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1955

JANUARY 52-1

FEBRUARY 52-12

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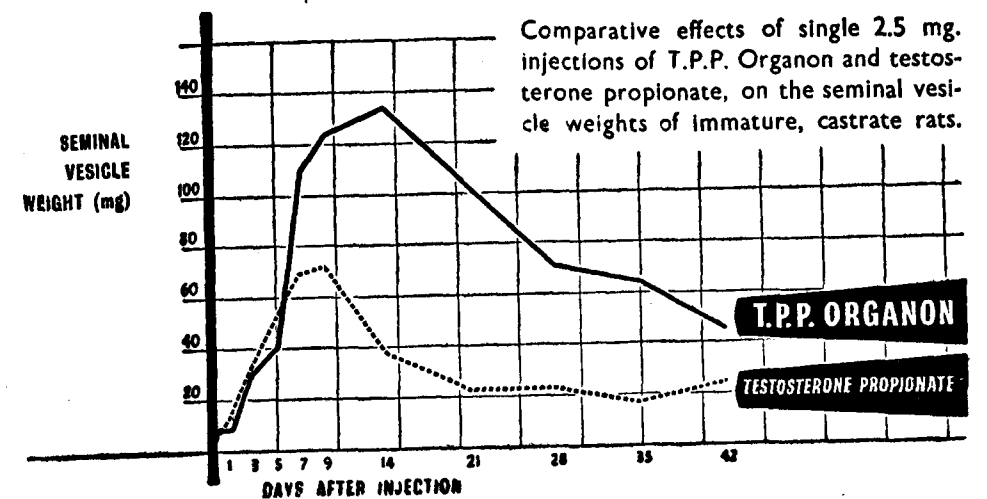
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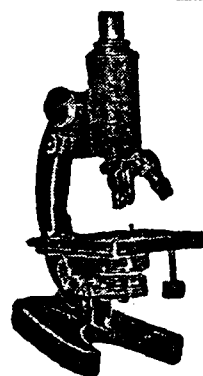
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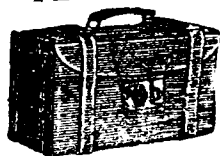
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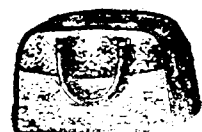
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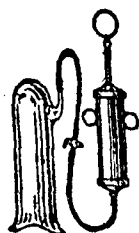
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for Protection

★ Disinfection of Instruments.

★ Washing and disinfecting hands.

★ Pre-operative skin disinfection—and wherever there is danger of infection.

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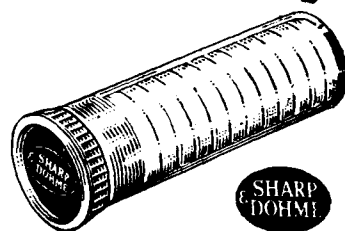
OPTIMAL

ANTIBIOTIC THERAPYin throat and mouth infections

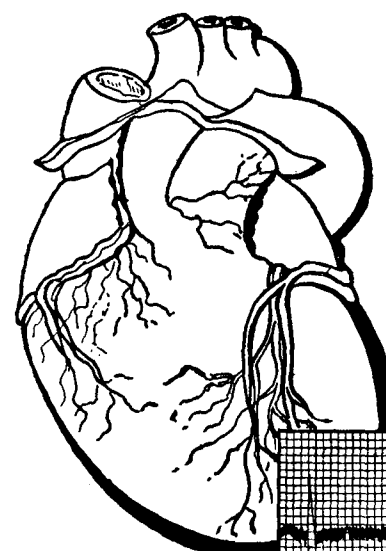
TYROZETS combine the notable antibiotic (antibacterial) potency of tyrothricin with the powerful anaesthetic action of benzocaine. TYROZETS attack the pathogenic organisms commonly encountered in the oral cavity.

Moreover, prolonged contact of tyrothricin at site of application permits penetration into minute tissue crevices of the infected area.

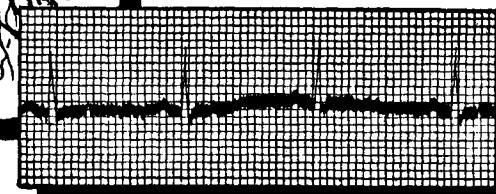
TYROZETS rapidly relieve throat irritation and discomfort and are also indicated for prophylactic use, in infections of the oral cavity, in surgery of the mouth, and throat, after tonsillectomies, etc. Rx. In vials of 12 lozenges.

TYROZETS

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MYOCARDIAL DEFECT



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

HERZOLAN CIPLAEXTRACTUM 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 diseases could be prevented and a number of lives thus saved".

HERZOLAN is a concentrated heart muscle extract containing all the important chemicals and the essential enzyme Cytochrome C present in the heart muscle. HERZOLAN is a natural food and nourishment for the degenerating heart muscle which quickly responds to this nourishment and regains normal activity. (Ref: Abstract of World Medicine, Sept. 1950, No. 1047; Science 104.)



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Exhaustive Literature
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Guidance on methods of family planning is often welcome and does much to remove anxiety and promote a patient's mental and physical well-being. The modern contraceptive, GYNOMIN, inspires confidence with its high spermicidal efficiency. GYNOMIN is absolutely harmless to health, non-greasy and clean in application, and keeps perfectly in all climates.

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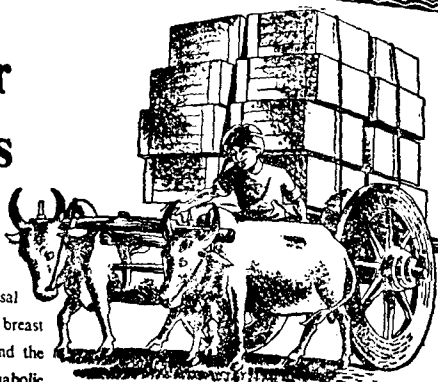
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The association of methyltestosterone and ethinyloestradiol in DUOGEN enables a reduction to be made in the effective dose of oestrogen for the relief of menopausal symptoms. Undesirable side-effects such as breast turgidity and pelvic congestion are avoided and the risk of withdrawal bleeding is reduced. The anabolic properties of the combination provide an increased feeling of confidence and well-being.

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BOTTLES OF 25 & 100.



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ETHINYLOESTRADIOL 0.01 mg.
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VITA-FOLIC

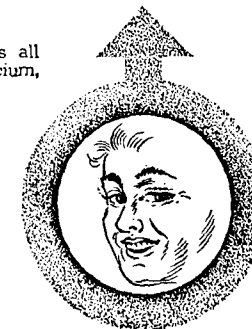
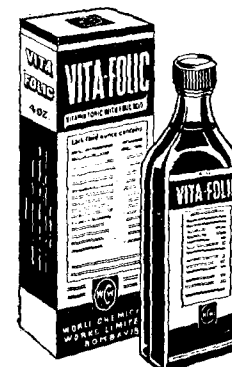
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**BUILDS CELL NUTRITION
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Vita-Folic, a highly nutritive tonic supplies all essential vitamins in high dosage and calcium, iron and phosphorus fortified with copper, manganese and arsenic. Inclusion of folic acid as a cellular maturation substance helps treat megaloblastic anaemias. Vita-folic enhances processes of food utilization and corrects malnutrition.

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Available in Bottles of 4 fluid ounces and 16 fluid ounces and bottles of 25 tablets and 100 tablets.



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Diamorphine hydro-
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Acid hydrocyanic
dilute 15 m.
Syrup Tolu 4 dr.
Syrup Calci
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Glycerin ad 1 oz.

(Usual adult dose is one dram
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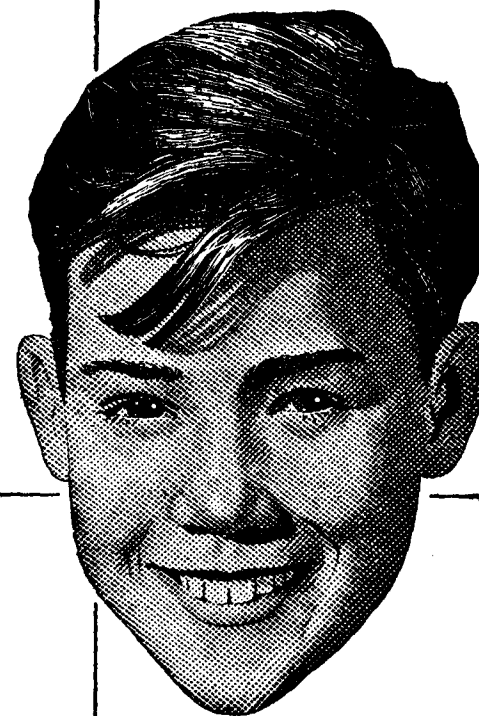
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Glycerin is a SWEETENER

Glycerin lends a sweet flavour to those liquid medicines which would otherwise taste unpleasant.

The Nutritious Childrens Tonic

FERROMALT—Liquid malt extract is used as the basis of this preparation and the extract chosen is the finest available, being rich in the B-complex vitamins, protein, mineral salts and diastase. To this are added Collosol Ferro-cuprum (colloidal iron and copper), vitamin D and concentrated orange juice.



FERROMALT

IN 4 oz. AND 8 oz. BOTTLES

Made by **THE CROOKES LABORATORIES LIMITED**
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FOR BUILDING RED BLOOD CELLS.

* Recent clinical investigations have proved that COBALT GLUCONATE, the only organic salt of Cobalt, which has close relationship with Vit. B₁₂, in specific dose enhances the action of Ferrous Gluconate in building up red blood cells. (Ref. Nutr. 6 bs. V. 13 Oct. 1952, P. 69)

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Sprue, Nutritional, Megaloblastic Hypochromic and all other types of anæmias

Each tablet contains:

Ferrous Gluconate	325.0 mg.
* Cobalt Gluconate	25.0 mg.
Copper Sulphate	0.5 mg.
Mn. Hypophosphite	0.5 mg.
Folic Acid	1.75 mg.
Vitamin B ₁₂	5.0 mcg.
Vitamin C	25.0 mg.
Vitamin B ₁	3.0 mg.

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In bottles of 25, 50 and 500 tablets

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Leukoplast, the doctor's surgical plaster of excellent keeping properties, even in tropical countries. The adhesive mass has been specifically manufactured to resist the tropical climate. Leukoplast sticks instantaneously on dry skin and adheres firmly without slipping. The possibilities of causing skin-irritation are extremely low. Leukoplast is made of a strong fabric of finest quality, pliable to every site of the body. Also you will like



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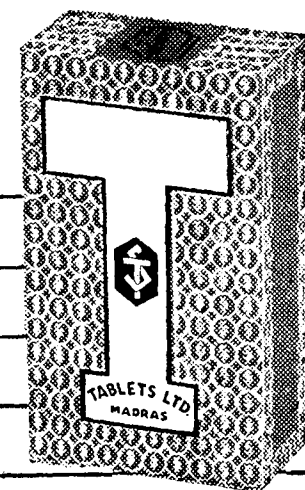


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IN MEGALOBlastic AND HYPOCHROMIC ANAEMIAS,
DEBILITY, MALNUTRITION AND CONVALESCENT STATES

HEMOLIVIT

The manufacturing formula per fl. oz is

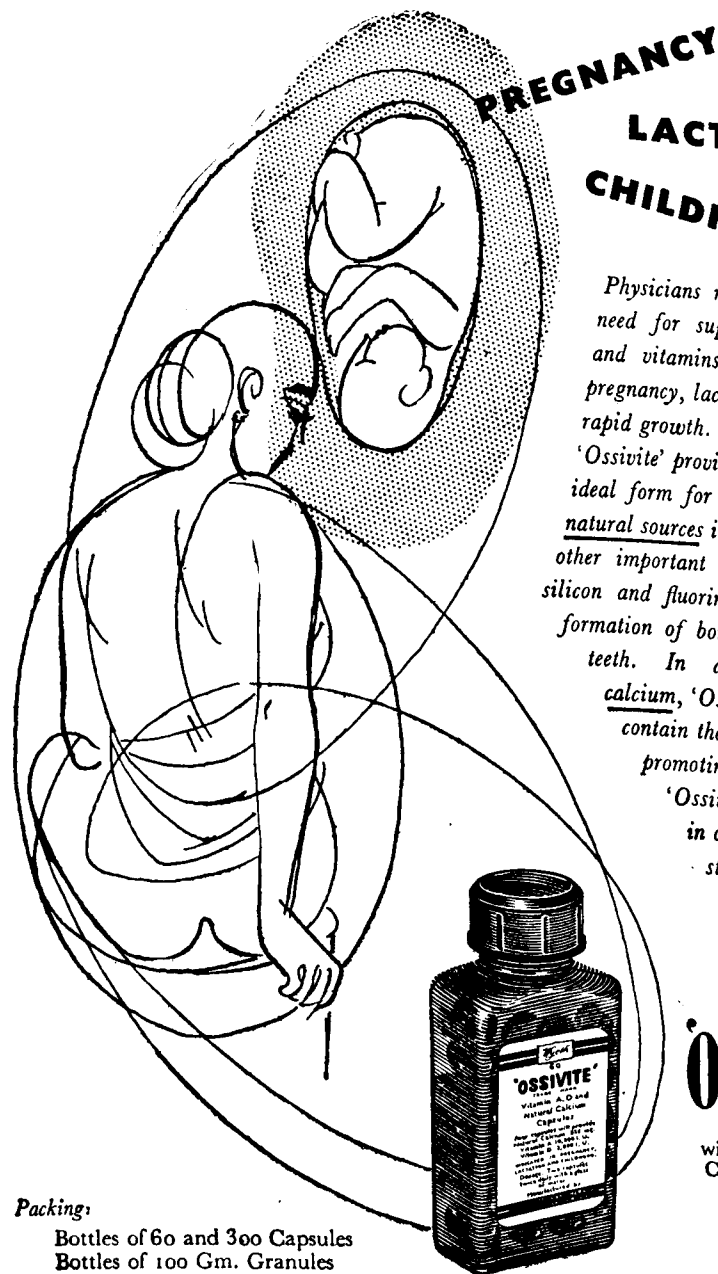
Fresh Liver proteolysed	40 mg.	Cal. Pantothenate	8 mg.
Ferri et Ammon Cit	10 gr.	Vitamin B ₆	10 mg.
Vitamin B ₁	20 mg.	Folic Acid	3 mg.
Vitamin B ₂	4 mg.	B ₁₂	80 mcg.
Niacinamide	100 mg.	Cobalt Chloride	2 mg.
		Alcohol	15% V/V

Pack : Bottle of 6 oz.

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LACTATION
CHILDHOOD

Physicians recognise the pressing need for supplementary calcium and vitamins A and D during pregnancy, lactation and periods of rapid growth.

'Ossivite' provides the calcium in an ideal form for it is obtained from natural sources in association with the other important ingredients including silicon and fluorine, essential for the formation of bone tissue and strong teeth. In addition to natural calcium, 'Ossivite' Capsules also contain the two valuable growth promoting vitamins A and D.

'Ossivite' is also indicated in other calcium deficiency states, e.g. skin diseases, angio-neurotic oedema, allergy and nocturnal enuresis.



