of volvulus or infarction, the tender irreducible external hernia are unmistakable. But small internal herniae—and, even more difficult, the strangulations round adhesions of a former laparotomy—may not differ significantly at the start from the simple occlusive obstructions. A constant area of abdominal tenderness instead of a generalized discomfort; rebound pain; and the persistence of pain between spasms of colic or despite suction are warnings that are too often ignored, with catastrophic consequences. No doubt the position would be improved by an increase in our diagnostic skill; but would it not be simpler to revert, after appropriate and purposeful pre-operative treatment, to our former policy of operation no matter what the type of the obstruction? Not only those with strangulation would benefit; for many simple occlusions also come to surgery, and often later than is desirable.

The modern “so-called” advances in the treatment of intestinal obstruction—suction, intravenous fluids and antibiotics—are in fact directed against the late effects of obstruction; early diagnosis and speedy operation could render their use unnecessary in a large majority of patients.

It seems that one of the deterrents to the acceptance of a policy of routine early operation is the difficulty of handling the distended coils of intestine, and the fear that splitting of the intestinal coats may occur when the support of the abdominal wall is withdrawn. In early cases the distension is largely gaseous, however, and this is obvious in “scout” films of the abdomen. Under these circumstances “deflation” by needle and suction, as recommended by Andrew Lowdon (1951), is a useful prelude to exploration, and an aid to other manoeuvres. With care, even liquid contents can be evacuated safely.—(*Proc. Royal Soc. Med.*, January 1959).

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1. R.C.V. Robinson, J.A.M.A., 157: 1300, 1955.
2. Kelly, V.C., Am. Pract. 7: 741, 1956



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Cases and Comments

CASE OF A LARGE HÆMATOMA OBSERVED IN VULVAR REGION AFTER NORMAL LABOUR

A Case Report

BIJOY KRISHNA KUNDU, M.B., B.S., D.T.M. & H. (cal.),

Vill: Masum-Chak, P. O. Dakshin-Moyna, Dist. Midnapur

Mrs. A. B., of Gangra, Dist. Midnapore, aged 22 years. 2nd para at full term started labour pains on 28-5-'59 at 11 P.M. The patient was attended by an unqualified rural practitioner. The progress of labour was normal, and at 10 A.M. on the following day she gave birth to a male child weighing 5½ lbs. naturally. Placenta was also delivered naturally. No instrumentation or manipulation was done and there was no excessive post-partum bleeding.

At 10 P.M. on that night (29-5-'59) the patient felt a pain over the right vaginal wall which increased in severity and made the patient restless. There was a slight increase in the bleeding. The attending practitioner gave her an intramuscular injection of 50 mg. pethidine, and also one of ergometrine but there was no relief of pain. A swelling was noticed on the right side of the vaginal orifice which gradually increased in size and intensified the pain.

On the morning of the next day 30-5-'59 I was called in to see the patient. Before my arrival the patient had received another injection of pethidine (50 mg.), an hour and half earlier.

During my examination the patient was sleeping. I ascertained that she had no injury during labour, no scratching by the finger nail and no history of any insect-bite during labour. The patient was not restless, and had no pain at that time. Her pulse-rate was 130 P.M.; respiration was 24 P.M.; her blood pressure 110/70 mm. of Hg., and her temperature was 98°4 F.

On palpating the abdomen, the uterus was in the normal position in which it should be after delivery.

On P.V. examination:—INSPECTION:—The vaginal cleft was almost closed, one rounded swelling near about a tennis-ball in size was found on the right side of the vaginal cleft. The colour of the swelling was reddish-black. A small bit of placental membrane was hanging from the vaginal canal. Blood was oozing as usual.

PALPATION:—The swelling was elastic and immovable on any side. Patient felt slight tenderness on pressure. No hotness, no fluctuation, no pulsation was present over the swelling.

Then I started internal examination. First I drew out the placental bit that came out easily. Then I introduced two fingers with much difficulty as the vaginal cleft was obstructed

by the swelling; the patient also felt pain. There was no vaginal laceration, coolis free, external os normal in position and admitted the tip of the finger and blood was oozing from the os. I thought that no other abnormality could be detected.

At that time I could not understand what the swelling was and what was the cause of the same. That the swelling might be a cellulitis resulting from insect bite during labour or by scratching by the nail of the patient herself or by an infection from the bedsheet or mattress during labour that is common in unclean rural areas. But no such history was elicited nor any other factor such as redness, hotness, tenderness or any temperature.

As the right labial (major) margin was not visible, I introduced my fingers again. The margin was felt inside the vagina about 2" away from the surface of vaginal opening, that had inverted in by covering the swelling. I everted the margin slowly and gradually and it was peeling off from the swelling just like removing the outer sheath of an orange to expose the inner substance; the whole labia majora was everted out from the swelling which was nothing but a large blood clot. The clot was located on the cleft between the labia majora and minora and came away without any trouble. After that the labia and vaginal orifice assumed their normal position, size and shape. I found no injury on the bed where the hæmatoma was, between the folds of labia majora and minora. No after-bleeding occurred from that area.

The hæmatoma was round in shape and 2" diameter in size. It was elastic. It bumped up on throwing on the ground just like a play-ball. On cutting it open, the inner surfaces were also elastic and had nothing but, blood and a small whitish membranous structure the size of a pea.

Summary.—The formation and location of such a big hæmatoma in the fold between the labia majora and minora after normal labour without any local injury is quite unnatural.

QUINIDINE THERAPY

Quinidine is effective in the treatment of paroxysmal and established atrial fibrillation and flutter, extrasystoles (atrial, nodal, and ventricular), paroxysmal atrial, nodal, and ventricular tachycardia, and ectopic rhythms resulting from digitalis.

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A TYPICAL CASE OF ACUTE OTITIS MEDIA

A Case Report

BRAHMDEV JAMWAL, M.B., B.S.,
Physician, Purani Mandi, Jammu

D., a male child, aged five was having severe pain referred to the right ear since the previous night, and also had some fever since that evening. The temperature in the morning when I saw him was 103°F and the pain in the ear though slightly less, still persisted. He had no sore-throat prior to the illness. The mother gave a history of a similar attack in the previous year, earache following fever and both subsiding abruptly after 2 or 3 days, without any treatment. Personal and family history revealed nothing abnormal.

Examination:—The patient was a well-nourished child lying in the bed with the affected ear up, and looked ill; conjunctiva injected; tongue healthy; no glands palpable in the neck. Liver and spleen not palpable; heart and lungs—normal; Pulse 140/min., regular, somewhat bounding in character; temperature 102.6°F.

Throat:—Tonsils moderately enlarged and hyperæmic; anterior pillar flushed; posterior pharyngeal wall markedly congested with engaged visible veins; tonsillar glands palpable, but not tender.

Ear:—Left ear, normal; right ear, no glands palpable; retroauricular sulcus present; external meatus normal; no furuncle or bulging of posterior wall visible; the ear drum was markedly congested all over. Landmarks barely visible; no localized areas bulging or discoloration; no perforation; no discharge.

Deafness tests:—(Watch and voice) equivocal because of his tender age; no mastoid tenderness or tenderness on movement of the pinna.

DIAGNOSIS:—In view of the age, symptoms of pain in the ear with fever and typical signs in the ear, along with the history of such attack a year ago, the case was diagnosed as one of acute otitis media. Ulcers in the oral cavity and pharynx, acute tonsillitis, acute sinusitis etc. which may be attended with pyrexia were readily ruled out by the typical appearance of the drum membrane, the lack of any supportive finding and early resolution of previous attack without treatment.

TREATMENT:—1. Streptopenicillin (3 lakhs procaine penicillin with 0.5 g. dihydrostreptomycin) one ampoule daily was given for 3 days intramuscularly.

2. R Aspirin gr. v; Phenacetin gr. iii; Caffeine gr. iii; Dover's powder gr. 1½; one powder *stat* and *s.o.s.*

The boy was given plenty of liquids by mouth, including lemonade, tea, milk and glucose water; diet, *kichri*; he was asked to report if there was any further trouble.

The patient was much better on the same evening, the temperature having fallen to 100 F, and the pain had practically stopped. He was completely relieved of his trouble on the next day.

The parents were advised to seek hospital consultation, if the removal of tonsils at a later date was found necessary.

Discussion.—Acute otitis media is not an infrequent entity in children. Errors in diagnosis are often due to the diverse modes of presentation, like gastro-enteritis, convulsions, high grade pyrexia with few aural symptoms, to start with. An examination of the ear would clinch the diagnosis for a bulging fiery red drum-membrane is always found in this condition.