OSSIVITE

Natural Calcium
with Vitamins A and D
Capsules and Granules



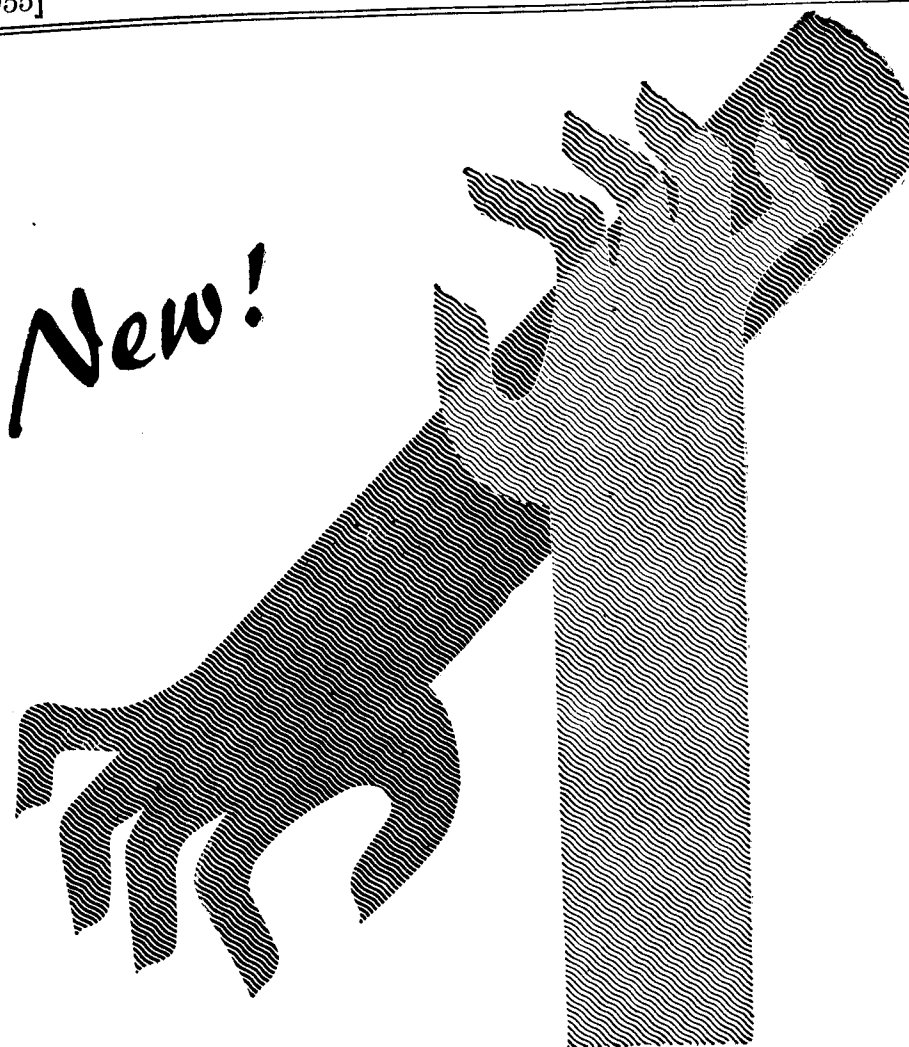
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Packing:

Bottles of 60 and 300 Capsules
Bottles of 100 Gm. Granules

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SOVENTOL



5 ampoules 10 tablets 50 gm. jelly

Antihistaminic
Antiallergic *Antipruritic*

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Works at Ludwigshafen on Rhine and at Minden/Westfalia

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"Take  twice a day"

Wincarnis has proved extremely beneficial as a tonic after illness. It is a digestive acceptable to the weakest stomach, and palatable enough for the most reluctant appetite. Wincarnis acts as a gentle stimulant which helps the patient to renewed vitality and the more active mental condition so important in recovery.

★ Wincarnis is a blend of pure, matured red wines, strengthening elements and malt extract.

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over 25,000 recommendations
from Medical Men

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OPIL

OPICALZIM SYRUP

(With Vitamins A, D and C)

An ideal Calcium syrup with important Vitamins in a palatable form specially suitable for children, pregnant and lactating women.

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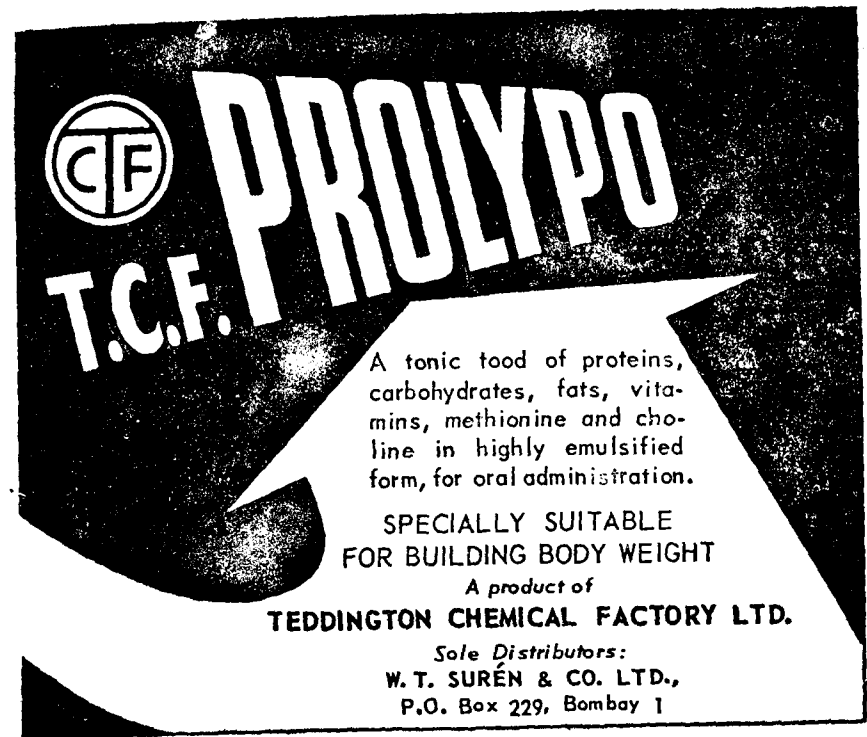
Each fl. oz. of Opicalzim Syrup contains:

Calcium Gluconate	..	..	500 mg.
Calcium Lactate	..	..	750 mg.
Calcium Glycerophosphate	..	..	125 mg.
Calcium Hypophosphite	..	..	750 mg.
Vitamin A	..	..	5000 I.U.
Vitamin D	..	..	1500 I.U.
Vitamin C	..	..	100 mg.
Base	..	..	q.s.

For Calcium therapy

Available in Bottles of 6 oz. and 16 oz.

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A tonic food of proteins, carbohydrates, fats, vitamins, methionine and choline in highly emulsified form, for oral administration.

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A product of
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MINOLAD
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Ideal for Children

An orange flavoured vitamin A and D tonic
with Choline, Methionine and Minerals.

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AVAILABLE AS AMPOULES, TABLETS AND SOLUTION FOR GLAUCOMA.

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BRAND PENTAMETHYLENETETRAZOL

Centrally attacking analeptic and general stimulant especially of circulation and respiration.

CARTAZOL EPHEDRINE

Central and peripheral action in the treatment of Bronchial Asthma and Circulatory Disturbances.

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The dependable and innocuous Nerve Sedative and mild Hypnotic.

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Theobromine preparations in cardiac and vascular diseases.

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A PERFECT MALTED MILK
NESTOMALT
MALTED MILK
FORTIFIED WITH VITAMIN B₁
NESTLÉ'S

NET WEIGHT 1 LB. (454 G.)

Average Composition
Fat 9.50
Total Protein 12.93
Lactose 12.16
Malt Sugars 60.50
Residual Moisture 2.30
Mineral Salts 2.71
Calories per oz. (dry) 120

MILK
+ MALT
+ VITAMINS

NESTOMALT

NESTOMALT is malted milk in concentrated, powder form containing full cream milk, malted barley and wheat flour, with VITAMIN B₁ ADDED.

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STRENGTHENING
HEALTH-PROMOTING

*As
anti-anaemic
agent*

*In
deficiency
diseases*

Marmite has proved of specific value in India in the treatment of nutritional macrocytic anaemia, and in the sprue-like syndromes common in the tropics. As the incidence of this type of anaemia is high, especially in pregnancy, and accounts for many maternal deaths, Marmite is prescribed widely for its haemopoietic properties.

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yeast extract

Contains:— Riboflavin (vitamin B₂) 1.5 mg. per oz. Niacin (nicotinic acid) 16.5 mg. per oz.
Manufactured in England by THE MARMITE FOOD EXTRACT CO. LTD.
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Ergoapiol-(Smith)

A Menstrual Regulator . . .

When the periods are irregular, due to constitutional causes, ERGOAPIOL (Smith) is a reliable prescription. Containing apiol (M.H.S. special) together with ergot and oil of savin of the highest quality, this preparation effectively stimulates uterine tone and controls menstrual and postpartum bleeding.

In cases of Amenorrhea, Dysmenorrhea, Menorrhagia and Metrorrh.

MARTIN H. SMITH COMPANY
NEW YORK, N.Y.

hagia, Ergoapiol serves as a good uterine tonic and hemostatic. Valuable in obstetrics after delivery of the child.

DOSAGE: 1 to 2 capsules 3 or 4 times daily. Supplied only in packages of 20 capsules. Literature on request.

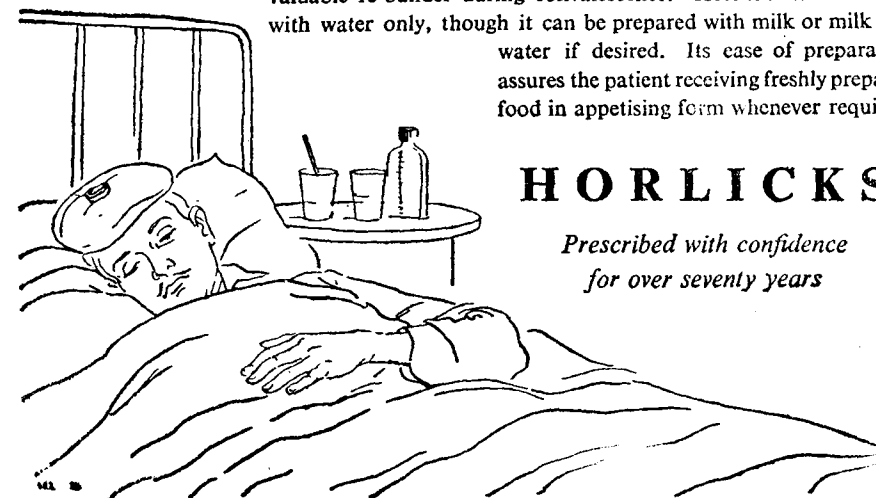
As a safeguard against imposition the letters MHS are embossed on the inner surface of each capsule, visible only when the capsule is cut in half at seam as shown.



diet in fevers

In fevers and febrile conditions Horlicks has proved itself to be an excellent form of nourishment.

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



HORLICKS

*Prescribed with confidence
for over seventy years*

To maintain protein intake

Dysentery and gastric troubles
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Pre- and post-operative treatment

It is well known that these conditions are often accompanied by protein depletion, resulting in a negative nitrogen balance. Further, the patient may be 'off his feed', and unable to benefit from the diet offered.

In such cases, Brand's Essence of Chicken is a valuable means of supplying protein, restoring a positive nitrogen balance, and returning the appetite to normal.

Brand's Essence of Chicken is a first-class protein of animal origin. Being partly hydrolysed, it is capable of easy ingestion, digestion and absorption. The patient finds it extremely palatable, and may take it as a liquid or (when chilled) as a jelly.

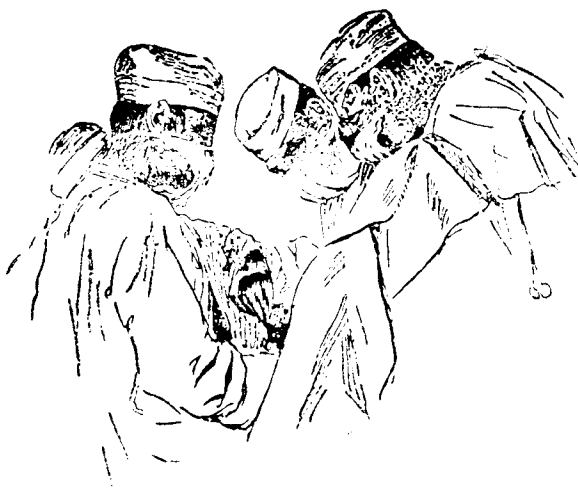
**BRAND'S ESSENCE
OF CHICKEN**
in 10 cc phials

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THE SAFE AND EASY-TO-OPEN PHIAL



BEC-9157(A)



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Sole Exporter of
**CZECHOSLOVAK
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Aethylum di-(oxycumarinyl)-aceticum 0.3 gm. per tablet.

warranting maximum efficiency and security in the dicumarol anticoagulation therapy of thrombosis, organic ailments of blood vessels, sclerosis multiplex and kindred ailments.

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Phenylisopropylamimum sulphuricum 0.01 gm. per tablet.

Indications:—Stimulant of the central nervous system, narcoleptic states, psychoneurosis, fatigue, apathy, obesity.

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4-methyl-2-thiouracil 0.05 gm. in tablet form

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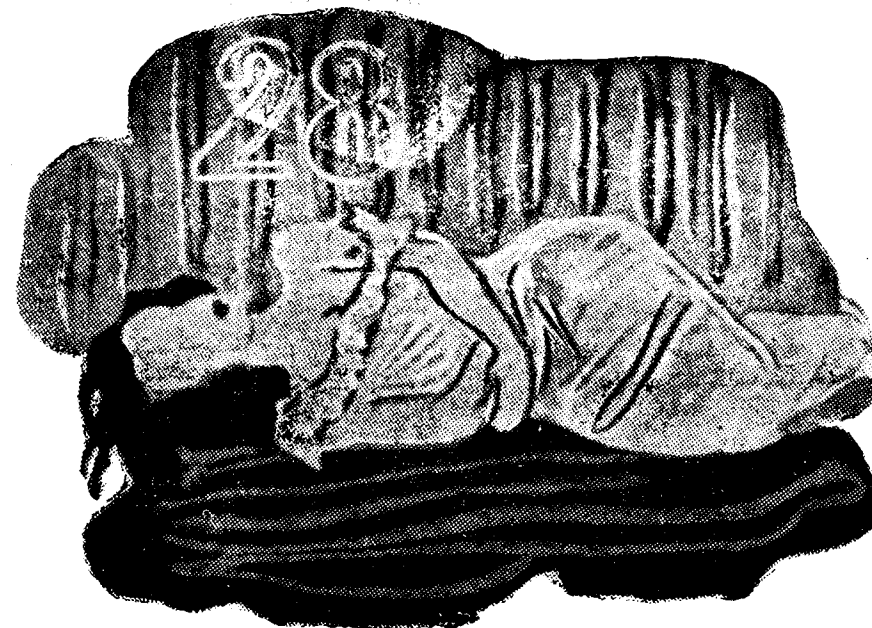
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For causal therapy of dysmenorrheic complaints:

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| ★ antispasmodic | ★ analeptic |
| ★ analgesic | ★ stimulating |

It does not cause

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| ★ tiredness | ★ habituation |
| ★ side-effects | ★ mania |



Swiss Pharmaceuticals

CILAG-HIND LTD., 15, CAWASHI PATEL ST., BOMBAY 1.

In mixed Infections . . .

'DISTAVONE' procaine penicillin G
potassium penicillin G
dihydrostreptomycin sulphate
... broadens the attack

Each single-dose injection-type vial contains 800,000 units procaine penicillin G, 100,000 units potassium penicillin G and the equivalent of 0.5 gramme dihydrostreptomycin base (as sulphate).

Distributed by the associates and agents of:

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THE DISTILLERS COMPANY
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In the fight against Tuberculosis DIHYDROSTREPTOMYCIN

is established as a **DC(B)L**
valuable Chemotherapeutic Adjunct

Dihydrostreptomycin DC(B)L.—vials containing the equivalent of 1 and 5 grammes of base (as sulphate).

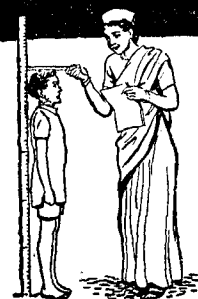
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Correct Dietary *for the* **Growing Child**



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'Ovaltine' is a concentrated extraction of ripe barley malt, pure creamy cow's milk, specially prepared cocoa and other energy-giving foods, together with natural phosphatides and vitamins. It is further fortified with additional vitamins B and D. The nutritional and vitamin content of 'Ovaltine' is of special importance. There is nothing like 'Ovaltine'.

Even the most delicate systems assimilate 'Ovaltine' readily, and it makes a particular appeal to children on account of its delicious flavour. This valuable food beverage may be taken at any time during the day, either with meals or in intervals between the day's activities, and a final cup before retiring is specially recommended.