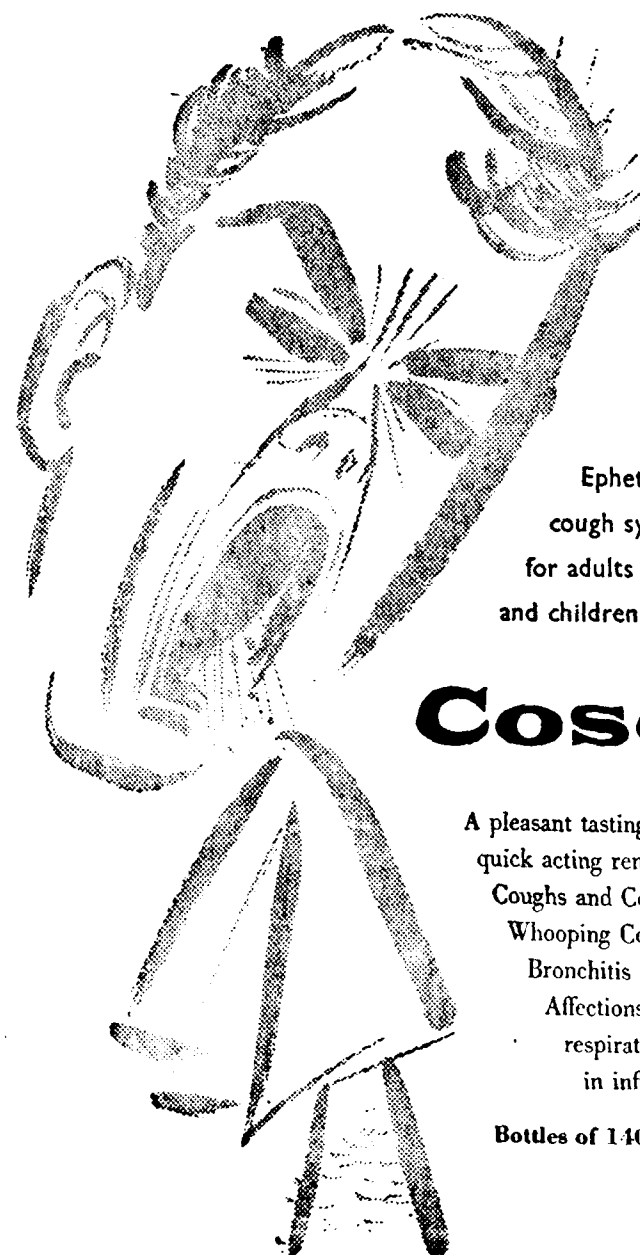
Response to antibiotics is satisfactory in most patients; it is advisable to withhold sulphonamides in otitis media (acute and chronic) and its complications, as a "masking" effect may be produced by their administration. Surgical intervention (paracentesis or mastoidectomy) may sometimes be necessary. The patient should be referred to a specialist or to a hospital if antibiotics fail to relieve the condition; and there is an increase in pain and pyrexia and mastoid tenderness appears in spite of the treatment; if there is a sudden increase in deafness in spite of relief as regards other symptoms; if there is mastoiditis with abscess, i.e., localized bulging and "softening," (appearing as a white dot) of the drum membrane; and if there are any complications like facial palsy, venous thrombosis, intracranial suppuration appear.

The elimination of the cause by suitable methods is very important, as otherwise recurrent attacks would lead to chronic otitis media with otorrhœa, perforation and deafness.

Summary.—A typical case of acute otitis media is presented. The gratifying response with antibiotics should not deter the practitioner from being on the look-out for any contingency requiring surgical interference.

EDWARD JENNER: AS PROFESSOR

Long before he was called to the royal bedside at Windsor Castle, Jenner had a very large practice, and in the wards of University College Hospital, no student ever forget his terse dogmatic sentences and his on whose case he was lecturing, and not from the sick patient and even though he had been kept late for his demonstration and the students had departed for lunch, he talked as well to a handful as to the whole class. He was never slack, or lenient, or vague. As he spoke slowly, from notes made on the backs of envelopes, the students could write down everything; facts, not cobwebs of theory, facts only, but once Jenner had spoken they were memorized for ever.—(Williams).



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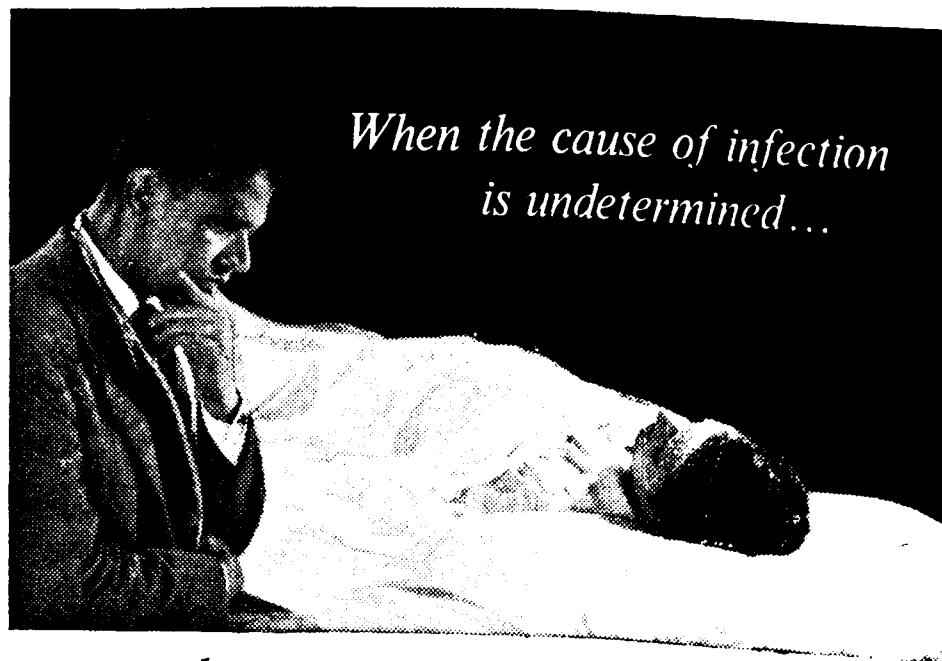
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Editorials

RADIATION HAZARDS FROM 'FALL-OUT'

(Case for Ban on Nuclear Tests)

A STUDY of the impact of science on human affairs reveals that discoveries and developments are continually challenging the capacity of the human race to make the fullest, and best use of them. Especially since the Second World War, less than twenty years ago, there has been a bewildering complexity of discoveries and inventions which are continually posing new problems for social, psychological and organizational consideration and solution. Scientific research and discovery are exercising ever-increasing, and in some cases dominant, influences in changing human institutions and industrial concerns, and in turn bringing to the fore fresh and difficult problems.

Shri JAWAHARLAL NEHRU, India's Prime Minister, inaugurating the session of the Indian Science Congress early this year wondered "whether the discoveries which have been made have brought them to the twilight of their civilization, or whether they represent the dawn of a new civilization, the birth-pangs of a new life," and went on, that being an optimist he felt that the second was correct. Yet also asked "whether it is necessary that the pursuit of truth should always be tied in with the pursuit of hatred and violence? There are two ways of doing things, and the choice has to be made in this generation lest all the majesty of science should go the wrong way, when it is open to people now to decide, and the decision seems not so difficult to make." The scientist of today is therefore, placed between two very powerful and compelling forces, one trying to utilize the basis and results of discoveries made for the good of humanity, and the other being equally concerned and equally eager to utilize the

discoveries for purposes which can only lead to the destruction of the human race, with consequences too staggering even for imagination.

Radio-isotopes have been used in the field of industry, biology, biochemistry, and medicine. Leaks in water mains underground, and pressurised cables can be located by adding small amounts of radio-active materials which can be detected when they escape. Radio-isotopes are proving indispensable in biochemistry, for example, penicillin has been made active, and its movement observed in the body of animals. Great progress has also been made in the treatment of surface cancers.

The destructive aspect of the Atom bomb has created a new feverish development and unenviable competition amongst nations, particularly U.S.A., Russia and Great Britain. Since the first H-bomb was exploded (six years after the terrific Hiroshima explosion) the testing of bombs has gone on until over 200 explosions have taken place till now and they have "scattered into the earth's atmosphere ninety million tons of radio-active materials, or fall-out, radio-active particles, including the deadly isotope known as Strontium 90, which is slowly falling back on to the earth, and the ultimate effects of which have caused concern to be expressed regarding the future of the human race." This problem has been the reason for a number of statements and has called for reassurances from the highest possible authorities. Recent developments in U.S.A., Russia and England and conflicting assertions by scientists as to the genetic and other hazards of radiation have served to direct attention to a conference at Geneva which has been continuing for quite sometime and which is still in quest of an agreed formula which will limit, restrict, or lead to the total suspension of further testing with nuclear weapons.

An American Nobel prizeman speaking in Copenhagen, prophesied that a million people will be struck by cancer because of increased radio-activity resulting from the tests which have already been carried out, and that a million children yet to be born will be struck by cancer too. The figures appear frightening, but are not really so alarming when it is realized that there are many millions more who suffer from cancer due to a variety of other causes. It may be argued also that in comparison with the millions who die from malaria, tuberculosis and other preventable diseases in India, this number is very insignificant.

All the same there is no use belittling the fact that this is a real pointer to the desirability and need for an agreement being reached soon if even to save the lives of those millions.

The Canadian Cancer Society through its executive director has stated that even if atomic tests are continued for the next

hundred years at the same rate as in the last five years, the radioactive effect will be no more than about a quarter of what the human body receives from natural sources, but that the danger will be increased if there is a large expansion of production of electricity by nuclear energy.

Both in England and the United States reassuring statements have been recently issued and if the talks still being continued at Geneva, lead to a successful issue, the danger to the human race may be comparatively very slight. Mr. HAROLD MACMILLAN, the British Prime Minister, in the House of Commons, said the other day that the results of a survey indicated that the amount of Strontium 90-concentration in bone—and *that is the deadly element of fall-out*—is well below the level likely to give rise to conditions requiring immediate concern. A recent official report from the United States reassures that all the radiation from fall-out amounts to less than five per cent of the radiation that a person gets from his natural environment and from X-rays, and the amount of Strontium 90 is less of a hazard than the amount normally present in drinking water!

It is all very well, but that is no reason why an all-out effort should not be made to put an end to testing, and the use of nuclear bombs. We honestly fail to see any sound argument for a continuance of the nuclear tests, which are only adding to the already present dangers of radio-activity. Great caution and adequate circumspection are definitely indicated, because not all is yet known or has been correctly evaluated about the ill-effects especially genetically and so we cannot afford to remain absolutely complacent and oblivious to possible or potential risk or harm.

The outcome of the Geneva Conference will we hope, be satisfactory and give the quietus to this scare.

BLINDNESS

(Research on Trachoma)

It has been estimated that there are atleast 20 lakhs of blind people in India, but this is definitely a low estimate; Sri Dr. TULSIDAS who presided over the Twentieth Annual Conference of the All-India Ophthalmological Society at Trivandrum earlier this year stated that the patients suffering from eye diseases formed about fifty per cent of those coming for treatment from the rural areas of India. Different states may have different problems but "research into the causes and prevention of blindness should take precedence over everything else."

Among the diseases of the eye that cause blindness, trachoma stands foremost, and has been responsible for a great deal of blindness in India and other countries of the world. It is now generally conceded that trachoma is a virus disease and that the Halberstaedter—Prowazeki bodies are characteristic of the disease and these inclusion bodies can be demonstrated in most cases.

An important statement is contained in a recent report published in London, by Sir Stewart Duke Elder as Hospitaller of the order of St. John of Jerusalem, in which he has surveyed the developments during 1958 in the extensive trachoma research project conducted under the auspices of the order of St. John. Sir STEWART has emphasized the importance of the fact that a British Research Team in Gambia (Africa) has succeeded in isolating and growing in culture the virus of trachoma which has eluded for decades the scientists in many countries. For the first time now, the virus has been grown, the results checked in two separate independent laboratories in London and Liverpool and what is more, the disease has been produced experimentally in several human volunteers in London.

In view of the fact that nearly twenty-five per cent of the inhabitants of the globe are infected with trachoma and that it causes much more blindness than any other disease, the isolation of the virus and the possibility of its transmission to human volunteers, would rank as an outstanding medical event of great importance.

As Dr. DUKE ELDER one of the greatest living authorities on ophthalmology, has however pointed out in the report, the discovery of the cause does not mean that the cure has also been found, although a cure cannot be ordinarily achieved without first finding and establishing the causal agent. "Our endeavours are therefore, now being turned," says he, "to devise ways and means to kill the virus, by drugs, vaccines or otherwise. For this purpose the British Medical Research Council is mobilizing a formidable scientific effort in several scientific institutions in Great Britain"—an effort which, we learn, is also being made in the United States of America.

One of the most difficult aspects of this research has been the fact that so far as is known, no animal is susceptible to the disease and therefore, large scale experimentation which is usually required in such work, is extremely difficult. It is true, that some monkeys and apes have been infected experimentally with the virus but in them the disease runs a mild course and ends in a spontaneous cure. This is unfortunate from the point of view of research. Human volunteers had therefore, to be found for this work. Sir STEWART DUKE ELDER's excellent report on this brilliant piece of research fittingly concludes with the statement.

"It is no small tribute to our own people that we have had no difficulty in getting experimental subjects; to them who suffer no small amount of discomfort in the interests of humanity and science, we are more than usually grateful."

Need we add that we in India, are also profoundly grateful to these brave human volunteers who, by their glorious act of self-sacrifice, have placed humanity under a deep debt of gratitude for all time?

THE STUDY AND PRACTICE OF MEDICINE AND THE IMPORTANCE OF RESEARCH

THE Madras State Chief Minister Sri K. KAMARAJ performed on the 18th July '59 the formal opening ceremony of the Madras Medical College Men Students' Hostel, which now provides accommodation for 508 students and would ultimately take in about 96 more, when the dining hall is extended to have 3 more floors. He exhorted the medical graduates, who were given a reception on the occasion of the Hostel Day celebration to co-operate with the Government in providing medical relief to the rural folk, who were really in great need of it. They would only then have opportunities to come into contact with the suffering villagers, whom they should treat with patience and sympathy.

This hostel which has been built and furnished at a total cost of over Rs. 25 lakhs "marks the fulfilment" in the words of Sri Dr. V. R. THAYUMANASWAMI, the Director of Medical Services, of a long-cherished desire of the students (generations of them) of a college which celebrated its centenary in 1935. He referred to the need for more medical colleges in the State, but before attempting expansion, the teaching personnel should be strengthened. It is essential that provision be made for organized post-graduate medical education and greater encouragement offered to post-graduate study and research. He appealed to Sri Dr. DESHMUKH, the Chairman of the University Grants Commission to give his support for the establishment of a post-graduate medical institution in this State.

In his address to the medical graduates of the year Dr. THAYUMANASWAMI stressed the importance and necessity of the medical profession shouldering its share of responsibility in the task of developing the nation's welfare. Mere graduation did not complete their medical education and unless they followed zealously the path of systematic and methodological examinations they are liable to make serious mistakes and get into pitfalls and so it is important that they should always try to steer clear of them.

Referring to the tendency that was becoming increasingly evident among modern medical men for early specialization he had some very pertinent advice to give:—"Having been a specialist myself I would like to say how much I benefited by my long association with medicine and surgery before I became a specialist. There cannot be any specialization unless there is a good background and all-round experience and knowledge of both medicine and surgery. I would like you not to think of specialization at an early stage in your career."

We are in entire agreement with this wise counsel coming from a seasoned expert and specialist, who is now also an administrator.

We would like to add, as a counsel of perfection, that every medical graduate entering civilian practice should earnestly endeavour to keep abreast of the latest developments in the medical sciences by a systematic study of the literature and also add to the sum-total of human knowledge by his own researches and original observations made in the course of his routine practice.

Research is not a mysterious or a very highly specialized or intellectually difficult job; for new and original observations noted in our daily work, when properly analysed and correlated with basic concepts in theory, will really constitute the basis for a good research paper.

The Director of Medical Services cautioned the young graduates against abusing the confidence and trust reposed in them by the patients, by lightheartedly undertaking operations just for the sake of augmenting their own record. This advice should be kept always in mind by all young practitioners, as otherwise they are likely to damage their reputation and also bring the profession into disrepute.

We find that often young medical men make a wrong start, in trying to appear for higher examinations without adequate preparation and sufficient experience gained through actual practice. This is certainly to be deprecated.

They should always remember that theirs is a noble profession which afforded scope for the development of all human virtues and excellences of character and conduct, that would alone enable them to deserve well of their patients and the general public.

Mr. M. A. MANICKAVELU, the State Health Minister emphasized the importance of research work in all branches of Medicine and exhorted the graduates to approach their profession and practice with a spirit of kindness and a *flair* for service to their fellowmen, thereby upholding the high tradition which the science and art of medicine had been enjoying for thousands of years.

Special Feature

NEWS-LETTER FROM THE UNITED STATES

THIS era of jet-travel has brought with it a new medical danger and challenge—the control of infectious diseases. According to W. W. Spink writing in the April 18 issue of the *Journal of the American Medical Association* (169: 1854, 1959), one of the most important problems is that many physicians are not familiar with diseases in other parts of the world. Dr. Spink advocates setting up post-graduate courses for physicians. These courses might be conducted through such organizations as the United States Public Health Service or the World Health Organization. Under these auspices, physicians might be sent to various areas in the world to observe diseases in their native habitat. Dr. Spink also stressed that even though diseases such as small-pox or plague are well-controlled in certain areas, largely by public health measures, "no infectious disease has ever been treated out of existence" and a seemingly well-controlled disease can still break out. The important thing is for physicians to understand and be alert to all types of infectious diseases.

Vegetable oils may be indirectly helpful for treating teenagers with acne problems. Most adolescents with acne are put on low-fat diets, resulting in weight loss and fatigue. Vegetable oils, particularly corn oil, are well tolerated, according to W. R. Hubler reporting in the June issue of the *Archives of Dermatology* (79: 644, 1959). Addition of oil to the diet has the advantage of making the diet more palatable as well as allowing the patient to maintain weight and vigour.

Chloromycetin was administered intravenously to 91 seriously ill children for 3 days (until oral medication could be instituted), reports B. M. Kagan and N. Felix-Balkcom in the April issue of the *Journal of Paediatrics* (54: 474, 1959). Among the disorders treated were meningitis, infectious diarrhoea, respiratory tract infections, and encephalitis. The dosage was 68 mg. per kg. of body weight given daily in divided doses. Seventy-six patients improved and 15 did not respond. Average duration of fever after initiation of therapy was three days. Side reactions and toxic effects were generally mild and transient. According to this study, the drug was therapeutically effective for combating infections that required *Chloromycetin*; it was tolerated relatively well; and is considered an important addition to the therapeutic armamentarium for treating patients who are unable to accept oral medication.