OVALTINE

the food beverage

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Distributors: Grahams Trading Co. (India) Ltd.,
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IN PROTEIN DEFICIENCY
Prescribe

SANATOGEN

Containing 95% amino acids, including the ten essential amino acids and 20% Glutamic acid, as a soluble easily assimilated casein-glycerophosphate complex.

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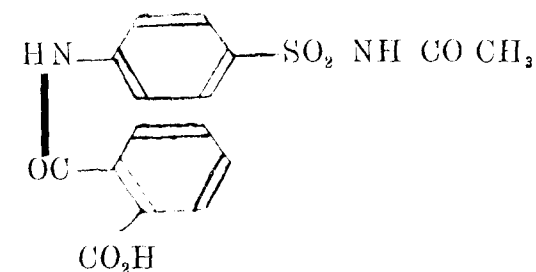
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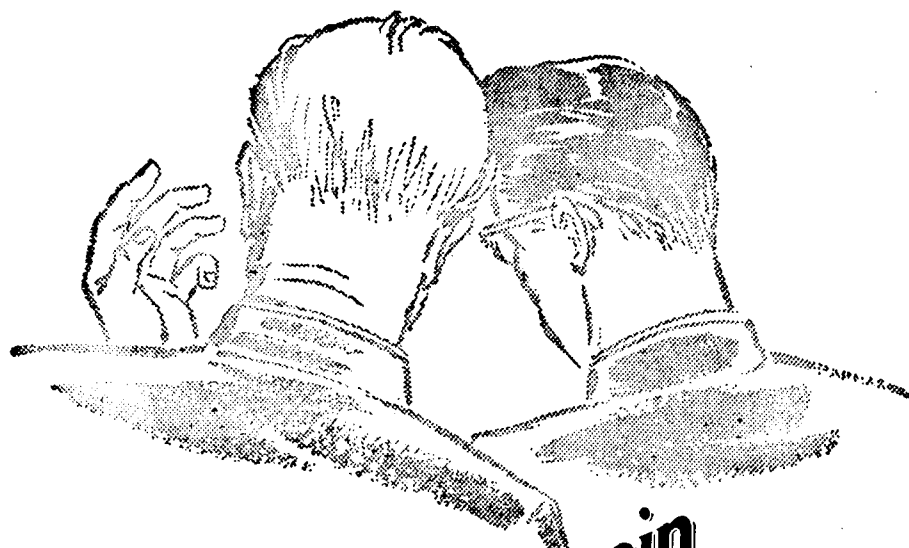
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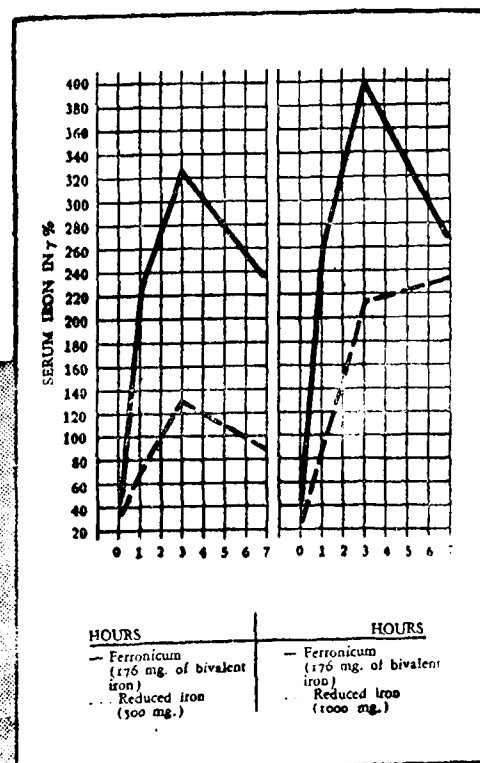
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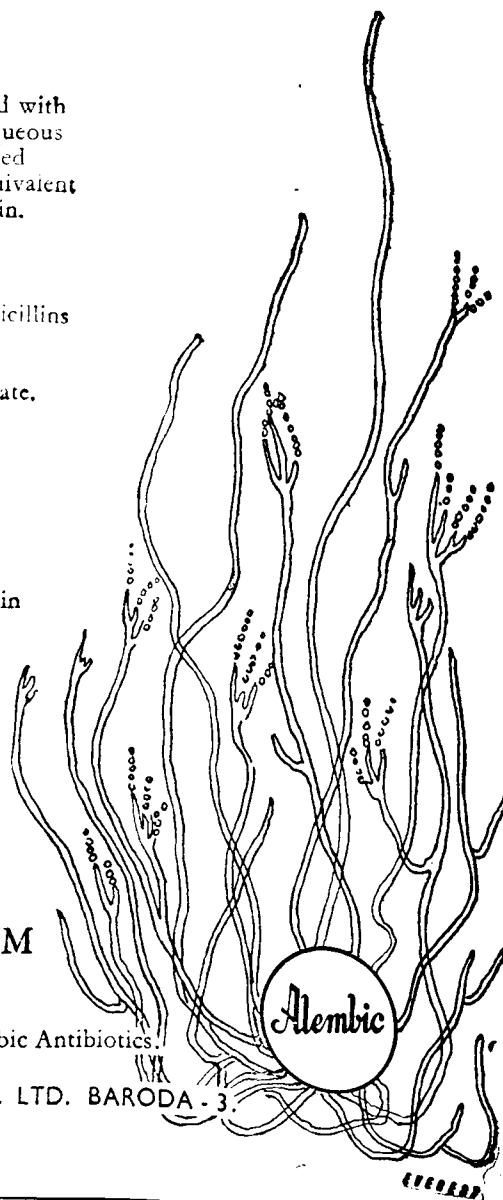
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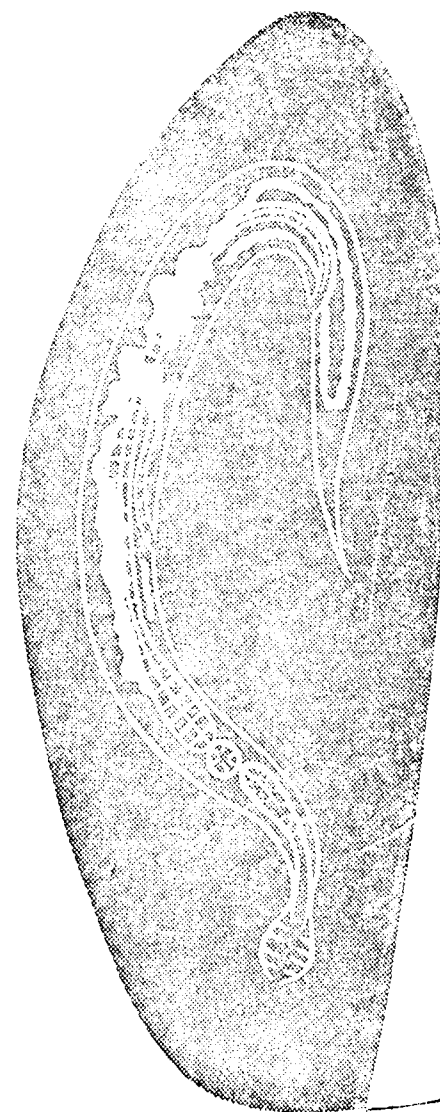
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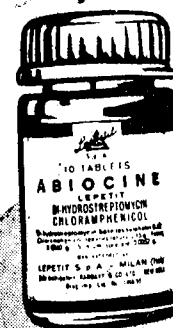
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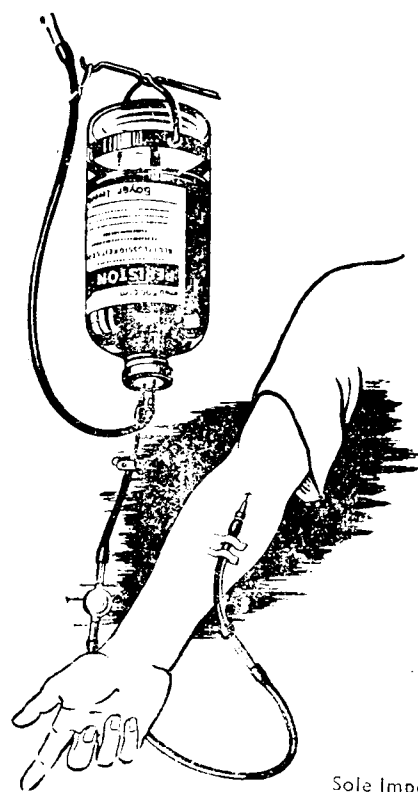
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Editor: U. KRISHNA RAU, M.B., B.S., M.L.A.

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Editorial & Publishing Office: 323-24, Thambu Chetty St., Madras-1.

Annual Subscription: Rs. 7-8-0. Foreign—Rs. 10 Post Paid.

Vol. 52

JANUARY, 1955

No. 1

Original Articles

PRINCIPLES IN THE MANAGEMENT AND AFTER-CARE OF CASES OF CORONARY THROMBOSIS*

RUSTOM JAL VAKIL, M.D. (Lond.), M.R.C.P. (Lond.), D.T.M. & H. (Lond.),
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DISEASES of the heart and blood vessels constitute the leading cause of death and disease in most civilized countries of the world. The enormity of this problem is revealed by the statistical observation that one out of every two deaths reported in the U.S.A. is due either directly or indirectly to this cause.

Recent observations show that diseases of the blood-vessels are more important than those of the heart in the causation of death and disease. Thus, of every ten deaths reported from so-called "heart disease" in the U.S.A., nine are traceable to involvement of blood vessels.

Of the various aetiological forms of heart disease known to us today the most important are the hypertensive and coronary, they being collectively responsible for a very large fraction of all heart cases. According to statistical studies, 50 per cent of males over the age of 45 years in the U.S.A. are subjects of coronary disease, the latter being the major cause of death of the American male in the most economically productive part of his life. In the short space of twenty-seven years from 1920 to 1947, the death-rate of individuals aged 35 to 65 years in the U.S.A. has doubled in this case of males but has remained unaltered in the case of females; this sex discrepancy is in part due to the alarming increase in the incidence of coronary disease in male subjects within recent years.

*Specially contributed to the ANTISEPTIC.

The incidence of coronary disease, in my series of cases in India, has been 13.5 per cent for hospital and 26 per cent for private cases, thus, confirming the predilection of this disease for the higher strata of society. Other features of interest about coronary disease and coronary thrombosis are: (1) the extraordinary preponderance of male subjects, (2) the tendency to affect middle-aged individuals, (3) the increasing involvement of younger age-groups in recent years, and (4) the relationship of obesity and high intake of fat in the diet to the incidence of the disease.

In order to facilitate diagnosis and treatment, I have recently suggested the following grouping or classification of coronary cases, *viz.*: (1) *potential* or *likely* subjects, *i.e.*, individuals with a proclivity to coronary disease, either through familial or constitutional predisposition or through the intermediation of diseases like hypertension, arteriosclerosis, gall-bladder disease, diabetes, xanthomatosis or myxœdema, (2) *latent* or *masked* cases, where manifestations of the disease, both subjective and objective, are absent, the coronary insufficiency or impaired coronary *reserve* being obvious after the application of special tests, like the anoxœmia test and exercise test, (3) *early* cases with mild or ill-defined symptoms and signs like exertional dyspnoea, fatigue, ergophobia and non-specific electrocardiographic abnormalities, (4) *late* cases or *advanced* cases (*classical* forms of the disease) with angina pectoris or coronary thrombosis, and (5) coronary or cardiac *invalids* who, having survived acute attacks, are left with impairment of the cardiac reserve.

The medical profession has so far concerned itself solely with the diagnosis and treatment of advanced cases of coronary disease (group 4). Unless and until more labour and time are devoted to a study of the other groups, the preventive aspects of coronary disease are likely to remain incomplete and unsatisfactory.

In 45 per cent of my cases of coronary thrombosis, I was able to elicit a *trigger mechanism* or precipitating factor, prior to the onset of the attack. Amongst these, the most important were: (1) excessive fatigue; (2) violent or unusual physical effort; (3) dietetic indiscretion; (4) excessive purgation; (5) chest injuries; (6) mental shock; (7) febrile conditions; (8) debilitating diseases; (9) coitus; (10) the administration of certain drugs, like aspirin, penicillin, diaphoretics and thyroid; (11) anæsthesia; (12) surgical operations; (13) allergic reactions; (14) hypoglycœmic shocks; (15) syncopal attacks; and (16) the inception of ectopic rhythms.

Premonitory symptoms or signs suggestive of impending attacks of coronary thrombosis, have been variously referred to in the literature under the captions of "coronary failure," "coronary insufficiency" and the "pre-thrombotic syndrome"; and these were observed in 40 per cent of my cases. Amongst the most important manifestations were: (1) atypical or persistent

angina, unusual in character, intensity, radiation or duration, (2) lassitude, (3) gastrointestinal symptoms, (4) frequent extrasystoles, (5) paresthesiæ, and (6) electro-cardiographic patterns of myocardial anoxœmia, coronary occlusion of ill-defined types.

While 63 per cent of my cases of coronary thrombosis conformed to the *classical pattern* described in the literature, *i.e.*, with chest-pain as the preponderant or presenting symptom, the remainder were classified as follows, *viz.*: (1) the dyspnoic form, (2) the pulmonary form, (3) the syncopal form, (4) the sudoral form, (5) with peripheral failure or "shock," (6) the gastro-intestinal form, (7) with cardiac failure, (8) the pyrexial form, (9) the cerebral or neurogenic form, (10) the larval form or *forme fruste*, and (11) the "silent" form. Whilst in 71 per cent of cases, the onset of the attack was sudden (*debut brutal*), in the others it was either hyperacute, fulminating, insidious, incipient, "silent," atypical, anomalous or of the *ictus myocardique* type.

Notwithstanding the innumerable contributions that have been made to the literature relating to the treatment of coronary thrombosis, knowledge of the subject continues to remain somewhat vague and controversial. For the sake of convenience, the subject is considered under the following main heads, *viz.*: (1) emergency treatment at the onset of the attack, (2) treatment of the attack proper, and (3) convalescence and after-care of the coronary patient.

Emergency treatment at the onset of attack.—*Rest*: Of all the therapeutic measures at our command, the most essential and important is that of rest. In order to be effective, rest must be complete and prolonged, physical and mental. Emotional upheavals caused by well-meaning but fussy relatives may be avoided by excluding them from the sick-room for the first few days.

The therapeutic measure of complete rest affords the necrosed heart muscle a chance to heal efficiently with a small and unyielding scar, tends to prevent aneurysmal bulging of the damaged wall, increases the rest period of the heart by provoking a slower cardiac rate, serves to prevent the dreaded complication of cardiac rupture and promotes an increase in the reserve power of the heart.

During the initial stages of treatment, the patient is not allowed to perform any sort of movement, including raising the hips or body during defæcation or sponging. In order, however, to prevent hypostatic congestion of the lungs and thrombotic complications, especially in elderly subjects, passive turning of the patient from side to side and passive and active movements of the lower extremities may be permitted now and then.

Regarding the *ideal posture* for the coronary patient, there are no rigid rules, the patient being allowed to determine for himself the position of "optimum comfort and minimum cardiac and

respiratory embarrassment." In a fair percentage of coronary cases, the sitting-up or orthopnoic posture affords the maximum relief. Of late, there has been considerable discussion as to the relative merits of "bed-rest" and "chair-rest" in the treatment of such cases.

Diet:—For the first few days of an attack of coronary thrombosis, it is customary to keep the patient on liquid diet, inclusive of milk, Horlicks, *kunjee*, fruit juice, tea and lemonade. Karell's diet, although strongly recommended elsewhere, is not well tolerated by the majority of our patients who experience symptoms of anorexia, constipation and distention.

When nausea and vomiting prove bothersome, the patient is kept for a few days on intravenous or subcutaneous infusions of glucose or glucose and saline.