A new approach to the mechanism of chemical poisoning has been offered by D. N. Calvert and T. M. Brody, who described results of their two and a half years' study before the annual meeting of the Federation of American Societies for Experimental Biology in Atlantic City. Chemicals known as chlorinated hydrocarbons were the subject of the study. It was found that although these chemicals were not in themselves poisonous, they triggered a chain reaction within the body, which resulted in a massive and prolonged discharge of adrenalin. Carbon tetrachloride acts on the brain which in turn orders an enormous discharge of adrenalin. The adrenalin breaks down the body's stored fat and floods the blood-stream with fatty acids. It also impairs liver function by interfering with blood flow to the liver. If this condition continues uncorrected, the poison will eventually cause death. Observation of this process in experimental animals indicates that if the chain reaction is interrupted by blocking signals from the brain, the animals can completely recover from near-fatal doses of carbon tetrachloride.

Outdoor summer activities increase the possibility of poisonous snake-bites. T. McCreary and H. Wurzel, writing in the May 16 issue of the *Journal of the American Medical Association* (170: 268, 1959), estimate that approximately 3,000 persons are bitten by snakes each year and 10 to 20 die from snake bites. There are at least 35 species or subspecies of poisonous snakes in the United

States. The following factors influence the seriousness of a snake-bite: (1) very young and very old persons are more likely to have severe effects; (2) a bite on an extremity is less serious than one near a vital organ; (3) the sooner treatment is initiated, the more effective it will be. Application of a tourniquet, incision to the depth of subcutaneous tissue, and use of suction are the most vital first aid measures. Antivenin should be administered by a physician if he thinks the bite is serious. Bad effects of snake bite include blood coagulation disorders, internal hemorrhage, vomiting, shock, and muscular twitching. If the patient survives for 48 hours, he is considered out of danger.

A new use for the heart-lung machine is described by three surgeons at Tulane University, New Orleans and is reported in the spring issue of the *Heart Research Newsletter* (4: 4, 1959). It is possible to treat certain types of cancer by setting up a separate circulation for the cancerous area and introducing nitrogen mustard into the blood that is being pumped by the machine. This technique limits the introduction of nitrogen mustard to the diseased area so that higher concentrations reach only the tumour. In this way, chances of harmful side-effects, such as damaged red cell production, are reduced. Thus far, 41 patients have been treated by this method and results are encouraging although not conclusive. After therapy, some highly malignant skin cancers on the legs have appeared to regress and, in some cases, disappear. Early administration of penicillin to patients with syphilis of the brain permits more than 80 per cent of patients with the disease to return to work. Even a patient severely ill or institutionalized with syphilitic psychosis has a one in three chance of improvement and rehabilitation if he receives penicillin. Research on this subject was conducted on 1,086 patients over a five-year period by R. D. Hahn and co-workers writing in the May issue of the *Archives of Neurology and Psychiatry* (81: 557, 1959). Paresis can be prevented with penicillin, but none of these patients had received it early in their disease. Without penicillin, a patient with paresis will probably die within five years.

TIETZE'S SYNDROME

Although only four papers citing 8 cases of Tietze's syndrome have appeared in the American literature, this disorder (first reported by Alexander Tietze in 1921 in Germany) probably is not so rare as the poverty of reports would indicate. In presenting three cases from his own experience, Dr. A. Eaton Roberts of Malvern, Pennsylvania, reviews the clinical description, aetiology, differentiation, and treatment.

Treatment appears to consist largely of reassurance, analgesics, and time. Tietze's syndrome, which occurs from puberty on in both sexes (all three of the author's cases were over forty), is a painful, nonsuppurative swelling of the sternoclavicular or costochondral joints, with the second costochondral junction most frequently involved. Mild trauma resulting from sudden movement—coughing, vomiting, etc.—appears to be a frequent precipitating factor; nonspecific respiratory disease, rheumatoid arthritis, or dystrophy of the costal cartilage secondary to malnutrition, tuberculosis, or injury may be involved. The syndrome has been reported in association with Hodgkin's disease.—(*Penn. Med. J.*, Nov. '58, via *N.Y. St. J. Med.*, May '59).

ANTI-FUNGUS

Stubborn dermatomycoses persisting ten to 20 years, have been relieved in a few weeks through oral treatment with griseofulvin, a new British-discovered antibiotic. This systemic antifungal agent is only recently undergoing limited clinical trials and may take some time to come into the market.—(Dr. Harvery M. Blank, Professor of Dermatology, University of Miami School of Medicine, *American Academy of Dermatology*, Chicago).

GLEANINGS FROM THE MEDICAL PRESS

MEDICINE & THERAPEUTICS

The relief of pain.—(*S. Afr. M-d. Jour.*, 21-2-1959).

Pain is not easy to define—it is highly personal experience subjective in nature and complex as a physiological and psychological phenomenon. Scientists today conceive pain to have two component elements: the perception of pain and the reaction to pain. The total experience is composed of the sensation of pain and the associated sensations, emotional reactions and affective states.

Pain has certain characteristics, and one of these is its differing quality, according to the tissue structures involved. When superficial structures are involved, pain from noxious stimulation has a sharp quality, well localized, and quickly felt. The same stimulation applied to fascia, peritoneum or tendon induces pain of a duller and more diffuse nature. In the viscera the pain is usually described as dull, aching, sickening, and difficult to localize. Reactions to pain stimuli include other local tissue responses, neural, muscular, glandular, and the development of increased excitability within the central nervous system. Clinically these responses are represented by local tenderness, reflex skeletal muscle spasm, vasospasm, hyperalgesia and hyperaesthesia. Physiological responses such as these sometimes occur in anaesthetized or unconscious subjects. Certain of these responses may act as new sources of stimulation which may establish a vicious circle. The pain may outlast the original stimulation. It may become located away from the deep-tissue lesion or site of stimulation, as a 'referred pain.'

Another characteristic of pain is its intensity, which is rarely constant for any prolonged period. Mechanical, chemical, and environmental factors modify the intensity of pain. The severity of pain or the extent of suf-

fering is independent of the size of the lesion, and although pain gives warning, it gives no true indication of the extent or the severity of tissue damage. There are other factors which determine the intensity of pain such as the significance of its origin, or debility, fatigue, anxiety and lack of sleep on the part of the sufferer.

In considering the methods available for the control of pain, it is necessary to assess the patient as a whole and to decide to what extent primarily structural, physiological, or psychological factors need attention. Psychiatric technique is important in managing patients with severe intractable pain. The main treatment of pain of a structural origin and from altered physiological function is concerned with the eradication of the primary disease. An imposing variety of drugs is available for this purpose, including antibiotics, antispasmodics, skeletal muscle relaxants, vasodilators and vasoconstrictors. Surgical removal of the lesion or physical methods of treatment may also be indicated.

Consideration cannot be given here to a detailed discussion of the effects and complications of narcotic (addictive) analgesics. It is clear that these remedies should be avoided when other agents can be effective. There is no addictive drug which is devoid of undesirable effects. The smallest possible dose that will produce the desired therapeutic effect is the best. While morphine is the classic analgesic, there are patients to whom this drug cannot be given. There are many other drugs that have their uses, both opiates (natural and synthetic alkaloids) and 'opioids' such as pethidine, methadone, and levorphan. Non-addictive analgesics are less potent and are chiefly used for the control of mild pain. The nature of their limited and selective action is unknown. What is urgently required is a more potent non-addictive centrally-acting analgesic than is available at present.

Abuse of multivitamin preparations.—(*The Practitioner*, Jan. 1959).

Dr. Douthwaite, Senior Physician, Guy's Hospital, London says:

"The abuse of multivitamin preparations is simply their administration when there is no recognizable indication for them. The public wrongly believe them to be tonics and demand their prescription. To blame our patients for this importuning would be unfair, considering the pressure of advertising directed at them to this end. Moreover, simply as tonics they may be thought to be as efficacious as many agents in this category. If it is simply an appetizer that is required, a little practical advice or the suggestion of more homely, sometimes more acceptable and often less expensive, remedies can achieve equally good results.

Well-fed women commonly assert that winter is a drain on their vitality and they must have vitamins. The doctor is often at a loss to know how to cope with feigned ill-health and may in desperation turn to vitamins to provide the necessary magic. They are, after all, not unsafe but the expense to the tax-payer should be weighed against this.

In general practice, too, debility, fatigue, nervous exhaustion, lack of concentration and various other vague complaints are such common presenting symptoms. They also feature in many of the more profound psychoneurotic conditions.

Specific vitamin-lack is known to be present with changes in the mouth, like stomatitis (nicotinic acid) glossitis (riboflavin) and gingivitis (ascorbic acid). Definite therapy is then essential. On the other hand, to treat every person with a sore or uncomfortable mouth, often a protracted complaint especially among middle-aged women by giving multivitamins, sometimes year after year can scarcely be condoned.

Hypochromic anaemia is by no means rare. It goes without saying that an adequate diagnosis is the first essential. When iron-deficiency is the cause the response to simple orally

administered iron is nearly always salutary. In these circumstances there can be little reason to prescribe fancy iron-preparations containing a host of vitamins as well, in the belief that success will be better or more readily attained thereby.