Opiates.—For the symptoms of pain, dyspnoea and shock at the onset of attacks, the "drug of choice" is unquestionably morphia or one of its substitutes. Besides being an effective antidote to pain, morphia serves to allay anxiety and restlessness, induces a feeling of euphoria or well-being in the patient and reduces the work of the heart.

In order to get the best results, morphia must be administered both promptly and in liberal doses; "insufficient narcotization" may prove disastrous. My own practice is to administer an initial dose of gr. $\frac{1}{4}$ in mild and gr. $\frac{1}{2}$ or gr. $\frac{3}{4}$ in severe cases, subcutaneously or intramuscularly. A dose of gr. $\frac{1}{4}$ is then repeated two-hourly, if necessary, until symptomatic relief is obtained. In any case, it is unwise to exceed a total dose of morphia of gr. 1 in 6 hours and gr. 2 in 24 hours. In the "silent" form of case, where the symptoms of pain, dyspnoea, restlessness and shock are in abeyance or absent, there is no justification for the use of morphia; it may introduce unnecessary complications like nausea, vomiting, constipation and oliguria.

Contrary to the assertions often made, I have found the morphia-substitutes, *viz.*, Diluadid, Eukodal, Pantopan, Metapon, Papaverine, Omnopon, Pethidine, Demerol and Dolantin, useful in the treatment of coronary cases. They are valuable in cases of morphia-intolerance, in mild cases of the disease and as adjuvants to morphia therapy. Diluadid, usually injected in 1/20 grain doses, is perhaps the most useful, being more analgesic but less soporific in its effects than morphia. For the majority of cases of coronary thrombosis, where presenting symptoms are not too severe, Pethidine, Dolantin or Demerol may be advantageously employed in 100 mg. doses intramuscularly, as they are devoid of unpleasant side-effects; they are particularly useful: (1) as initial antidotes to pain, dyspnoea and shock in cases of mild or moderate intensity; (2) for re-inforcing the action of stronger drugs like morphia and Omnopon; (3) for those intolerant of morphia; (4) as hypnotics for the first few

nights of the attack; and (5) in cases of renal dysfunction, hepatic damage and cyanosis.

Amongst the unpleasant side-effects of morphia and other opium derivatives, are depression or paralysis of the respirator centre, coronary vasoconstriction, ectopic rhythm, nausea, vomiting, abdominal distention, constipation, suppression of urine, itching or pruritus, delirium, maniacal symptoms and renal failure. For the more serious of these ill-effects, atropine, caffeine, sodium benzoate, coramine, cardiazol or aminophylline are employed parenterally.

In the event of *morphia resistance*, when even large doses prove futile in the control of pain and dyspnoea, recourse may be had to one or other of the following measures; *e.g.*: (1) the intravenous administration of gr. $\frac{1}{4}$ to gr. $\frac{1}{2}$ of morphia, diluted with 10 cc. of distilled water, (2) intravenous or intramuscular Novalgin or Cibalgin in 2 cc. doses, (3) inhalation of oxygen in high concentrations, (4) intravenous aminophylline 0.24 to 0.48 g., (5) Rinzler's method of rhythmic spraying of the painful area with ethyl chloride, (6) infiltration of the locally painful *trigger areas* with novocaine or sevicaine and (7) paravertebral injection.

Oxygen:—The inhalation of oxygen in high concentration is now universally accepted as a useful therapeutic measure in the treatment of coronary thrombosis, particularly in cases associated with cyanosis, severe or intractable pain, severe dyspnoea, pulmonary congestion, peripheral failure and Cheyne-Stokes breathing. It is said to reduce (1) the state of anoxia of the ischaemic area of the myocardium and (2) the anoxaemia of the peripheral circulation. Oxygen may be administered with the oxygen chamber or tent, the BLB mask or the single or double nasal catheter.

Atropine, either alone or in combination with morphia, has been strongly recommended by some authors. It is said to prevent (1) vagal shock and death, (2) reflex vaso-constriction of the unaffected coronary arteries, (3) bronchial spasm and (4) pulmonary congestion or oedema. Whether it really subserves these functions is open to question. In any case, it is harmless, except perhaps in the presence of a tachycardia.

Nitrites have no place in the treatment of acute attacks where (1) by further lowering the already low blood-pressure, they are likely to promote further thrombosis or clotting and cause impairment of blood supply to the myocardium, (2) by dilating the peripheral vessels, aggravate the state of shock, and (3) by action on cardiac nerves, induce dangerous ectopic rhythms. Perhaps the sole indication for their application is paroxysmal anginal pain associated with rise of blood-pressure.

Treatment of the attack proper.—*Rest*:—There has of late been considerable discussion as to the optimal period of bed-rest required in cases of coronary thrombosis. On the basis of Mallory's

work, it has been customary to prescribe six to eight weeks of rest in bed. Lately, in the U.S.A., there has been a tendency to shorten this period of rest, allowing liberty of movement almost from the very start. Supporters of this so-called "*ambulant therapy*" have laid emphasis on the following disadvantages of prolonged bed-rest, *viz.*: (1) a loss of *nerve*, (2) constipation and abdominal distention, (3) urinary disturbances, (4) hypostatic congestion of the lungs, (5) pulmonary embolism, (6) bed-sores, (7) muscle and ligament strains in the back and shoulder muscles, (8) renal calculi, and (9) decalcification of bones. My experience of this new regime of early mobilization has been somewhat bitter. In view of the fact that complications and death are mostly confined to the first three weeks of the illness, I prefer to steer a middle course enforcing complete bed rest for three to four weeks and partial rest for the next two to six weeks in the average case of the disease. The three phases of complete rest, partial rest and rehabilitation or return to normal are adjusted to suit the requirements of each case. This is not surprising in a disease like coronary thrombosis, where the rate and duration of healing of the infarct are governed by a number of variable factors, *viz.*: the size of the infarct, the state of the collateral circulation, the speed of onset, the age of the patient, the condition of the myocardium, the co-existence of diseases like diabetes and hypertension and the intensity of the clinical features of pain, dyspnoea and shock.

Diet:—After the subsidence of hyper-acute symptoms, the patient is permitted frequent and small meals of low caloric value. Master, Jaffe and Dack obtained encouraging results in their cases with "low calorie diets" of less than 800 to 1000 calories per day and with limitation of fluid to one litre per day. The majority of workers, including White and Friedman, are less stringent with calories and allow 1,000 to 1,500 calories per day. The object of a low calorie diet is to reduce the work of the heart by lowering the B.M.R. In the absence of positive indications like congestive cardiac failure, pulmonary congestion or oedema and persistent hypertension, a "salt-free" diet is not required. In persistent opinion, proteins of good biological character are beneficial.

Anticoagulant therapy is regarded by some authors as the most startling modern innovation or advance in the treatment of coronary thrombosis, a "sheet anchor" in treatment, worthy of adoption in all cases. The incidence of thrombotic complications in cases of coronary thrombosis has been high in the past (60 per cent in Garvin's series and 45 per cent according to Hellerstein and Martin); according to Wright and others, anticoagulant treatment has brought about an appreciable reduction in the incidence of these complications with a corresponding lower death-rate. In a survey of 800 cases, the death-rate for the 432 Dicoumarol-treated cases was 15 per cent, while it was 24 per cent for the untreated

or control group. In the light of this experience, Wright and Master advocate the universal adoption of anticoagulant therapy for all cases of coronary thrombosis irrespective of severity, provided (1) the physician is familiar with its application, (2) laboratory facilities are available and (3) contraindications to therapy, *viz.*, liver or kidney disease and tendency to hæmorrhagic phenomena, do not exist.

Lately, Russek and his associates have abandoned this form of therapy in mild cases of thrombosis, where thrombo-embolic complications are infrequent and the death rate is low; the difficulty, however, is to assess the degree of severity or future outcome in any given case.

The three main objects of anticoagulant therapy are: (1) to prevent or combat the formation of thrombi, (2) to encourage resolution or removal of thrombi, and (3) to prevent the propagation, multiplication and embolization of thrombi. Although these objects are easy of achievement *in vitro*, several difficulties are encountered during the administration of anticoagulants to man, *viz.*: (1) the danger of provoking severe or even fatal hæmorrhage in any part of the body, (2) the variability and unpredictability of response in individual cases, (3) the time, money and personnel involved in the management of cases, and (4) the possibility of "failure" in spite of efficient maintenance of so-called "therapeutic levels."

Anticoagulants most in use at the present time are Heparin, Dicoumarol, Tromexan and Pelentan. Amongst those less well known in this country, are Paritol, Treburon, Danilone and *alpha*-tocopherol.

The method of treatment is to start with Heparin on the first day, either as a single intramuscular dose of 400 mg. of depo-Heparin or 100 mg. doses subcutaneously at 8 hour intervals. From the second day onwards, it is customary to employ one or other of the oral anticoagulants *e.g.*: Dicoumarol or Tromexan. Tromexan, or the ethyl ester of Dicoumarol, has been used quite extensively in Europe and America with encouraging results. It is quicker in action than Dicoumarol, used in doses 5 to 6 times greater and is not cumulative; unfortunately, its action is not uniform, there being a tendency to sudden rises of prothrombin time. Although an initial dose of 1,500 to 1,800 mg. of Tromexan has been employed by many, I prefer to start with 1,200 mg. (or 4 tablets of 300 mg. each in view of the hæmorrhagic tendency exhibited by some patients. Later, a maintenance dose of 300 to 600 mg. daily suffices to keep up the so-called *optimum* therapeutic level. In the event of simultaneous administration of antibiotics or alcohol, much smaller doses of anticoagulants are required to ensure correct blood levels.

Although, anticoagulant therapy is usually continued for three or four weeks only, some authors (Foley and Wright) have advocated long-term therapy over months or years.

Medicinal remedies:—Amongst the various remedies recommended on and off for the treatment of the acute attack of coronary thrombosis, the most valuable perhaps are the *sedatives*. The regular exhibition of sedatives like bromide, chloral and phenobarbitone in small doses during the day time and of soporifics, like Seconal, Amytal, Tuinal or Soneryl at bed-time for the first week or two of the attack, go a long way towards promoting recovery, partly by soothing the frayed nerves of the coronary patient and partly by ensuring good sleep.

The *xanthine* or *purine* group of diuretics, including aminophylline, diuretin, theocin sodium-acetate, theobromine, theocalcin and Deriphyllin, are perhaps the most widely used groups of drugs in the treatment of coronary disorders.

It is doubtful whether, in the doses usually employed, these drugs subserve any useful therapeutic purpose except in the case of aminophylline or Deriphyllin administered parenterally. For this purpose, 0.24 to 0.48 g. aminophylline in 10 cc., further diluted at times with 25 per cent glucose 25 to 50 cc. is injected very slowly intravenously into a vein in the arm. Alternatively, the drug may be administered intramuscularly (0.5 g. in 2 cc.), by the rectal route (10 grain in 20 cc. of water) or by the mouth (1½ to 3 gr. doses) three times a day.

The purine diuretics are said to (1) promote diuresis, (2) improve coronary circulation, (3) reduce pain, dyspnoea and Cheyne-Stokes breathing, (4) reduce the size of the infarct (on the basis of animal experiments), and (5) reduce the death-rate. Whether such claims are exaggerated or real, it is premature to say. During or after the administration of these drugs, side-effects like nausea, vomiting, diarrhoea, headache, giddiness, palpitation and precordial discomfort are quite common. Syncope, extreme hypotension and even death have been reported on rare occasions.

Papaverine, an alkaloid of opium, first tried in the treatment of angina pectoris in 1913 by Pal, has lately come into prominence as a useful coronary dilator in cases of thrombosis. It is said to possess the following advantages, *viz.*: (1) not habit-forming, (2) relatively non-toxic, (3) effective antidote to pain and dyspnoea and (4) causing no bowel disturbances. Recent studies have failed to substantiate these earlier claims. Whilst in the doses usually employed, papaverine has little or no effect on the coronary circulation, in large doses it has been responsible for toxic symptoms, like nausea, vomiting, drowsiness, vertigo, extrasystoles, A-V block, intraventricular block, coupling, ventricular tachycardia or fibrillation and even cardiac arrest on rare occasions. It may be

administered orally in 1 to 3 grain doses several times a day, subcutaneously or intramuscularly in 1 to 2 grain doses or intravenously in 1 to 2 grain doses diluted with 20 to 30 cc. normal saline or water, every few hours.

Quinidine sulphate in 3 grain doses three times a day, for two weeks has been recommended by Levine since 1932 as a routine measure in all cases of coronary thrombosis with a view to averting the dreaded complications of ventricular tachycardia and fibrillation. In view of (1) the low incidence of these complications and (2) the inadequate dosage suggested by Levine, a routine adoption of this procedure is not advised. It is better to give Quinidine in large doses *i.e.* 3 to 5 grains every 3 or 4 hours by mouth or intramuscularly in 7 to 10 grain doses two or three times a day, at the first sign of impending ventricular arrhythmia, *i.e.*, with the appearance of frequent or multifocal ventricular extrasystoles.

It has been customary in the past to avoid the *digitalis* group in the acute phase of coronary thrombosis, in the face of the following dangerous possibilities, *viz.*: (1) rupture of the heart, (2) ectopic rhythms, *e.g.*, ventricular tachycardia and fibrillation, (3) coronary vaso-constriction, (4) diminution of cardiac output, (5) embolization of thrombi from within the cardiac chambers, and (6) a reduction of the clotting time. The consensus of opinion at the present time, is to use digitalis, in moderate doses whenever necessary, the main indications for its exhibition being (i) cardiac failure and (ii) auricular fibrillation with a rapid ventricular rate. In the opinion of Gold, most of the objections levelled against digitalis are ill-founded and unnecessary. On the continent of Europe, intravenous strophanthin ("*medication cardiodynamique*") continues to enjoy a great reputation in the treatment of coronary cases.

Khellin or *visnamin*, the active principle of the Egyptian fruit *amnis visnaga*, has been recently hailed as a useful coronary dilator, especially in cases of angina pectoris. Usually administered orally in 50 to 100 mg. doses two to four times daily or intramuscularly in 100 to 200 mg. doses once or twice daily, khellin sometimes causes untoward symptoms like nausea, vomiting, diarrhoea, dizziness or vertigo, somnolence or insomnia, light headedness, urticaria and dermatitis. My own experience of it has been disappointing; for there were too many instances of gastro-intestinal intolerance.

The oral or parenteral administration of *Vitamin E* or *alpha-tocopherol*, in doses of 200 to 300 mg. daily, is enthusiastically advocated in cases of coronary artery disease by Shute and others. In a fair trial of this somewhat expensive form of therapy in cases of both coronary thrombosis and angina pectoris, I obtained the spectacular results, described by the originators of this therapy only in a very small percentage of cases.

Testosterone propionate in doses of 25 mg. intramuscularly two or three times a week, has been extensively employed in cases of coronary disease with conflicting results. It is said to benefit the coronary cases by (1) dilating the coronary vessels, (2) promoting a better collateral circulation, (3) improving the cardiac metabolism of creatine and phosphorus and (4) correcting a latent androgen deficiency. In a statistical analysis of 376 cases of angina pectoris treated with androgens, definite amelioration of symptoms was reported (Vakil, 1949) in 80 per cent, the response being particularly gratifying in the secondary or post-thrombotic form of angina.

Intravenous injections of *glucose* or *fructose*, in doses of 25 to 75 cc. of a 25 per cent solution, once or twice daily, have been popular in India for the treatment of coronary patients. Glucose, besides being a good food for the heart muscle is said to help diuresis and dilate the coronaries. Although of proved value in complications like vomiting, hiccup and shock, glucose has little to recommend it as a routine measure in the treatment of acute attacks of coronary thrombosis. Unpleasant side-effects, such as pyrexial reactions, thrombosis of the cubital veins, anginal pains, faintness, pallor, sweating and hypoglycæmic reactions may occur after intravenous glucose therapy.

It is a matter of controversy whether the oral administration of stimulants like coramine (Ciba) and cardiazol (Knoll) in doses of 15 to 20 minims three to six times a day, for the first few days or weeks of an attack as customarily practised, serves any useful purpose. In view of the subjective improvement claimed by some with this regime it is worth a trial, especially in conjunction with peripheral stimulants like Veritol (Knoll).