Many of the antibiotics, especially those of the so called "broad-spectrum" class that are given by mouth, set up severe, if not grave, gastrointestinal reactions. A state of avitaminosis B may indeed ensue. This can be avoided by more discreet or restrained antibiotic therapy or corrected to some extent by giving vitamin-B preparations. But to proceed without restraint with 'broad spectrum' antibiotics, on the assumption that they are safe simply because they are prescribed with a multivitamin supplement, is surely an illogical practice.

Finally the most monstrous waste of vitamins is illustrated by their widespread prescription to old men for this action is as well-founded as that of powdered rhinoceros horn! If such aid is called for, a cheap inert substance should be given for the effect, if any depends upon faith.

Perhaps the time has come for discarding the term vitamins. They may be vital in some sense, but they are certainly not amines. We now know the nature of the chemical substances with which we are dealing and they should rightly be regarded as food factors, or sometimes as drugs, and treated with scientific respect.

Trypsin in peripheral vascular diseases.—(*N.Y. St. J. Med.*, April 1959).

Dr. Hugh Murphy, M.D., of Brooklyn, New York, gives a report on the treatment of 210 patients on the peripheral vascular diseases mostly of the lower limbs. All patients were ambulatory (see Table I, on p. 647).

The proteolytic enzyme trypsin has been studied sporadically for over fifty years as an agent in dissolving neoplastic growth, inflammatory tissue, and thromboembolic formations. The earlier literature suggests some of the pharmacologic actions which have led

to the present clinical uses of this drug.

TABLE I
Diagnosis of 210 cases of peripheral vascular diseases treated with Trypsin

Diagnosis	Number of patients
Varicose ulcers	42
Segmental venous thrombosis	33
Thrombophlebitis	129
Chronic with lymphoedema	47
Subacute and chronic with ulcers, dermatitis, and/or cellulitis	67
Subacute superficial with veno-spasm	15
Miscellaneous cases	6
Leg ulcers of unknown cause	2
Arteriosclerotic ulcers	2
Diabetic infected ulcers	2
TOTAL	210

A single case of thrombosis of the aorta was treated with very large doses of trypsin intravenously by Niermann and Bradley with return of the brachial pulse by the fourth day. Villamil and Beheran administered trypsin intra-arterially to patients with severe thrombophlebitis and reported that all symptoms disappeared in a little over twenty-four hours.

Its salutary effect on inflammation was explored more fully and was found to occur with much lower doses than those originally used. It was also found that the enzyme could be given intramuscularly.

Crystalline trypsin and a 5 per cent aqueous gelatin menstruum, Parenzyme Aqueous,* each vial containing 5 cc., was made up and used immediately. Any residual was stored under refrigeration and first used at the next visit. Injections of 0.5 cc., containing 2.5 mg. of trypsin, were given into the deltoid muscle in all but a few patients who required a great many injections, in which case the gluteal muscle was used. The arm was alternated, and care was taken to avoid an area showing signs of a previ-

*The Parenzyme Aqueous used in this study was supplied through the courtesy of the Research Department, The National Drug Company, Philadelphia, Pa.

ous injection. During the acute phase of each of the diagnosed diseases, trypsin was given once daily. When acute inflammation subsided, the dose was cut to 2.5 mg. three times a week and continued until the patient was discharged. The number of injections varied for the different disorders.

Other therapeutic measures were used when indicated; included were antibiotics, hot compresses, supportive elastic bandages, and whirlpool baths.

Highly encouraging results were obtained in patients with chronic varicose ulcers, superficial venous thrombosis, acute phlebitis with ulcers, dermatitis and/or cellulitis, and acute superficial thrombophlebitis. Fair results were obtained in cases of chronic deep thrombophlebitis with lymphoedema, but this group still presents a challenge. Probably irreversible tissue changes inhibit the accessibility of the thrombolytic and antiphlogistic actions of trypsin. Two patients manifested generalized urticarial reactions, and there were local reactions in approximately 14 per cent of patients, necessitating discontinuation of trypsin injections.

Treatment of arrhythmias.—(*Am. Heart J.*, 56: 479, 1958, via *G.P.*, February 1959).

Bellet has reviewed the methods of treatment of cardiac arrhythmias, with particular reference to recent advances. Recent advances include the more scientific use of older agents, as well as new methods of therapy. Improved methods of diagnosis are a leading advance. The following paragraphs summarize drugs and techniques that are presently available.

Vagal stimulation is effective in supraventricular tachycardias, particularly those of auricular or nodal origin. It may be accomplished by mechanical means (carotid or ocular pressure) or drugs (ipecac, neostigmine, digitalis).

Drugs that decrease excitability are indicated in extrasystoles and paroxysmal tachycardias. These drugs include quinidine, procaine amide and potassium salts. Plasma levels indicate

that it is difficult to maintain effective concentrations of quinidine. A new long-acting quinidine preparation—quinidine gluconate—will maintain a continuous effective level in a dose of 0.4 g. three times daily. The cardio-toxic effects of quinidine—widened QRS complexes and hypotension—may be reversed by molar sodium lactate. This is also true for procaine amide.

Although potassium is particularly effective for arrhythmias associated with hypopotassæmia, and especially in digitalis intoxication, it is also effective in extrasystoles and paroxysmal tachycardias unassociated with these.

Drugs that increase excitability are indicated for slow heart rates and periods of cardiac arrest during Stokes-Adams seizures and other similar states. Agents for this method of treatment include epinephrine, isoproterenol (Isuprel), ephedrine and molar sodium lactate. The sympathomimetic drugs tend to lose their pressor and pacemaker effects in the presence of acidosis. These properties can be regained by restoration of pH.

Molar sodium lactate is particularly effective in the treatment of slow heart rate associated with hyperpotassæmia, and in various forms of cardiac arrest (e.g., during surgery). It is a useful supplement to the vagolytic and sympathomimetic drugs.

Digitalis is an important antifibrillatory agent. It also abolishes ectopic rhythms indirectly through improving cardiac function. (Bellet has found the digitalis tolerance tests of Lown and Levine, and Nalbandian and associates, dangerous in many instances).

Electrical devices and other procedures have proved invaluable in cases of cardiac arrest and ventricular fibrillation. These include the external pacemaker, the external defibrillator, countershock (for terminating ventricular tachycardia), thumping on the precordium and irritating the myocardium with a needle, and finally thoracotomy with cardiac massage.

Although some arrhythmias are still refractory, more and more are controlled with new advances.

Vitamin D intoxication.—(Ann. Int. Med., 48: 765, 1958, via G.P., Feb. '59).

In spite of warnings about the danger of ingestion of large amounts of vitamin D, cases of intoxication due to this cause are occasionally seen. Verner, Engel and M. Pherson presented two examples—both elderly adults who had been given large doses of vitamin D by their druggists without prescriptions. Neither patient could give a history of vitamin-D ingestion at the time of first observation at the Duke University School of Medicine. Both were severely confused, dehydrated and alkalotic. The diagnosis of hypervitaminosis D was suggested by the presence of other features of that syndrome (see table below).

Clinical features of Vitamin D intoxication

System involved	Manifestations of Vitamin-D intoxication
General	Weakness, fatigability, weight loss, excessive thirst.
Gastrointestinal	Nausea, vomiting, cramps, constipation, dry mouth.
Neuropsychiatric	Headache, parosmia, vertigo, psychosis, depression, memory loss, coma.
Hematologic	Normocytic normochromic anemia.
Urologic	Polyuria, frequency, nocturia, fixed low specific gravity, renal insufficiency.
Chemical	Hypercalcemia, normophosphatemia, azotemia, hypercalciuria, hypokalemic alkalosis, positive urine Sulkowitch reaction.
Ophthalmologic	Calcified scleral nodules, band keratitis.
Pathologic	Calcification of heart, kidneys, lungs, blood vessels, stomach, thyroid, pancreas and pericardial tissues.

The authors were aware of data that suggest an anti-vitamin D action of the adrenal glucocorticoids. Accordingly, the patients were treated with cortisone, and the results were excellent. Serum calcium levels returned

to normal in eight and 13 days, respectively. This is much faster than the time required when treatment consists simply of withdrawing the vitamin, forcing fluids, and feeding a low calcium diet.

Reserpine treatment of hyperthyroidism: Preliminary report.—(A. M. de Andino and F. Ramos-Morales, Bol. Asoc. med. Puerto Rico, 50: 267-276, Aug. 1958, via J.A.M.A.).

Seven women and a man, between the ages of 23 and 44 years, with hyperthyroidism were treated with reserpine as a sole therapeutic agent at the endocrine clinic of San Juan City Hospital. Clinical symptoms had appeared during periods ranging from 2 months to 4 years before hospitalization; they were severe in 4 cases and mild in 3. Three of the patients had been given methimazole (Tapazole) over periods of 2 weeks to 7 months, but this drug had been withdrawn on account of intolerance or because of lack of therapeutic results. On hospitalization, all the patients reported loss of weight which varied between 3 and 15 kg. (7 and 33 lb.). There was an increase in the basal metabolic rate and the 24-hour test of radioiodine (I^{131}) intake. Reserpine was administered by mouth in daily doses of 0.4 to 1.0 mg. in 3 or 4 fractional doses over periods ranging from 3 weeks to 2 years. The drug was well tolerated by all the patients but one who complained about constant nasal congestion, which disappeared on diminution of the dose. In most of the patients the body weight became normal or exceeded the normal figures during the course of treatment. The results were excellent in 5 patients, fair in 2 and poor in 1.

In the 5 patients with excellent results, the symptoms disappeared and the pulse and basal metabolic rate became normal after 2 or 3 months of treatment with reserpine. The 24-hour test of I^{131} intake became normal after 8 to 19 months. The goiter disappeared completely within a period which required from 7 months to 2 years of treatment. One of the patients in this group had a remission

of long duration, during which she became pregnant and gave birth to a normal child. This is the first case of pregnancy and delivery at full term during a long remission, brought about by treatment of hyperthyroidism with reserpine, which has been published in the literature. The 2 patients who had a fair response to reserpine therapy were treated for only a short period (20 and 30 days respectively). The patient in whom the response to reserpine was poor had received the drug for a sufficient length of time (185 days), but she had previously failed to respond to Tapazole in daily doses of 40 mg. for 7 months and was considered a therapeutic failure. Hyperthyroidism in this case was eventually controlled by the administration of I^{131} in the therapeutic dose of 4 mc. The satisfactory results obtained in 7 of these cases seem to justify the use of reserpine in the treatment of hyperthyroidism in a larger number of patients.

SURGERY

Radical small-bowel resection: Report of two cases.—(R. H. Jordan Jr. J. R. Stuart and J. D. Briggs, Am. J. Digest. Dis., 3: 823-843, Nov. 1958, New York, via J.A.M.A., 28-2-'59).

Available evidence suggests that resection of 50 to 60% of man's small intestine is compatible with a normal existence; however, the surgeon may have to resect more than that amount. At such times the question arises: What degree of disability may be expected by patients who survive operation? The purpose of this paper is to evaluate by a review of the literature the postoperative status of patients surviving radical resection (75% or more) of the mesenteric small intestine and to report 2 new cases. Forty-four cases reported in the literature fulfilled the criteria for radical small intestine resection and were observed for a minimum of 3 months after operation. To this series the authors add the case of a patient who survived 2½ years in good health with only 35 cm. of small intestine remaining. Evaluation of the postoperative results in these 45 patients

revealed that excellent or good results were obtained in all but 10 of the patients, that is, 35 of the patients, were not incapacitated. Although the study of these cases did not conclusively indicate the relative importance of the jejunum and the ileum for maintenance of nutrition, the results appeared best when a portion of the ileum, rather than a segment of the jejunum, remained. Since no patient lived longer than 10 months after duodenocolostomy, it appears that a segment of mesenteric small intestine is essential for life and that the only indication for retaining intestine of questionable viability is the avoidance of total excision of the small intestine. Early operation for necrotic intestine is important, not only to reduce post-operative mortality but also to increase the likelihood of a viable segment of small intestine.

Occasionally the necessity for radical resection of the small intestine and subtotal gastrectomy occurs in the same patient. Since either procedure alone may produce serious nutritional problems, it was not unexpected that both operations on the same patient would yield poor clinical results. The authors found reports of 8 cases with both procedures in the literature, and they add the history of a 9th patient. The results were excellent in 2 patients, who had 4 to 5 ft. of remaining small intestine, good in 1, and poor in 6. It is suggested that the gastrointestinal continuity in patients surviving this combination of operations be restored by a gastroduodenostomy. By this procedure 20 to 40 cm. of intestine, bypassed by other types of anastomoses, is made available for digestion and absorption. The data summarized suggest that the response to radical resection of the small intestine is variable and cannot be closely correlated with the age or sex of the patient and the length of the remaining intestine. Satisfactory results after resection in this category depend in part upon the patient's psychological motivation and in part upon continuous careful management of his diet and health, particularly during periods of stress.

Brain abscess.—(C. V. M. Fog, *Danish M. Bull.*, 5: 280-284, Dec. 1958, Copenhagen, via *J.A.M.A.*, 11-4-1959).

Fog reviews 114 cases of brain abscess in 89 males and 25 females, representing all age groups. The localization was in the brain stem in only 2 cases, was supratentorial in 11, and was infratentorial in 12. In 33 cases the abscess was otogenic; in 6, rhinogenic; and in 28, thoracogenic. In 11 cases it was due to cranial injuries, in 36 to other causes. The most frequent cause was infection from the ears and nose; the next most frequent cause, infection from the lungs. The bacterium most often found in cultures from pus was *Staphylococcus aureus*. The mortality was highest in cases with brain abscess of thoracogenic origin. The prognosis is best for sterile abscesses and least favourable in cases with streptococci. Diagnosis may be difficult. A brain abscess may be present without demonstrable leukocytosis or choked disc. Most of the patients were treated by total excision, which was usually preferable to more conservative methods. The mortality has fallen steadily since the advent of penicillin and the introduction of rational chemotherapy, with resistance determinations as a guide in the choice among streptomycin, tetracyclines, chloramphenicol, sulpho-namides, and penicillin, but it is still about 25%. Fifty-five of the 59 survivors were followed up. Six had died of other diseases. In the remaining 49, the late prognosis was found to be best for the infratentorial cases. Almost half of the patients with supratentorial abscesses had reduced working capacity.

Total cervical-spine fusion for neck paralysis.—(J. Perry and V. L. Nickel, *J. Bone and Joint Surg.*, 41-A, 37-60, Jan. 1959, Boston, via *J.A.M.A.*, May 2, 1959).

The authors report on 100 patients with severe paralysis of the cervical muscles with residual instability of the head, who were studied at the Rancho Los Amigos Poliomyelitis Respiratory Centre in Downey, Calif.; their object

was to formulate a systemic therapeutic plan for those who had regained considerable use of their extremities and now needed a stable head and neck for maximum activity. Close examination of these patients revealed that the muscles of the neck form 4 functional groups, namely, flexors and extensors acting on the head, which were designated "capital flexors" and "capital extensors," and flexors and extensors acting only on the cervical spine, with motion centred in the lower cervical spine, for which the terms "cervical flexors" and "cervical extensors" were coined. Paralysis of the muscles of the neck may prevent the patient's taking advantage of the function that is present in his extremities. Paralysis of the capital extensors may greatly embarrass or completely prevent swallowing and speech by allowing the head to fall into extreme flexion.

Twenty-two fusions of the cervical spine, 10 of which included the skull, were performed at the Rancho Los Amigos Hospital during the past 2½ years. Results showed that total cervical spine fusion is an effective way of replacing the stability essential for general activity, and this fusion must include the occiput if the capital extensors are weak. A halo fixed to the cranium with screws and fastened to an adjustable countertraction device, which has been fixed to the body cast, proved to be a successful means of stabilizing the head and neck for fusion in a predetermined position. With the use of mechanical respiratory aid, the presence of respiratory paralysis is no longer a deterrent to safe major reconstructive surgery.

The surgical treatment of gastrointestinal diverticula.—(Deucher, F. *Chirurg. Univ. Klin.*, Zurich, Switzerland, 1957, 435, via *German Med. Monthly*, 5-5-1959).

A diverticulum of the stomach, which generally occurs in the posterior wall below the cardia, or of the duodenum may become inflamed if a narrow stoma and lack of muscular contraction cause its contents to become trapped, and will then give rise to

symptoms. In the absence of inflammation or perforation the surgical treatment is not difficult. Duodenal outpouching may cause pancreatitis, necrosis, cholangitis, pylophlebitis and hepatic abscess, if it is located near the duodenal papilla, as well as ulcer, malignant degeneration, stenosis and hæmorrhage. Treatment is by excision unless it is accompanied by duodenal ulcer in which case gastrectomy is indicated. For a small diverticulum invagination followed by suture may prove adequate. Acquired diverticulosis of the small intestine is a progressive condition that needs surgery only if ileus, perforation or hæmorrhage supervene. Multiple pouches require resection of the entire affected loop. In the colon the aetiological factors are age, acquired or congenital weakness of the muscular coats, congestive conditions, unco-ordinated contractions of the bowel walls and obesity. Diverticulitis supervenes in 15 to 35% of cases and may be complicated by hæmorrhage or perforation as the result of enema, sigmoidoscopy, excessive straining, laxatives, or prolonged administration of cortisone. Treatment by resection of the colon gives the best results. Conservative measures are indicated for patients in very poor general condition and for mild cases of acute diverticulitis. Palliative operations consist of colostomy, closure of the perforation and drainage or, if necessary, exteriorization of the ruptured segment. Lateral colostomy has proved unsatisfactory for immobilizing the diseased colon but Mikulicz' operation will give good results in cases of obstruction or rupture of the sigmoid. Closure of the colostomy combined with resection of the diseased segment should not be delayed beyond 3 to 6 months as otherwise it may become impossible owing to massive fibrosis. Relative indications for resection are: recurrent sub-acute or acute attacks that fail to respond to conservative treatment, persistent abnormal radiographic findings in the sigmoid, and malignant change. A symptom that has attracted very little attention is difficulty of micturition without apparent cause except

the presence of cystitis. These patients should be examined for diverticulitis and, if the diagnosis proves correct, treated by one-stage resection. It will give prompt relief and control the cystitis.