Vitamin B complex, or-B, intramuscularly is a useful supplementary measure in the treatment of coronary cases. On the basis of Mallory's work on the healing properties of ascorbic acid in experimental infarcts, Vitamin C has also been employed in the treatment of myocardial infarcts, usually in doses of 250 to 500 mg. daily, intravenously or intramuscularly.

Mercurial diuretics, like Neptal, Esidrone, Salyrgan, Novurit and Thiomerin, are not indicated in average uncomplicated cases of coronary thrombosis where they may induce states of water and salt deprivation or asthenia. In the event, however, of complications like cardiac-failure, pulmonary congestion and pulmonary oedema, 1 to 2 cc. of a mercurial diuretic intramuscularly, two or three times a week may prove life-saving. It is dangerous to administer mercurials intravenously in cases of coronary thrombosis. In the event of peripheral failure or markedly depressed blood-pressure, the response to mercury may be poor.

Transfusions of blood and *infusions* of fluids like plasma and glucose have been advocated and employed in cases of coronary

thrombosis complicated by severe shock. In view of the likelihood of acute pulmonary oedema or congestive cardiac failure, it is advisable (1) to inject the fluid slowly by the drip-method and (2) to restrict its use only to bad cases of shock. Of late, intra-arterial transfusions have been recommended as being more effective and scientific than the intravenous.

Cortisone, ACTH and *nor*-adrenalin have been recommended and tried in recent years in cases of coronary thrombosis complicated by severe shock and extreme hypotension. In coronary thrombosis where the clinical picture and course vary from patient to patient, a rigid therapeutic regime, applicable to all cases, is not possible. Also, over-treatment is likely to do more harm to the patient than under-treatment. On a proper selection, blending and application of therapeutic measures depends, to a great extent, the ultimate outlook in any case.

Convalescence and after-care.—After the healing of the myocardial infarct in a coronary case, the patient is handicapped in three main ways, *viz.*: (1) he is usually left with a *limitation* of cardiac or coronary reserve, (2) he is the subject of atheroma or arteriosclerosis, affecting diverse vascular territories of the body, and (3) he shows a proclivity to further attacks of thrombosis. Attention to these three factors is therefore, necessary in dealing with the so-called *coronary invalid*.

Regarding *occupation*, each case requires individual consideration. If the patient's job entails undue physical or mental effort, he is advised to abandon it altogether. In an average uncomplicated case, abstinence from work for 3 to 4 months may be advised when the nature of the work is clerical or sedentary and of six months if it entails physical effort. Since coronarians are usually the "bread-winners" or "go getters" of the family and often high up on the social or intellectual ladder, their *rehabilitation* is a matter of great importance and urgency. By rehabilitation is meant "the return of a disabled person to the maximum physical, mental, emotional, social, vocational and economic usefulness."

Mode of life.—In Beckman's opinion the coronary patient should "model his temperament upon that of a cow." For the convalescent case, a wise regulation of the mode of life based on proved physiological principles is more important than a mere administration of drugs. A minimum of eight hours' sleep in the night with rest after each meal, hours of work cut down to the minimum possible and suitably spaced, and avoidance of mental and physical overwork, should be the objectives in each case.

Diet.—The following generalizations facilitate the construction of dietaries in these cases. Three or four well-spaced meals of relatively small bulk are better than one or two large meals per day. Obese patients are frequently benefited by measures aimed at weight-reduction, especially by low-calorie diets. Carbohydrates

being ready sources of energy and easily assimilable, should constitute the main item of the diet. Fatty foods, purine-rich foods (liver, brain, sweetbread etc.), indigestible foods (condiments, spices, gravies, nuts, etc.) and gas-forming foods (potatoes, cauliflower, cakes, cheese etc.) are best avoided.

Drugs:—Even after the completion of healing of the myocardial infarct, coronary dilators are justified particularly in combination with mild sedatives as exemplified by numerous proprietary preparations e.g.: Theominal, Theogardenal and Sedophil. For the alleviation or prevention of the post-thrombotic anginal syndrome, a capsule containing phenobarbitone, codeine phosphate, papaverine hydrochloride, aminophylline or theocin-sodium acetate, erythrol tetranitrate or mannitol hexanitrate and belladonna is often of great value. Recently, attempts have been made in America and elsewhere at artificial vascularization of the heart in coronary patients with myocardial anoxæmia. Beck's operation of grafting the left pectoralis major muscle on to the myocardium and O'Shaughnessy's operation of cardio-omentopexy are examples of such attempts at the artificial establishment of a new "cardiac circulation."

CULDOSCOPY IN AMENORRHOEA

Since 1913 Decker and others have used culdoscopy successfully for a variety of obstetric and gynaecologic indications. The procedure, in essence, consists of insertion of an endoscopic device, similar in part to a cystoscope, through the cul-de-sac of a female patient in knee-chest position. When performed properly, it allows adequate observation of the pelvic viscera.

The indications for culdoscopy are in the diagnosis of ectopic pregnancy, to identify pelvic endometriosis, to localize and help determine the significance of a pelvic mass. The indiscriminate exploratory laparotomy in the apparent gynaecologic problem may serve as an impetus to the symptomatology of the neurotic patient. Culdoscopy is also of merit in the study of infertility problems, it has also been used as a diagnostic aid in endocrine problems.

Fitzgerald and Crossley of New York have extended its use to selected cases of non-obstetric amenorrhea. This usage has enabled them in some cases to identify definitely the aetiological basis of the amenorrhea and to carry out the proper therapy when indicated. In 1935 Stein and Leventhal reported a type of ovarian dysfunction characterized clinically by amenorrhea and sterility and producing the pathologic picture of ovaries which may be large and typically are pale, smooth, and polycystic. The diagnosis of this disorder is not always easy for the bilateral enlargement of the ovaries may be only moderate, and frequently they are not palpable. Decker used culdoscopy in identifying this condition.

Utilizing culdoscopy, they have also confirmed the existence in a patient of a syndrome described by Turner in 1938: The present concept of this disease is that a genetic factor is responsible for the failure of the ovaries to develop normally.

Hormone therapy for a sufficient interval re-establishes the secondary sex characteristics and is a concomitant of adequate treatment which must be lifelong. In selected cases male hormone therapy may be utilized for its beneficial effect on growth and general anabolism.—(N.Y.S.J.M., Oct. '54).

SURGERY OF RENAL LITHIASIS *

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In a discussion on the surgical treatment of renal lithiasis it is advantageous to include the treatment of ureteral stones as well. The aetiological factors and the anatomical and physiological features are similar in both these groups as also the principles of pre-operative, operative and post operative treatments. One may call it reno-ureteral lithiasis. The ideal treatment of reno-ureteral lithiasis should aim at three things, viz.: (1) Relief of the symptoms produced by the stone. (2) Removal of the stone. (3) Removal of the cause of the stone in order to prevent recurrence.

This paper is based on the experience gained in treating 30 cases of reno-ureteral lithiasis surgically during a period of five years from 15th March 1949 to 15th March 1954. Of these 30 cases, 25 were treated in my wards in the Irwin Hospital and 5 in my private clinic. Out of the 25 hospital cases 16 had stone in the kidney and 9 had stone in the ureter. The five cases from my clinic comprise three kidney stones and two ureteric stones.

In Saurashtra, renal lithiasis is very common, though exact statistics about its incidence are not available. Another impression one gets is that the stones start forming in the early years of life; this was the case in 77% of cases covered by this series. They were all under 30 years of age. 20% had kidney stones in the age period 10 to 15 years. The statistics from other reports suggest that more than 50% of renal stones occur between 30 and 50 years of age. Surgeons of Saurashtra will corroborate this early age incidence. Many times we have had to treat infants in their first years of life having an impacted stone in the urethra or a stone in the bladder. Only recently I operated on a boy aged 15 years and removed a stone from his left kidney. He had already had two operations for bladder stones, one at the age of 3 and another at the age of 5. This time he had come with a sinus in the left flank where a pyonephrosis had burst 2 years ago. The other two patients in this series one aged 12 and the other 15, had multiple stones in both kidneys.

Whatever be the aetiological factors concerned, the majority of our patients have the primary type of renal calculi. In my series of 30 patients who underwent the operation and in more than 50 persons who went away refusing to be operated during the last 5 years. I have not come across any case in which the stone formation could be attributed to hyper-parathyroidism or to prolonged decubitus. How

*Paper read at 7th Gujarat and Saurashtra Provincial Medical Conference.

far infection plays a part, it is difficult to say but in this series there is not a single case of the large stag-horn type of phosphatic stone filling up the pelvis and the calyces. This type of secondary stones is very rare in Saurashtra. Most cases have relatively small multiple or single oxalate stones. Infection occurs after the formation of stone and our patients carry the stone in their bodies, till they are forced by a large pyonephrosis and its sequelæ to seek surgical intervention. I have a patient under observation who for the last eight years has refused to part with a fairly large stone in his left renal pelvis, in spite of my continued advice. He was operated upon in 1946 for two small stones in the bladder and during the investigations at that time, the kidney stone was discovered. He would not have got operated even for bladder stones but for an interesting reason. One of the bladder stones was small enough to block the internal urinary meatus during the act of micturition and suddenly arrest the stream, causing him great agony. This patient found a way out of this trouble which, so far as I know is indeed original. He discovered by trial and error that if he stood on his head and then passed urine the stone would not block the bladder opening and he could empty his bladder quite in comfort. He used this acrobatic feat for quite a long time but had to seek medical advice for two reasons. One was that at the end of this novel method of micturition, the last dribble of urine fell on his face and mouth which he abhorred very much and secondly he had to seek the solitude of a closed room every time he desired to pass urine.

Every renal stone is a constant menace to the functional value of the kidney and to the health of its owner. When infection occurs, which is almost inevitable, renal destruction progresses much more rapidly. Unless there is some strong contraindication, the stone must be removed.

The modern trend in the surgery of renal lithiasis is conservative. The central idea of the treatment is to preserve the renal function as much as possible while getting rid of the stones. The kidneys, though two in number are delicate mechanisms prone to go out of action on slight provocation like infections, allergies, wear and tear or trauma. And therefore, every effort must be made not to handicap the patient by sacrificing any useful kidney substance. The aphorism of John Hunter, that the ideal surgeon is one who lessens surgery, is nowhere more applicable than in the surgery of renal lithiasis.

In this series of 30 cases, 19 had stones in the kidney—including the pelvis of the kidney. Out of these 19 cases, four had a solitary stone in the renal pelvis. The single stone had caused a large pyonephrosis and complete destruction of the kidney in two of these 4 patients. In the remaining 15 cases of renal calculi, 13 had multiple stones only on one side while two had multiple stones in both the

kidneys. Out of the 13 unilateral multiple stones, two cases had a stone in the renal pelvis and several stones in the calyces. In these 19 cases of renal stones the following operative procedures were undertaken:—(1) nephrectomies in 7 cases; (2) nephrolithotomies in 6; (3) pyelo-nephrolithotomies in 2; (4) pyelolithotomies in 2; and (5) nephrostomies in 2 cases. Nephrectomies were relatively more in this series because our surgical cases seek intervention at a very late stage in the disease.

Before undertaking the treatment of renal lithiasis, the functional capacity of the kidneys jointly and severally, should be assessed. The renal function tests are too well known to need enumeration here. Not having the help of an up-to-date laboratory, I rely chiefly on the clinical condition of the patient, the examination of the urine and the radiological investigations. The quantity of urine passed in 24 hours is estimated for 3 or 4 days, its specific gravity noted and detailed chemical and microscopic examinations are carried out. A plain X-ray film of the whole urinary tract is made. If a radio-opaque shadow is seen, intravenous pyelography promptly gives information as regards the position of the shadow, the functional capacity of both the kidneys and adds to the confidence of the surgeon by revealing the presence of the opposite kidney. Having once witnessed a patient die after removal of the only kidney, I never take a patient with renal lithiasis to the table unless unequivocal evidence of the presence of the opposite kidney is secured. Sometimes other abnormalities of the urinary tract are present, as was found in a recent case of mine where a double ureter on the right side was seen on intravenous pyelography for a stone in the left pelvis. If for any reason, intravenous pyelography does not give the desired information, I do cystoscopy and if necessary retrograde pyelography by ureteric catheterization. Excretion of dyes can also be studied during this examination. Our patients and resources do not allow any detailed pre-operative preparation for our cases. In very advanced cases who are too weak to undergo a major operation, we have necessarily to wait and make the patient safe for surgery. In an average case all that we do by way of pre-operative preparation is to give 500 cc. of glucose saline intravenously on the morning of the operation and repeat it at the time of operation if the pulse becomes weak or if there is any undue loss of blood. The saline is repeated after the operation once or twice, if indicated. We have not used blood transfusions in any of our cases in this series because blood is difficult to obtain. We use it only where it is absolutely essential.

In 18 of these 19 cases general anaesthesia *i.e.*, ether with open mask, was used. The other patient was given spinal anaesthesia with stovain as there was fluid in his right pleural cavity. The anaesthetist thought it wise not to use any inhalant anaesthesia.

At the time of tying the pedicle a few whiffs of ethyl chloride were given.

Proper positioning of the patient with a kidney bar underneath so that the space between the ribs and the iliac crest opens out to the maximum extent is important. Time taken in fixing the patient in the proper position is time well-spent. No readjustments need be made later during the operation.

I use the standard curved lumbar incision, starting at the upper border of the 12th rib and bisecting the angle between the lateral border of the sacrospinalis and the lower border of the 12th rib. At about the mid-point of the ilio-costal region, the incision curves forward towards the antero superior-iliac spine remaining at least one and a half inch above the iliac crest. The length of the incision depends upon what one expects to find inside. But I always prefer to make it a little longer so as to have ample space available to deal with any unexpected situation. The anatomical layers should be recognized and incised one by one. The layers are: the skin, the two layers of the superficial fascia containing the subcutaneous fat, the first muscular layer with latissimus dorsi above and the external oblique below, the second layer of the muscles containing serratus posticus inferioris above and the internal oblique below. After these have been adequately incised, the lumbar fascia is incised in the Petit's triangle and a finger inserted towards the anterior wall of the abdomen to separate the peritoneum from the wall. That will allow the incision to be carried further in the muscles of the abdominal wall if required, without any possibility of opening up of the peritoneum. While incising these layers care has to be exercised in not injuring the 12th dorsal, ilio-hypogastric and the ilio-inguinal nerves.

If more room is required in the upper part of the wound, the lateral arcuate ligament is carefully cut without injuring the sub-costal vessels or the pleura. This will allow the rib to be retracted upwards. Once the exposure is adequate, the renal fascia is incised on the posterior surface of the kidney, and the fatty capsule separated both anteriorly and posteriorly from the true capsule of the kidney. The further steps will depend upon the procedure decided upon. If nephrectomy is to be done, the ureter is separated and divided near its junction with the pelvis. The adhesions at the lower and then at the upper pole of the kidney are divided by the fingers or gauze dissection and if at all strong, they should be divided with scissors after applying artery clamps under vision. Aberrant arteries can be palpated and divided between clamps. One has to be careful not to injure the duodenum when clearing the right kidney. Then follows the preparation of the kidney pedicle. As far as possible, all the fat and lymph glands should be carefully removed from the pedicle. The less the bulk of the pedicle, the greater the ease and security in tying it. Once the pedicle is prepared in this way, the

kidney is held up by the assistant with a gauze strip and the pedicle is tied. I transfix the pedicle with an aneurysm needle and tie it from both sides. If the pedicle is bulky I clamp it with pedicle clamps at three places, remove the kidney by cutting the pedicle between the two distal clamps. Then a ligature is passed first under the first remaining clamp, and tightened while the clamp is removed. The second ligature is passed in the same manner under the most proximal clamp and tightened while the clamp is released.

If the pedicle is too short for applying 3 clamps, only two are used. The whole wound is swabbed dry and carefully inspected for any bleeding vessels. The pedicle is strengthened by extra ligatures when necessary. A rubber tube drain is placed in the wound and brought out at the upper part of the wound. Sterilized sulphadiazine powder is sprinkled on the wound and the wound closed in layers after the kidney bar is lowered. First the lumbar fascia is sutured with chromic catgut No. 0 and later the two muscle layers are separately sutured in two layers with chromic catgut No. 1. The subcutaneous fat is approximated by a few sutures of plain catgut with the skin. Meticulous wound-closure and avoidance of injury to the nerves, prevent any future weakness of the abdominal wall.

If the whole kidney is not to be removed, it is not always necessary to separate the kidney completely and deliver it in the wound. Stones from the renal pelvis and the lower calyces can be removed by mobilizing the kidney only partly at its lower pole. Incising the pelvis along its long axis posteriorly and then palpating the kidney substance between a finger in the pelvis and another on the kidney surface, reveals the presence of any stones in the calyces or the kidney substance and they can be removed by either a curved kidney-stone forceps if they are in the calyces or a small tenotomy knife through the kidney substance. Randall has devised a specially curved forceps for each of the four calyces.

Incising the kidney just posterior to its lateral border in the hope of entering a bloodless plane is not done because there is no such bloodless plane. The curved incision in the pelvis can be extended to the lower pole of the kidney if the retro-pelvic artery is kept in mind, clamped and ligatured. Once I had to leave behind a stone impacted in the lower calyx in one of the patients because the retro-pelvic artery was cut and the bleeding could not be stopped until the incision was closed with a mattress suture and the area packed.

Sometimes it is very difficult to locate a small stone in the kidney substance. A thin probe or needle is then used from the external surface of the kidney to contact the stone. If grating is elicited then a small incision can be made along the probe or the needle and the stone removed.

I always suture the incision in the pelvis and use plain 00 catgut on an atraumatic needle for the purpose. The incisions in

the kidney are sutured with thicker catgut after placing a bit of fat over it from the surrounding tissues. The drainage and closure of the wound is as described before.

There are several accidents that occur during these operations inspite of reasonable care on the part of the surgeon. The main accidents are :

1. Opening of the peritoneum.
2. Injury to the colon or the duodenum.
3. Opening of the pleura.
4. Bleeding. (i) Injury to any aberrant artery. } While separat-
(ii) Injury to normal vessels. } ing the kidney.
- (iii) Slipping of the ligature from the pedicle. } While prepar-
(iv) Tear in a blood vessel of the pedicle. } ing the pedicle
(v) Ligature cuts through. } and ligaturing
(vi) A vessel is not included in the clamps. } it.

The only two accidents that occurred in this series were in the nature of bleeding. In one patient a vein from a thick short pedicle slipped from the ligature and started bleeding profusely. The bleeding was venous and the cut vein could be seen after pressure with a gauze pad for sometime. It was again caught and separately ligated. In another case while extending the incision in the renal pelvis to the lower pole of the kidney, the retro-pelvic artery was cut and could not be caught and ligatured. As previously stated further manipulation had to be abandoned. Thus the stone in the lower calyx had to be left behind.

During the post-operative period nothing special is done. For control of pain barbiturates are used. If the pain is very severe then morphine is injected. Deep breathing and movements of the legs are encouraged from the very start. If the general condition is weak, 500 to 1000 c.c. of 5% glucose in normal saline are given intravenously for the first two days. If the pulse-force is good then no intravenous fluids are given. Sips of water and later large quantities of fluids by mouth are given once the post-anæsthetic vomiting subsides and good peristalsis is heard on auscultations. The tube is gradually shortened from the 3rd post-operative day, and completely removed on the 6th day. If there is no discharge, the tube is removed completely on the 3rd post-operative day.

In all the 19 renal cases of this series there has not been any immediate or remote post-operative complications except mild fever for a day or two. Injections of crystalline penicillin 2 lacs units twice a day are used as a routine for 5 days in all these cases. Except the two nephrostomy cases, all the 17 cases left the hospital within 20 days after operation. The majority were discharged on the 12th post-operative day. Out of seven nephrectomies, five are being followed up and have no further complaints. The incisions have soundly healed and no muscular weakness is noticed.

There have been no deaths attributable to operative treatment in these cases. Except the two nephrostomy cases who had bilateral multiple calculi and who refused further treatment and the other patient in whom a calculus was left behind because of bleeding, the results in other cases have been very satisfactory.

TREATMENT:—Treatment of the ureteral stones may be described under three different headings: (1) Expectant treatment. (2) Cystoscopic manipulations. (3) Open operation.

Ureteral calculi with a few exceptions originate in the kidney. During their passage along the ureteral tube they are liable to be arrested at the normal constrictions of the tube. Once arrested the ureter goes into a spasm in that area and there is hyperperistalsis in the upper segment. The upper segment dilates after a time, the spasm relaxes and the stone again journeys downward. If the stone is large the spasm may not relax, the ureteral wall becomes œdematous and the lumen gets completely occluded. After a time small channels form in the periphery of the impacted stone and some urine trickles down into the bladder. Later infection sets in and irreparable damage is done to the kidney. If the stone is not very large, then several colics bring it down and drop it in the bladder. Most of the larger stones (about 75%) get impacted in the pelvic segment of the ureter. The intramural part of the ureter is the narrowest and least dilatable.

It is not possible to give the exact number of cases of ureteral calculi that have come under our treatment during the last five years. Most of them come as emergencies with renal colics and are treated expectantly. As soon as the pain disappears they go away. As a rough estimate one can safely say that for every case of ureteral calculus treated surgically there are 10 others who are treated with medicines.

The medical i.e., expectant treatment is usually successful when the X-ray shadow of the stone is not bigger than half a centimeter in diameter. Even in slightly larger stones one can wait and watch the results of the expectant treatment if there are few symptoms, little disability, or kidney destruction. Our cases do not give us much scope for such prolonged observation under expectant treatment. Usually they come late after having tried every type of treatment available in this vast country of ours, including mantras and talismans, various diets and indigenous surecures. If they come early they leave as soon as the colic subsides.

In this series 11 cases of ureteric calculi were treated—surgically. Five by cystoscopic manipulations and six by cutting operations.

I have not much experience of cystoscopic treatment of ureteric calculi. It is said that any stone up to the size of one cm. can be removed successfully by cystoscopic methods. Expert cystoscopists claim to be successful even up to two cm. size. But

besides the size of the stone much will depend upon certain other factors *viz.*: (1) the condition of the ureter; (2) the duration of symptoms; (3) presence of infection; (4) age and sex and (5) temperament of the patient.

In some large urologic centres in the United States from 75 to 80% of the ureteric stones are removed cystoscopically. Perhaps their cases reach them much earlier when the stones are unimpacted and easy to remove and also the patients consent for surgical intervention more readily. In our country I do not think that more than 25% of ureteric stones are removed cystoscopically. It requires skill to use the numerous cystoscopic instruments; otherwise serious trauma may be caused to the ureters in the hands of the unskilled.

The various procedures are: (i) ureteric dilatation with olives and bougies; (ii) intra-ureteric injections of lubricants and anti-spasmodics; (iii) catching a stone in an ureteric probang or hook and pulling it out immediately or gradually by elastic pull of rubber bands; (iv) slitting of the ureteric opening with cystoscopic scissors or diathermy; and (v) passage of one or more ureteric catheters.

For stones round about the size of half centimeter, I use expectant treatment. For slightly bigger stones which do not move downwards on expectant treatment, I pass an ureteric catheter and try to dislodge the stone. For stones bigger than one centimeter I use open operation. Out of the six cases operated upon for ureteric calculi in this series four had impacted stones in the pelvic segment of the ureter. In two cases out of the four the ureteral stone was accompanied by another stone in the urinary bladder. The remaining two had stones impacted at the ureteral opening.

In all these cases except one, spinal anaesthesia with stovain was used. General anaesthesia was used in that one case because the patient was ten years old and was of a nervous temperament.

Uretero-lithotomy in the upper one-third of the ureter is done through an incision similar to the lower half of the lumbar incision commonly used for kidney operations. It can be extended forward in the iliac region as necessary. Removal of stones from the upper third of the ureter is one of the simplest operations in urologic practice. The middle third of the ureter is exposed through an incision starting about an inch above and an inch internal to the anterior-superior-iliac-spine and extending downwards to the lateral border of rectus along the fibres of down-oblique. It is a muscle-splitting incision like the McBurney's and allows early ambulation and sound healing.

Most of the ureteric stones get arrested in the lower third of the ureter, *i.e.*, between the lower border of the sacro-iliac joint and the lower opening of the ureter. All the six operated cases in this series were impacted in that region. There are several approaches to this segment of the ureter: (1) The inguinal approach—the Gibson incision extending from just above the pubic tubercle

to an inch internal to the anterior superior spine; (2) the paramedian transrectus incision; (3) median incision and (4) in females an incision through the vaginal fornix.

I use the median incision if the stone is in the lower half of the lower segment of the ureter, and Gibson incision if the stone is in the upper half of this segment. The median incision also allows the surgeon to treat any bladder pathology at the same time, as was found necessary in two of our cases. After distending the bladder with fluid the suprapubic median incision is made. The peritoneum and the retroperitoneal cellular tissue is separated upwards from the front and sides of the bladder and the wall of the pelvis on the side to be operated upon. The ureteric stone is soon felt through the adherent fibro-fatty tissue which surrounds the ureter at the impaction site.

The peritoneum and this fibro-fatty tissue are separated from the ureter. The tip of the index finger of the left hand is kept on the upper end of the palpable stone and with a long handled tenotomy knife the ureter is directly incised on the stone and the stone delivered out with the help of a curved kidney-stone forceps or a scoop. The interior of the ureter is explored for a short distance with a curved probe and if no fragments are found to have been left inside, the ureteric incision is closed with No. 00 chromic catgut on curved atraumatic needle. Only the fibrous and muscular layers are approximated. I do not waste time in dislodging the stone upward to incise the ureter through the normal wall, nor do I pass a tape round the ureter at the upper end of the stone to prevent it from slipping upwards. After closing the ureteric incision, the bladder is opened if there is also a stone in it. The stone is removed and the bladder incision completely closed with two layers of sutures. A soft rubber drain is put near the incision in the ureter and brought out in the middle of the skin incision. The bladder is drained through an urethral catheter.

There are several complications that can arise after or during uretero-lithotomy. The only complication that occurred in this series was secondary haemorrhage on the 8th day in one of my private patients. Luckily the bleeding stopped by means of injections of various coagulants just after the decision to re-open the wound was taken. Since then I remove the drain very early if there is no oozing and use very soft split rubber drains.

There have been no deaths in these eleven cases of ureteric calculi treated by me and the results are completely satisfying except in one case where the stone has recurred in the pelvis of the opposite kidney, 1½ years after the removal of the ureteric stone. This occurred in the same case as had secondary haemorrhage.

The stones impacted in the meatus of the ureter are removed by opening the bladder and incising the mucosa of the bladder upward and outward along the intra-mural part of the ureter with

a tenotomy knife. If the stone is small it is removed by tearing the bladder mucosa with a finger nail over the stone. The bladder is completely closed and drained from the urethra.

The greatest problem in urologic practice is the problem of the treatment of bilateral renal lithiasis. The incidence of bilateral stone in any big series of statistics is round about 12%. I cannot give exact figures but during the last five years I have seen about 15 cases of bilateral renal calculi. Only two are included in this series because they got admitted as emergencies and were operated upon. The others except two who are under my observation for the last two years refused any surgical intervention and left medical care. One is suffering from severe anæmia due to repeated hæmaturia and shows early signs of chronic uræmia. The other is quite fit and is attending to his work regularly except during frequent attacks of renal colic. Both of them have not yet consented for operation.

The two cases that are included in this series were boys aged 12 and 15 years respectively. They came with fever, infection, and emaciation of long duration. Nephrostomies improved their condition to an amazing extent. One of them put on 20 lbs. in weight within one month. One went to Pakistan and the other refused further operation.

A good knowledge of kidney function is essential before definitive operative treatment is undertaken for these cases. The principle is that the kidney showing better function should be operated upon first. Once this operated kidney takes up full function, the opposite one can be operated upon after an interval of about six months. If it is completely destroyed then it should be removed by nephrectomy. If both the kidneys are full of large stag-horn type of phosphatic stones, the present consensus of opinion is to leave them alone and to support these patients with medical therapy. They live longer that way, than if operated.

It is said that no treatment of renal lithiasis is complete unless the cause of the lithiasis is also removed and non-recurrence is assured. Having very little faith in the present day theories which try to explain the ætiology of renal lithiasis, all that I do to prevent recurrence is to use a careful surgical technique which leaves behind no obstruction, infection or foreign bodies in the urinary tract. Secondly I advise the patients to drink plenty of water and to avoid fruits and vegetables rich in oxalates. If there are any other evident sources of obstruction to the urinary tract they are advised to get them corrected.

I wish to express my thanks to the Chief Medical Officer of the Irwin Hospital, Jamnagar, for allowing me the use of the hospital records.

References:

1. Dodson, A. G., (1944)—Urological Surgery, C. V. Mosby Company St. Louis.
2. Cole, W. H. (1949)—Operative Technique.
3. Maingot, R. (1936)—Post Graduate Surgery Medical Publication Ltd., London.

OCULAR COMPLICATIONS IN COMMON TROPICAL DISEASES*

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It is indeed a happy augury that Tropical diseases have come to be studied intensively and extensively with regard to their ætiology, pathology, signs and symptoms, as well as their therapeutic treatment. Tremendous advances have been made in this direction and many diseases which were formerly considered difficult of cure show good prognosis under modern therapy. Sufficient attention has not however, been bestowed to the ocular manifestations of these diseases, and the object of this paper is to stress this point and to explain many of the ocular complications that are commonly met with in different tropical diseases.

Cholera.—This disease is particularly marked by profound dehydration in which the eyes also share. The facies is pinched, the eyes become sunken, the pupils are slightly bigger in size, the cornea is slightly hazy and lacks lustre. In two cases I found punctate opacities in the lens. These corneal and lental changes occur in a state of extreme dehydration. The corneal changes disappear with improvement in the general condition. I could not follow up the lental changes as one of the patients died and the other did not come back after discharge from the hospital. In some cases, the complications noticed are: keratitis, lagophthalmos with the formation of ulceration ending in perforation. In patients who come to hospital early, extreme complications of the cornea are rare. Intraocular tension is believed to go down in these cases, but I did not dare to apply the tonometer to the devitalised cornea; but the tension appeared to be slightly low, as judged by finger palpation.

Small-pox.—Both eyes are affected and there is subconjunctival hæmorrhage. The cornea is affected either independently or by encroachment from the conjunctiva, as a result of constant rubbing. There is deep ulceration in the cornea with hypopyon. Generally these ulcers perforate due to quick necrosis of the corneal tissue and in some cases there is panophthalmitis. I believe these ulcers are due to a secondary infection after the loss of corneal epithelium due to constant rubbing. Smallpox plays a major part in the causation of blindness. At what stage these ulcers start developing it is difficult to say, for the patients are usually seen after the ulcers have far advanced.

Malaria.—Both in my private practice and in the out-patient department, I have seen a few cases of dendritic ulcer, along with

* Specially contributed to the Golden Jubilee issue of the ANTISEPTIC

the attack of malaria. Generally the patients are in very poor health with enlarged spleens and frequent attacks of B.T. infection. This dendritic ulcer generally appears with herpes labialis. Generally one eye is affected and there is a diminution of sensation of the cornea over the area. In one of my cases, a girl of 15 had interstitial keratitis with a history of malaria two months back. Her blood was moderately positive to the Wassermann test. When I saw her, she had no enlargement of spleen. She was treated with Optochin by local application and quinine internally by mouth, for some time. The response was not bad but as she was positive to Wassermann test, bismuth was given along with quinine, and a good response was obtained. The other eye was not affected. In this case it is difficult to say whether the interstitial keratitis was due to malaria or to the specific cause.

A female patient developed quinine amblyopia after taking 80 grains of quinine in 4 days. She improved with the stoppage of quinine and the administration of heavy doses of alkali, Vit. B complex injection and 3 retrobulbar injections of Ronicol (Roche) 100 mg. every third day. The patient could not be followed up as she failed to attend hospital after the improvement.