The healing of spinal tuberculosis.—(Borsay, J. L. Pota, L. Varga, II, *Chirurg. Abt. Statl. Lungenheilstalt "Fodor Jozsef,"* Budapest, Hungary, via *German Med. Monthly*, 5th May 1959).

Radiological and post-mortem investigations showed that there are differences in the mode of repair of tuberculous lesions in thoracic and lumbar segments of the spine. In the thoracic part, the vertebral fragments are stabilized by subluxation of the intervertebral joints and impingement of the articular processes upon the next vertebral arch above. There is no evidence that the fragments join by bony bridges. In the lumbar spine there is bony repair by intervertebral bridges. But there is never complete bony union of the fragments in either part and intervertebral space is never obliterated by bone. Cavities in the vertebral bodies are not filled by bone, and the radiologically observed shrinking of such cavities is only apparent. The surgical evacuation of tuberculous foci promotes repair but not bone regeneration, nor does closure of the cavity by bone chips or other material, because the diseased vertebrae are almost completely devoid of regenerative power. Surgical treatment should therefore, be supplemented by bone grafting for the support of the vertebral column.

OBSTETRICS & GYNÆCOLOGY

Predictive value of the positive vaginal smear.—(West, J. *Surg. Obst. and Gynaec.*, 66: 5: 1958).

Although physicians generally are convinced of the value of vaginal cytology in the diagnosis of incipient cancer of the female reproductive organs, considerable confusion still exists as to the exact significance of the phrase "positive vaginal smear."

McLennan and McLennan of the Department of Obstetrics and Gynecology, Standard University School of Medicine, San Francisco, made a follow-up study of 184 women whose positive smears were examined in the Stanford Hospital Cytological Laboratory in the two-year period from March 1, 1955 to March 1, 1957.

In the two year period they examined 15,600 smears from 11,711 women, and 184 (1.6 per cent) of these patients had smears which were classified as either Class IV or V. In nine patients, the source of the positive material was non-vaginal and in ten others cancer was known to exist before the smears were prepared: only the remaining 165 patients (1.4 per cent of those screened) are considered further in this report. Particular attention was given to the smears from the 47 women in whom cancer was never demonstrated to determine whether the initial classification (made by others) had been unduly high.

Of the 165 women with "positive" smears, only 109, or 66 per cent, have been shown to have cancer. This represents 0.93 per cent of the total number of women screened. In 47, or 28.5 per cent, after reasonably extensive investigation (multiple biopsies, conization of the cervix, or hysterectomy), no evidence of cancer has been found to date. In a few cases a convincing number of negative smears obtained subsequent to the positive smear or smears has been accepted as sufficient proof of the absence of malignant disease.

Positive smears from patients who did not prove to have cancer often were associated with vaginal or cervical infections, basal cell hyperplasia of the cervix, atrophic epithelia, and cervical or endometrial polyps.

The value of maintaining a high index of suspicion in the interpretation of vaginal smears is stressed, but this attitude on the part of the laboratory personnel must be made known to the physicians submitting material for screening, lest unwarranted assumptions be made on the basis of equivocal cytologic evidence only.

Polythelia in cardio-arterial disease.—(*Brit. Heart. Jour.*, January 1959).

William Evans of the Cardiac Department of the London Hospital states that polythelia or the presence of accessory nipples has long been held to be an atavistic manifestation (Lichtenstern, 1878; Darwin, 1888). The coincidence of polythelia, therefore, increases the probability that a disease arises from a congenital predisposition to it.

Polythelia, or the presence of accessory nipples, was sought in 2000 consecutive patients attending for examination of the heart. Some form of cardio-arterial disorder was discovered in 941 of them; while the remaining 1059 cases showed neither disease of the heart nor of any other system.

The incidence of polythelia among the healthy group proved to be 5 per cent.

Among those with cardio-arterial disease, polythelia was common in three clinical states. Thus, it was present in 35 per cent of patients with systemic hypertension showing contracted arteries, left ventricular enlargement, and left ventricular preponderance in the electro-cardiogram, but in only 5 per cent of subjects with systemic hypertension, where the blood pressure was raised to impressive levels but where cardio-arterial derangement, including left ventricular preponderance in the electro-cardiogram, was absent.

Next, the incidence of polythelia was 44 per cent in congenital cardiac shunts, mitral stenosis, or emphysema, when pulmonary hypertension was present, producing right ventricular hypertrophy and right ventricular preponderance in the electro-cardiogram. In these same clinical states when the pulmonary arterial pressure might be raised, but where no right ventricular preponderance appeared in the electrocardiogram, representing a state of pulmonary hypertension, the incidence of polythelia was only 7 per cent.

Polythelia was also a common

finding (44%) among patients with cardiomyopathy arising from a myocardial affection other than coronary arterial disease, and assuming the form of either myocarditis or a tardy fibrosis.

Since polythelia is a manifestation of atavism, its association with any particular disease suggests for it a genetic or congenital basis. Its high incidence in systemic hypertension, pulmonary hypertension and cardiomyopathy suggests for these three clinical states a congenital predisposition.

Anaesthetic deaths in obstetrics.—(*Texas St. J. Med.*, April, 1959).

Anæsthetic deaths now rank fifth as a cause of death in obstetrics with hæmorrhage, toxæmia, infection, and heart disease being the first four causes in Texas.

Since the Committee on Maternal Mortality of the Texas Medical Association was founded, 253 maternal deaths have been reviewed, and 13 or 5.1 per cent of these were due to anæsthesia.

If deaths from anæsthesia are to be reduced in obstetrics, the following recommendations will be helpful:—

1. A more careful choice of anæsthetic agents in patients with hæmorrhage and eclampsia should be made.
2. The use of skilled physicians or well-trained nurses to administer the anæsthetic should be required.

3. If the patient has eaten within the last 6 hours, inhalation anæsthetics should be avoided.

4. If spinal anæsthetics are used, minimal doses of the anæsthetic agent and the "saddle block" technique are recommended.

5. Delivery rooms should be equipped with suction apparatus, airways, and a laryngoscope as well as intravenous fluids and vasopressor drugs.

6. A more widespread use of pudendal block for routine, uncomplicated delivery should be employed if skilled anæsthetists are unavailable.

REVIEWS OF BOOKS

Practical Obstetrics—By Mr. C. S. DAWN, M.B., B.S., D.G.O., M.O. (Cal.), D. Phil. (Cal.), Resident Surgeon and Lecturer in Obstetrics, Department of Obstetrics and Gynaecology, Nilratan Sircar Medical College and Hospital, Calcutta, 1958, 388 pages with illustrations, Das Gupta & Co. (Private) Ltd., 54 3, College Street, Calcutta-12. Price Rs. 18/-.

This is a short text-book on Obstetrics giving a thoroughly practical approach to the subject and incorporating all important theoretical and practical details within a reasonable space. There are 27 Chapters in the book. Those on Haemorrhage during early pregnancy, Toxaemia of Pregnancy, Some Medical Diseases in Pregnancy, Abnormal Presentations, Abnormal Uterine Action, Abnormal Puerperium, Obstetric Operations, are well written. There is a very practical chapter on Discussions on Obstetric Clinical Cases. There is a very useful Appendix on Obstetric Instruments. The Chapter on Anaemia in Pregnancy is written by Dr. J. B. Chatterjea of the School of Tropical Medicine, Calcutta and the Chapter on Healthy Newborn is written in collaboration with Sri S. P. Bhattacharjee, of the Nilratan Sircar Medical College Hospital, Calcutta. This very practical book will be useful to obstetric students and practitioners. We recommend it.

A Synopsis of Anaesthesia—By J. ALFRED LEE, M.R.C.S., L.R.C.P., M.M.S.A., F.F.A.R.C.S., D.A., Senior Consultant Anaesthetist to the Southend-on-Sea Hospital, Fourth Edition, 1959, 615 pages with 72 illustrations, (John Wright & Sons Limited, Bristol). Price 27s. 6d.

In the field of anaesthesia a number of changes have taken place in the last few years with reference to the theory and practice of this difficult speciality. This book is a summary of current teaching and practice. Beginning with a Chapter on the History of Anaesthesia, the book deals with the Pre-Anaesthetic Care and Preparation, the Pharmacology of Drugs used for Pre-operative and Post-operative medication, Inhalation Anaesthesia, Endotracheal Anaesthesia, Rectal Anaesthesia, Intravenous Anaesthesia, Spinal Analgesia, and Refrigeration Analgesia. It has also a section on Shock, and the Complications and Sequelae of Anaesthesia. There is a useful Chapter on the Management of the Unconscious Patient. Two new Chapters have been added, one on the phenothiazine derivatives, and the other on induced hypothermia. There is a new section dealing with halothane (fluothane). We are sure this new edition will help to improve knowledge gained in this speciality and it will be useful to all medical practitioners.

BOOKS RECEIVED

Health Services in Britain—(Back ground information) Revised, December 1958—The British Information Services (India) Office of the United Kingdom, High Commissioner, 6, Armenian Street, Madras-1.

A Look at Cancer—1958, Dr. V. R. KHANOLKAR, M.D., Indian Cancer Research Centre, Parel, Bombay-12. The Popular Book Depot (Regd.), Lamington Road, Bombay-17.

PREPARATIONS AND INVENTIONS

'Largactil' Brand : Paediatric Syrup—May & Baker (India) Private Ltd., announce the introduction of 'LARGACTIL' Paediatric Syrup containing chlorpromazine hydrochloride 5 mg. in each 3.6 cc. (approximately

one teaspoonful). It is available in bottles of 50 cc. each.

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CORRESPONDENCE

Rural Medical Relief

To the Editor, The ANTISEPTIC, Madras Sir,

With reference to your Editorial on the "Dearth of Doctors and Rural Medical Relief" in July 1959 issue of the ANTISEPTIC, pages 549-550, I should like to suggest a remedy for that condition. It is stated that there are over 250 institutions without Doctors. Yet use is not made of retired personnel, even though they are fit, merely on the score of their age.

Doctors over 60 years of age are not wanted and last year, those who retired within 2 years of superannuation i.e., below 58 years of age were re-employed. I fail to understand why a doctor, whatever his age, should not be permitted or asked to serve, if he is found physically and mentally fit by a District Medical Officer or by a Medical Board. All retired medical men are given a pension and if they are reemployed, they are paid only the maximum, they drew at the time of retirement. At least in the case of licentiates, this does not work out at more than about Rs. 150/- a month exclusive of their pension.

There will be a saving to Govern-

ment if a doctor with experience can be had without paying the pension. Many retired doctors find time hanging heavily and private practice is not paying to them in many cases for various reasons.

Primary Health Centres, Jails, E.S.I. and other dispensaries, not often favoured by the energetic young medical men, can be manned by retired doctors who are fit. Government will be rendering useful help to the rural folk on the one hand and find work and some extra remuneration for the retired doctors in these days of increased cost of living, besides effecting a substantial saving.

If the age rule is relaxed and applications are invited, I am sure many will apply; as far as possible only the retired men should be given preference and posted as near as possible to the places where they have settled.

It seems a pity that age restrictions should be applied to doctors, while it is not so for some others.

"One who knows the plight of Retired Doctors."

TENNETI SANKARANARAYANAMURTY,

13-7-'59 }
Vizag. }

Advocate,
Visakapatnam-2.

NEWS AND NOTES

Training of X-Ray Technicians in S. E. Asia

Regional Centre to be set up in Ceylon

A training centre for X-ray technicians from various countries of South East Asia is being set up in Colombo with the co-operation of the Government of Ceylon and the World Health Organisation.

Located at the School of Radiography, General Hospital, Colombo, which already offers a training course in radiography and radio-therapy, the centre will also provide an additional course of training in the maintenance and servicing of X-ray equipment and other electro-medical apparatus.

WHO will provide at least five fellowships a year to enable students

from countries outside Ceylon to attend the course. The Organization's assistance will also include provision of an expert electro-technician for at least two years and some equipment and supplies.

Drive against Smallpox

Centre's scheme for Vaccination

The Health Ministry of the Government of India has drafted a plan envisaging vaccination against smallpox for every man, woman and child in the country in the course of three years. Estimated to cost about Rs. 7 crores, the scheme is to be implemented in consultation with State Governments. It is hoped that it would help eradicate smallpox in the country.

It is estimated that about 20,000 vaccinators would be required for implementation of the scheme.

[We hope it would be possible to give them all the requisite training before being appointed to do the job. — Ed. ANTISEPTIC].

Herbal cure for Eye Defects

Punarnava, a herb found commonly all over India, has proved efficacious in eye troubles that were regarded incurable for so long. Yet the herb is so cheap four seers of it would not normally cost more than an anna (says a report by the Ayurvedic Research Council—A.R.C.—at New Delhi).

In many cases, the herb has made the use of glasses for long sight or short sight—unnecessary.

The juice of the herb is to be applied to the eyes after soaking it in the powder of another herb known as Vimal Joti. — (A.R.C. may be consulted) as they are planning to open centres in the big cities where the specific will be distributed free.

Medical Research Council

The Governing Body of the Indian Council of Medical Research, met at Arranmore Palace under the Chairmanship of Mr. D. P. Karmarkar, Union Minister for Health at Ootacamund on June 18, 1959. According to a spokesman of the Council, several important decisions which would have far-reaching effect on planned development of medical research in the country were discussed at the meeting. The most important of them was that medical research should be guided and conducted from an overall national point of view with high priorities to various schemes of national importance. A sub-committee was appointed to consider this matter in detail and submit its report to the Council. Another committee was appointed to review the work of the Council in various branches for the past two years.

The Dr. Herculano De Sa Silver Jubilee Prize

The Bombay Obstetric and Gynaecological Society invites Thesis or Essay

on "Incoordinate Uterine Action" or "Dysfunctional Uterine Haemorrhage" for the award of Dr. Herculano De Sa Silver Jubilee Prize for the year 1959. The value of the Prize is about Rs. 250. The entries should reach the Society's Office by registered post by 31st December 1959.

For details and rules governing the award of the Prize, please write to the Joint Hon. Secretaries, Bombay Obstetric and Gynaecological Society, "Purandare Griha," Chowpatty Sea Face, Bombay-7.

D.T.M. & H. Course

The nine months' course of instruction for the D.T.M. & H. Examination under the Calcutta University will begin on the 19th October, 1959. This course is open to medical graduates of Indian Universities or candidates possessing equivalent qualifications recognised 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, 1959.

National Tuberculosis Institute at Bangalore

The Union Government in collaboration with the World Health Organization and UNICEF, has established a National Tuberculosis Institute at Bangalore.

The Institute will provide key public-health personnel in the field of tuberculosis at national and State levels, and conduct research to develop control methods that can be applied effectively in rural and urban areas to meet the needs of the country. It will have four units—a coordinating unit, a bacteriological unit, a statistical unit, and an epidemiological unit, and three mobile and case-finding units as its field arms. The Institute, we learn, will function with full staff and equipment in a few months.

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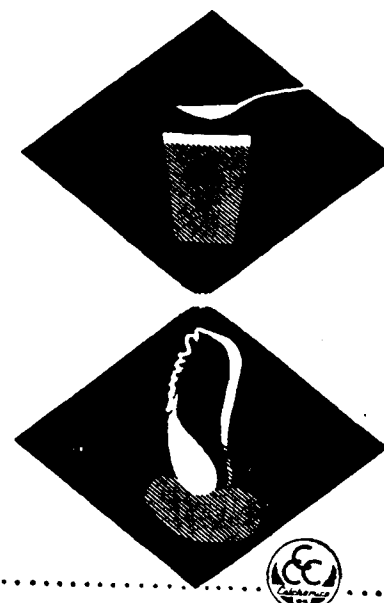
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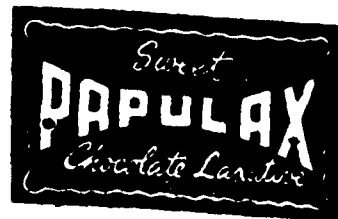
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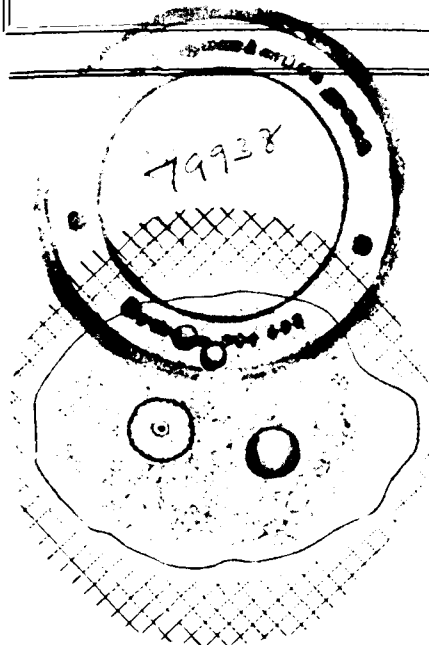


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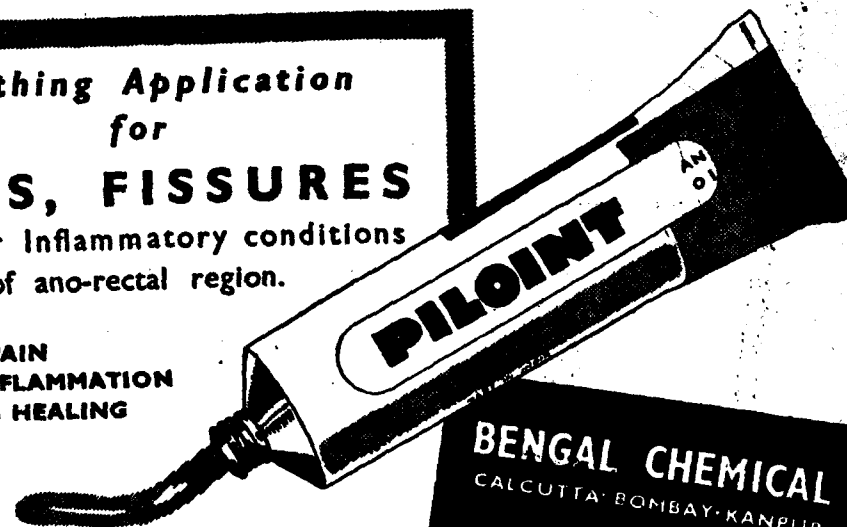
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