Leprosy.—I had the opportunity to see a few cases in a Leprosy Hospital in Calcutta, but most of these were late cases and of the nodular type. I tried to elicit the onset of the eye affection with relation to general signs, but I could not come to a definite opinion as to whether this was any early affection of the eye. In some cases there was patchy thinnings of the sclera near the limbus. The lids, cornea, iris, and ciliary bodies were affected in a good percentage of cases. The lids were thick and nodular, the lashes had fallen off and ectropion of the lower lid was noticed in some. In a few cases there appeared a thick band of vessels with thickened conjunctiva resembling pterygium. The corneal affections varied in nature; minute infiltration from the limbus, formation of pannus, deep vascularisation like I.K., K.P., were present in all cases of keratitis lagophthalmos due to ectropion of the lower lids. In all cases with corneal affection had complication of iridocyclitis. In some of these cases small whitish slightly raised spots were found on the iris towards its periphery. With magnification, these appeared to be organised exudations. In no case could I examine the choroid as the media were hazy due to either occlusion pupillæ, or lental opacity or vitreous opacity. Nearly all cases with the complication of iridocyclitis had lental opacity. A few of these cases had some useful vision after the removal of the lens.

Dysentery.—*Bacillary*:—In some children xerosis appears along with bacillary dysentery. In one case keratomalacia developed within 3 days and the patient died, in spite of necessary available treatment. A case was admitted for cataract operation and before

operation, he started bacillary dysentery; on the third day he had iritis in one eye with slight pain in both the knees. The iritis was treated locally and with the improvement of dysentery the iritis and joint pain disappeared. It is not however, right to attribute the eye condition to dysentery, on the basis of the finding in this one case which had post-operative iridocyclitis, although he was thoroughly treated before operation.

Amoebic.—In chronic amœbiasis, many complain of headache. Some of them have errors of refraction and some have not. These people complain of headache throughout the whole day, starting from morning and getting worse towards the afternoon and are not much relieved even with suitable corrective glasses. Recently in one case the patient had severe headache and was not relieved with any glass and there was no muscle imbalance; when his stool was examined and found to contain amœbic cysts, a full course of terramycin was given and he is doing well for the last two months.

Xerosis.—This condition is found in adults, as an after-effect of trachoma, due to a local condition and in children as a local manifestation of a general disease due to Vitamin A deficiency.

Vitamin A deficiency is found mostly in the poor labouring and in the lower middle classes of people and is most common during the summer season. The sufferers are generally children in the growing period, and have diarrhoea, bronchitis, loose and toad-like skins. Some of these children lose their sight due to keratomalacia. Before the days of the injectable variety of vitamin A, most of the blindness in children was due to keratomalacia. At present due to the low economic condition, it has very much increased but has been controlled to some extent by the injectable vitamin A preparations now available. In some cases the cause is due to want of assimilation of vitamin A due to gastro-intestinal troubles. There is another form in which case Bitot's spot is not prominent but the whole of the conjunctiva is muddy in colour with loss of lustre; there is also brown pigmentation of conjunctiva at the limbus in the interpalpebral space and folding of conjunctiva is also present. Most of them—not all—complain of night-blindness. These cases generally improve on liver tonics.

Superficial punctate keratitis (S.P.K.).—This is a form of keratitis usually found in the Influenza season, with the onset of rains. In some years it occurs in epidemic form. Generally adults are affected in one of the eyes. The majority of the patients give a history of cold and fever or exposure to chill weather just before the attack. Lacrimation and photophobia are severe, and there is haziness of vision. Instead of circumcorneal injection there is just a flush and the pupil reacts normally and there is no discharge although the whole of the conjunctiva may be slightly congested. On magnification, minute white dots are found mostly

in the central area of the cornea. The epithelium over the area is slightly raised from normal, and spots are situated in the very superficial part of the cornea. Rarely these spots undergo ulceration or get deep and they disappear within a few weeks. I think, these are herpetic in nature and respond very well to aureomycin and salicylates internally, with atropine and liquid paraffin locally. In some cases the opacities get deep into the cornea in which case the vision remains defective for a long time.

Epidemic dropsy glaucoma.—In Bengal, people who take mustard oil and polished rice, sometimes suffer from epidemic dropsy, in which a common complication is glaucoma, which affects both sexes of ages 7 and above, though adults are the most affected. Mustard seeds are adulterated with argemone seeds and during extraction of oil from the adulterated mixture, a poisonous substance from the argemone seeds gets into the oil. Such oil taken with food produces a histamine-like substance in the intestines, which causes capillary dilatation in the body. This disease appears usually during the rainy season, sometimes in epidemic form. The patients suffer from various symptoms of which diarrhoea, oedema of the legs, palpitation and hazy vision are the most common; though all the symptoms may not be present in every patient, oedema of the legs is fairly common in all cases. Patients who complain of hazy vision, halos, dull headache and heaviness in the eyes are cases of glaucoma. It starts within a very short time but typical signs of acute congestive or chronic simple forms are not present. The cornea is not hazy, the anterior chamber is not shallow, the pupil is normal in shape, size and reaction, the field is not contracted and there is no cupping. The only common sign is the raised intraocular tension which is very high, sometimes going up to 70 or 80 mm. Hg. (Scht.). If the patient is not promptly treated, field-contraction and cupping appear. Generally these patients respond well to general treatment for epidemic therapy along with the stopping of rice and specially mustard oil; they rarely require any operation. In some cases there are petechial hæmorrhages in the retina, and the local application of miotics does not produce any effect. Sometimes patients come with ocular complaints only and without any oedema of the legs; it is found from the history of the case that some members of the family are suffering from epidemic dropsy.

Summary.—Numerous ocular complications, met with in patients suffering from common tropical diseases have been detailed. How far these ocular conditions are incidental to the infection and how far they are caused by specific infecting organisms cannot be assessed with certainty without a detailed study of the pathology of these lesions. The following factors were present in the various conditions described above: (1) depletion of water; (2) an infection which brings about a low resistance; (3) deficiency of vitamins, particularly vitamin 'A' which results from nutritional disturbances

and a shortage of supply owing to restricted diets; (4) the vulnerability of ocular tissue to an existing vitamin A deficiency met with in this country owing to poor economic condition, improper and inadequate dietary; intestinal diseases, particularly dysentery come into the picture; (5) cases which improve under treatment indicate the value of supplying the vitamin deficiency in the nutrition of the patients, which helps in combating the super-imposed infection.

It is suggested that the role of the primary infecting agent may be more thoroughly studied by histo-pathological and bacteriological examinations of the lesion.

I express my thankfulness to the Principal, Dr. M. Pan, F.R.C.S., for according permission to refer in this note to hospital cases.

CORTISONE IN THE BALANCE

Whatever may be the success achieved by cortisone therapy in the management of certain non-rheumatic conditions it is becoming more and more debatable whether the use of the compound in the treatment of rheumatoid arthritis constitutes a real advance. Even enthusiastic advocates of the treatment are beginning to hesitate in their enthusiasm.

In a recent discussion on the effect of the prolonged administration of cortisone on 20 selected cases of rheumatoid arthritis Copeman and his colleagues stated that most of the patients received the drug for more than 2 years. As a result 17 patients were able to return to work. Although this result was satisfying from a statistical point of view, it was significant that the most suitable cases for cortisone treatment were those in which the functional disability exceeded the anatomical joint damage. Radiological progression of joint damage was observed simultaneously with the suppression of symptoms. The investigators conclude that, in the first instance, at any rate, conservative methods should be adopted in place of cortisone therapy.

The relative efficacy of cortisone and aspirin in the treatment of early cases of rheumatoid arthritis has been investigated by the Joint Committee of the Medical Research Council and the Nuffield Foundation. Sixty-one patients were treated and observed for a period of one year. Thirty patients received cortisone and the remaining patients received aspirin. The observations revealed a closely parallel course in the two groups, with special reference to the degree of joint tenderness, the range of movement in the wrists, the strength of the grip, tests of dexterity of the hand and foot, and clinical judgement of the activity of the disease. In this connexion one recalls that, in 1951, Schmidt defined cortisone as "super-aspirin." On the other hand, Hench and his colleagues are more optimistic in their outlook, for they contend that in selected cases of rheumatoid arthritis cortisone, hydro-cortisone (Compound F) or corticotropin (ACTH) can achieve more effective results than any other single measure available at present.

Our hope is that the results of further clinical studies and experimentation will serve to vindicate Hench's faith in the efficacy of the cortisone group of compounds. Meanwhile, *two things are certain*. First, the popularity of aspirin remains undiminished. Secondly, the introduction of cortisone therapy has led to widespread interest in the study and methodical investigation of rheumatoid arthritis and this fact alone is a source of encouragement for the future.—(Editorial, *Rheumatism*, London, Oct. 1954).

TOBACCO AND ANÆSTHESIA

Bronchitis caused by smoking is common and deserves serious consideration as a hazard of anaesthesia and surgery

Deliberate pre-operative consideration of the patient's smoking habits is justified by the frequency of smoker's bronchitis. Dramatic incidents attest the danger of the condition, which has caused respiratory obstruction and death in a strong patient when given anæsthesia.

Laryngospasm, bronchospasm, and bronchorrhœa during the surgical procedure as well as post-operative bronchitis, atelectasis, pneumonia, wound dehiscence, and incisional hernia or recurrence of hernia are among conditions attributed to bronchitis from smoking.

The most common cause of bronchitis is inhaled cigarette smoke when over 20 cigarettes are consumed daily. The one-package smoker usually and the two-package smoker nearly always acquire the disease. Pipes and cigar can cause bronchitis only when inhaled, and cigarette smokers can avoid bronchitis by learning not to inhale [which is however very difficult and doubtful]. The incidence of post-operative pulmonary complications is generally observed to be greater among men than among women, but the discrepancy tends to disappear when difference in smoking habits are considered.

Pre-operative evidence of tracheobronchial hyperirritability and hypersecretion can often be induced by requesting a patient to cough vigorously. The information from this test cough before operation may be of great importance to the anæsthesiologist.

A normal cough is single, dry, and clear, not easily produced. An abnormal cough is a self-propagated paroxysm, either wet or dry. Wetness is a significant factor with respect to anaesthesia.

An abnormal cough is rare unless the patient has tracheobronchial disease, the cause of which is usually detectable. Abnormal cough is almost always obtainable before operation from patients who have post-operative respiratory complications and is usually not heard in patients without such complications. A few heavy cigarette smokers have normal test coughs but give evidence of bronchitis by morning expectoration or excessive amounts of mucus obtained by intubation.

Smoking alone does not cause bronchitis severe enough to be classed as wet bronchiectasis, but may do so when aided by some synergistic factor. Pulmonary emphysema seems to be unusually frequent among inveterate cigarette smokers with bronchitis.

Four weeks without smoking will cure any uncomplicated case of smoker's bronchitis as determined by the test cough and two weeks will stop slight involvement. Even twentyfour hours without smoking brings significant improvement. But since cessation of smoking some time before operation is usually difficult for the patient, best advice is to have the patient cough until clear just before starting anæsthesia. Such a precaution reduces the likelihood of complications.

The smoking habits and incidence of bronchitis among 4,322 surgical patients were studied statistically; 59.2% of the men and 26.3% of the women smoked. The prevalence of bronchitis from all causes was 47.1% in men, 20.5% in women, and 9.1% in children and adolescents, and was only between 6 and 10% in nonsmoking men under 39 years of age. Slightly over 67% of all smokers had bronchitis; of patients smoking a pack or more, 80% had bronchitis. The danger of smoker's bronchitis in surgery is shown by the fact that of 36 consecutive cases of spasm of the larynx or bronchi during intravenous or cyclopropane anæsthesia, 30 of the patients had bronchitis, usually from smoking. — (*Modern Medicine*, 1-9-'54 from *Ann. Int. Med.*, 40: 729-742, 1954).

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FAMILY PLANNING*

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FAMILY planning is indeed one of the controversial topics most discussed in modern times; it has generated heat in many hearts, shocked and angered others, delighted some and soothed a few. The very name 'Birth-control' evoked much antagonism among laymen, as it meant to them the deliberate prevention of the birth of a live child. This movement has faced serious opposition from the beginning and it will take some time before people become reconciled to it. It has however, emerged from the wilderness of stout opposition, into a life-saving measure for countless mothers who die yearly of child-birth or suffer from its complications; it has come to be regarded now as a child welfare scheme which ensures healthier and fewer babies, happier and smaller families, as a National Health Programme which ensures the health and happiness of the community, and as a socio-economic device which can raise the standard of living of the masses. The successful adoption of the system all over the world is bound to result in a revolutionary upheaval that will make war only an ugly memory of the past and peace a permanent possibility of abiding value for all time.

Family planning cannot be considered as infanticide or the procuring of abortion. There is nothing criminal, derogatory, vulgar, immoral or shameful about it; it is merely an aid to solve certain social, economic and public health problems. Eugenic control is known to have improved racial well-being; the available food and essential commodities can be made to subserve the needs of the whole population. It can be used with benefit in the case of people who are suffering from hereditary, mental and heart diseases, epilepsy, or tuberculosis and in habitual criminals. The sex impulse and the desire to propagate are perfectly normal, legitimate and natural, like sleep and hunger. Nothing on earth can afford the mental comfort and great happiness that children alone can give; an excess of these in any family will not however, make for much happiness. No woman should produce more than 3 or 4 children at the most and these should be adequately spaced, with an interval of about 3 to 4 years between every two children. Only then will it be possible for the parents to bestow adequate care and attention on them and provide each child with the requisite comforts and amenities for developing into healthy adolescents and useful citizens. Family planning really aims at achieving these ideals of human growth in comfort.

History.—Family planning has been in vogue from time immemorial, but has come into the limelight as a socio-economic

*Specially contributed to the ANTISEPTIC.

programme only recently. Mention is made of the "Safe period" method in our ancient Indian literature. There was no question of over-population in former days and food was available in plenty; so that people then paid no thought to the question of birth-control. During the 18th century when there was a rapid increase in population all over the world Malthus in 1798 initiated the birth-control movement in England and later on Sir Francis Galton endeavoured to spread it. Since then propaganda on birth-control has been advocated and carried out in Europe, America and Japan. Malthusian leagues came to be established in England in 1878 and in Holland in 1881. During the present century, Margaret Sanger, Marie Stopes, and Agnes Smetley sponsored the movement to rally public opinion in its favour. Till recently research scholars, doctors, certain societies and a few other individuals alone took part but even they did not exhibit the requisite vigour or enthusiasm in spreading this cult. The common man was indifferent to the problem and was ignorant of the implications and repercussions of the enormous increase in population. He continued to feel that sex was a vulgar topic not to be discussed in public.

After the Second World War however, there has been increasing awareness in India and other countries of the need for family planning of some kind. Even in villages women folk have come to realise that too many children at short intervals, tell upon their health and create economic and social problems difficult of solution. Scientific family planning is now widely adopted in many countries of the world, and we are told that Russia, East Germany, Australia and New Zealand alone do not approve of it. In India a Neo-malthusian League was formed in Madras in 1916. The first birth-control clinic in the world sponsored by government was established in the Mysore State in 1930. There are at present in India 160 such clinics, most of them in Bombay; 108 of these are looked after by the military authorities and a few are run by voluntary agencies.

India's Prime Minister and the Union Health Minister have both expressed themselves in favour of a check on the increase in population. The All India Medical Association and the All India Women's Association also feel likewise but the Standing Committee of the latter do not approve of the 'safe-period' method. The F.P. Research and Programmes Committee have embodied certain recommendations in their Report of November 1953. In December 1951 the First All India Conference on Family Planning was held at Bombay and Third World Conference was held there in Nov. 1952. The Union Government invited in 1951, Dr. Abraham Stone, Vice-president of F. P. Association of New York to study the problem in India and advise them on the best method of family planning that will suit Indian conditions, consistent with the ancient culture and traditions of the country. Pilot studies in the 'safe-period' method recommended by him have accordingly been

started, two at Delhi and one in Mysore, in each of which 100 families are being studied.

World population.—This has increased $3\frac{1}{2}$ times during the last 300 years (from 545 millions in 1650 to 2406 millions in 1950), by 120% during the last century (1091 millions in 1850), by 55% in the last 50 years (1552 millions in 1900)—one half of this increase has occurred in Asia alone—and by more than 400 millions (*i.e.*) 20% since World War II (1939). The rate of increase in the world, is 20 millions or 1% every year, which works out to 60,000 per day. The Latin American Countries are the fastest (2%) and Europe the slowest growing parts of the globe. Apart from the incredible pace at which world population is increasing, there are two other disturbing facts (1) its density is not uniform and (2) its rate of growth varies in different countries. India's population in 1951 was 361.25 millions, this being 15.1% of the world's as compared with China's 19.4%. Thus one in every seven human beings in the world is an Indian. The population of India was 206.2 millions (in 1872), 294.3 (1901), 389.8 (1941) and 404.6 (1946). Thus in the last 50 years it has increased by 137 millions and during the last decade by 43 millions. At this rate, it is expected that the population will double itself in 50 years. India's birth and death rates are higher than in western countries. A significant fact about the Indian birth rate is it has not declined during the last 50 years while the death rate has been decreasing from 44 per 1000 to 32, and may go down further as a result of greater amenities, like protected water supply, D.D.T. spraying, mass vaccination, B.C.G. vaccination etc. The expectation of life has increased in all countries particularly in those where the number of children born is small.

There are many reasons for the abnormal increase in population. (1) Inherent fertility of the race—that of the Indian being high; (2) illiteracy; (3) early marriages; (4) malnutrition, inadequacy of food and poverty. Rice diet was wrongly incriminated by some as the cause of fertility. Pressure due to population is responsible for (1) wars and their economic sequelæ; (2) dearth of food and other essential commodities; (3) unemployment, migration, famines, child-labour; (4) lowering of the standard of living; (5) malnutrition followed by chronic illnesses; and (6) high maternal and infant mortality. So the population should not be allowed to increase at the present rate. India cannot afford to maintain a huge population with her present agricultural economy and low production. Some who do not consider this problem as alarming argue that when a person is born he is born with two arms with which he can work, with enough intelligence to help him to earn his living, that none need be afraid of over-population provided opportunities for work are made available and that the citizens however numerous will then, not be a dead-weight but a definite asset to the Nation.

world shortage of food grains. Even in the days of prosperity in India, nearly a third of the people lived only on a substandard diet of low caloric value, low proteins and vitamins and little of minerals; no wonder then they did not have any considerable resistance to disease. Though India produced a third of the world's output of rice, she had to import rice and wheat to the tune of 3 million tons valued at 150 crores of rupees every year during the last 5 years. Using western standards, India would require 325 billion calories of food for her large population (*i.e.*, 65 million tons but the amount grown in the country is only 51 million tons. In India the average yield per acre is only 730 lb. of rice while in America, Japan and Egypt it is 1480, 2307 and 3000 lb. respectively. There is thus scope for increasing the output of food production by the application of scientific technique, by the use of modern mechanised methods of farming, by making cheaper good quality compost chemical fertilisers and by providing improved seeds and increased irrigational facilities to the villagers.

Basic requirements.—The large majority of the world's population including ours do not get the bare necessities of civilised existence inspite of the rapid strides made by science. The production of commodities has not kept pace with the increase in population. By executing elaborate schemes and plans, Agriculture and Industry may improve and the average annual income will double itself in 25 years but the population *per capita* will also increase by about 45%. So efforts at raising the standard of living will not avail in the absence of biological planning.

High infant and maternal mortality rates.—

	1901—11	1911—21	1921—31	1941	1949
I.M.R. per 1000 live births	205	198	180	158	122

The I.M.R. is over 100 in India, Malaya, Philippines and Chile, but less than 30 in U.S.A., Netherlands, Britain and Australia. It has been computed that if the interval between two deliveries is one year, the I.M.R. is 147; if it is 2 years, I.M.R. is 98 and if it is 3 years the I.M.R. is 86. In families with more than 4 children, the death of children is more than double that in the smaller families. In India out of every 1000 births 40 are still-born and only 500 reach the wage-earning age. Out of every 1000 deaths 490 are in the age group below 10, (it is 100 in England). 25% of children born die within the first year in India (8-9 lakhs yearly); it is only 6% in other countries. One out of every 8 born die within the first month and one in every 15 within the first week of birth. In India 3 million pregnant women suffer every year from diseases and one in 50 dies as a result of child birth. These deplorable deaths constitute a tremendous loss to the nation. The reasons for this sad state of affairs are:—(1) Too many confinements within short

intervals of 1 to 2 years. (2) Early marriages. (3) Purdah. (4) Illiteracy and superstitious beliefs. (5) Poverty. (6) Complicating diseases like malnutrition, anaemia, pulmonary tuberculosis heart and genital-tract diseases. If the health and happiness of women and infants are to be maintained there must be proper spacing and control of child-birth.

Disease, unemployment and poverty.—These result from over-population. Of the 5 million leprosy patients in the world, India alone has one million. The majority of people here live in squalor and are steeped in illiteracy and superstition. The problems are many and complicated, and difficult of solution. They have to be approached scientifically and systematically without bias or distrust.

Here are some solutions to these intricate but allied problems: (1) *Nature* often comes to the rescue and relieves population-pressure through famines, floods, earthquakes, pestilence, epidemics and wars. But these are certainly not the proper remedies for combating over population. (2) Increasing the *marriageable age* of women to 20-22 and of men to 25-28, has been suggested but this is not likely to yield good results; the morals of the youngsters may thereby deteriorate. (3) In India *internal migration* will not do as there are not enough vacant lands in the country excepting those in Rajaputana which are mostly uninhabitable. The prospect of *external migration* too is not bright in the light of the present altered international relations and no foreign country will willingly agree to take India's surplus. (4) *Employment diversification and industrialisation* encourage the urban pattern of living, leading to diminished fertility. The changing of the agricultural economy of India to the industrial type, though a necessary step, will not suffice for it is impossible to absorb therein more than 5 to 10 millions of the unemployed. Modern industries have been largely mechanised. Minerals, mines and oil wells are not plentiful and numerous large industries do not exist. (5) Population-pressure can be managed to a certain extent by *increased production* of food and other commodities. But this is a slow process. (6) *Family planning* is the best available scientific solution for the many problems confronting us, though it may not be a panacea. There is thus an imperative need for family restriction in our country, particularly among for the lower and middle classes. Even this remedy has its limitations *e.g.*:

(a) Any system of family restriction has its drawbacks and some evil may result out of the good intentions. For instance, sexual desire is not fully gratified. But a little sacrifice is necessary at the altar of the general welfare of the family. (b) Some of the contraceptives when improperly used, produce harmful effects upon the pelvic organs and on the nervous system; but research may produce new and harmless methods. (c) Though contraception is meant only for married couples with many children, it may come to be used surreptitiously even by virgins and widows.

In some countries where birth-control is regularly practised, moral laxity, promiscuity and even profligacy have become prevalent. We certainly do not want this to happen in our country which is reputed for its high traditions and moral standards. (d) Many women would like to live unmarried, evading the responsibility of rearing a family. It is worthwhile remembering in this context what Marshal Petain said at Paris on the eve of his defeat in World War II "France was defeated not at the hands of Germany but by birth-control!"

The plan.—All these possible ill-effects must be borne in mind in evolving any rational system of birth-control. India has over 700000 villages and in spite of the migration to towns in quest of employment 85% of the population still live in villages; 88% are illiterate and 70% are agriculturists. The average annual *per capita* income in India is Rs. 275 while in western countries it is Rs. 3500 to 6000 (1951). We should remember that India is a vast country covering 1.22 million square miles, and that there is a great deal of ignorance and apathy, as also an abiding faith in religion, age-long customs and traditions among its people. Family planning should not therefore, be conceived in the narrow sphere of birth-control, but should include sex education, marriage counselling and domestic hygiene, family budgeting and welfare, and advice on fertility. It is in essence an advisory service which should primarily be directed to the rural population and to the poorer classes in urban areas with large families to look after.

Research.—Must form the first limb of the tripod of family planning. At the outset it is necessary to make, by field studies and laboratory research, a detailed investigation of the social, and biological basis of human reproduction, the psychological and physiological aspects of birth-control, the methods in vogue and the clinical services available locally. New and cheap methods without serious limitations or drawbacks must be sought. Biological contraceptives which will prevent ovulation, spermatogenesis, fertilization or implantation must be found. Recently, trials are being made using corpus luteum extract, infusion of lithospermum ruderae, anti-hyaluronidase orally and salt jelly (10%).

Propaganda and mass education.—The value, aims, objects and the meaning of family planning should be presented rationally so as to capture the imagination of the people and satisfy the mass mind. As the women are the greatest sufferers from the evil effects of too many and too frequent conceptions, all propaganda should start with the women and their bias first liquidated. Wide publicity must be given by supplying information in regional languages, through newspapers, journals, hand bills, cinema shows, public meetings, exhibitions during fairs and festivals. Health visitors should compulsorily visit every woman within 3 months after she has delivered, explain the advantages of family planning

and direct them to the family planning centres for further advice.

Advice and instructions in the specific method.—The methods outlined and advised at the family planning centres should be simple, inexpensive, suitable to the age, social status, literacy, religious beliefs, customs and usages of the people seeking advice which should be given free to all married couples. The lady doctors should examine the women, ascertain all details about their menstrual cycle and sexual life and give practical instructions about the proper use of the appliances and how to preserve them. These instructions must be given in writing.

Family planning centres and their staff.—As a first step, a net work of these centres must be formed in close association with the existing maternity centres and later on expanded to cover other areas, *e.g.*, labour-colonies, mills, factories and distant villages. Every hospital, dispensary and health clinic should have a family planning clinic attached to it as an essential part of the health programme of the local authority. The private practitioners, particularly the lady doctors, social and welfare workers must work sincerely and in cooperation. A minimum staff consisting of a lady doctor or a trained public health nurse to be in charge, a trained health visitor and some trained welfare workers is essential for each centre. Adequate facilities must first be created for the special training of medical and auxiliary personnel; the subject must be included in the curriculum of medical students.

The different methods used for birth control are:—(1) Infanticide and abortion; (2) self-control or continence; (3) Rhythm or 'safe-period' method; (4) raising the marriageable age; (5) coitus interruptus; (6) use of condoms; (b) use of mechanical barriers such as sponges, tampons and occlusive pessaries, (c) use of spermicides, such as douching, chemicals etc.; (7) operative procedures; and (8) use of hormones or other drugs orally.

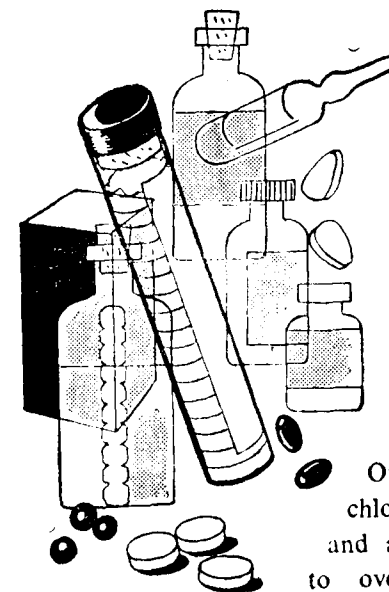
The *rhythm method* being a biological method should be preferred because of its simplicity and innocuousness. Long, long ago Charaka stated that the fertile period in a woman was the second half of the cycle. Recently Oogino, Knaus, and Holt conducted experiments and concluded that, however irregular the menses may be in women, the ovum was expelled regularly 14 days before the next period. If we allow a margin of safety, the date of ovulation will be from the 16th to the 12th day before the next menses. Spermatazoa can retain their fertilising power for 3 days after coitus; the life time of the ovum is one day. Adding one day on either side for a safety margin $(4+3+1+1+1)=10$ days will be the fertile period; so in a cycle of 28 days this period is from the 18th up to 9th day before the next menses. Dickinson found that only during this period the chances for conception were really great and that the remaining days especially of the last week were sterile and safe. By avoiding sex relationship during the fertile period, conception could be prevented.

To ascertain correctly the date of ovulation, the rectal temperature should be recorded before getting up from bed in the mornings (basal body temperature). Usually from menses to the date of ovulation the variation is not more than $\frac{1}{2}^{\circ}\text{F}$; on that day the temperature falls by 1°F and on the next it increases by $1\frac{1}{2}^{\circ}\text{F}$ and remains at that high level. It falls on the appearance of menses; if pregnancy has ensued, the BBT remains high for months. Thus from this BBT the fertile period of a woman can be worked out, if observations are recorded for a whole year. If the menstrual cycle is anovulatory the BBT is monophasic. Influenza, sore-throat etc., will vitiate the charts. Certain clinical signs, like pain in the lower abdomen, heaviness in the legs, migraine, nausea, insomnia, irritability, mucoid vaginal discharge and mastitis appear on the date of ovulation. The Rhythm method is cheap, does not offend religious sentiments or ethical codes and can be used on a mass scale; it is eminently suited to our country and its traditional lore. Sexual happiness is not lessened but only restricted. However the drawbacks are:—(1) It succeeds only in 90% of cases. (2) It is not feasible in 20% of women in whom the menses is irregular. (3) The menstrual cycle may be multiovular. (4) Some women have amenorrhœa.

Operative procedures.—Vasectomy in males and salpingectomy or Neumann's operation (by the vaginal or abdominal routes) in females are effective. Sexual life is not thereby affected; people do not lose their sex impulses or potency and no physical harm is done to the body. Only those who have 3 or 4 children living can think of this operative procedure.

It is important to remember a few physiological details. The spermatozoa undertake an easy journey of 25 feet before ejection; with the tail they can progress one inch in eight minutes. Semen is alkaline and each ejection (2 to 4.5 cc.) contains 200 to 400 million sperms. Semen is fertile only if there are at least 80 million sperms to a cc. and 80% of them should be of normal morphology and motility. They lose their fertilising power first and their motility later. There is only one ovum in each developed ovarian follicle. The vagina has a moderately acid reaction and a higher temperature both hostile to sperms which are usually killed there in 1 to 2 hours. So only sperms deposited at the external os or those escaping quickly into the safety zone of the cervix, which is alkaline and hence congenial, are capable of moving up into the uterus. But even in the cervical canal the mucus may be thick and the sperms may get entangled in it. The uterine cavity and fallopian tubes are friendly media for sperms.

To sum up, the method suitable for the lower classes is the "Rhythm method," if the menses of the female is regular; for the middle classes cervical diaphragm with a spermicidal paste and for all those with 3 to 4 children at least, vasectomy of the male.



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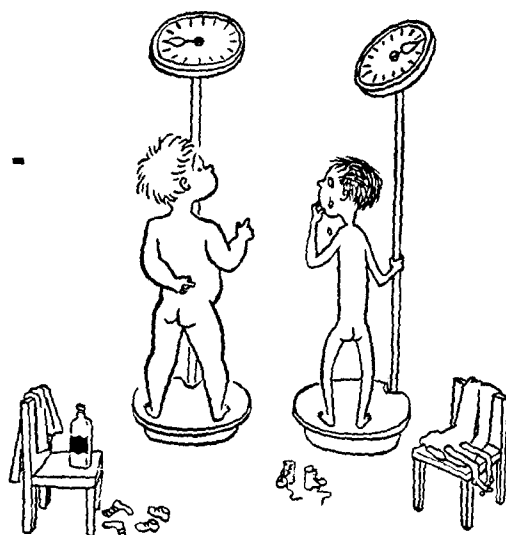
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STUDIES ON THE REGENERATION OF BLOOD*

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SINCE blood is of vital importance in the sustenance of life and maintenance of body function, the study of blood formation, destruction and regeneration has been an intensive field for research. Though yielding substantial results, many facets of this problem still remain unsolved. The isolation of potent hæmatopoietic principles like folic acid and vitamin B₁₂, while stimulating the study of various factors governing the formation of blood, has brought forth a mass of experimental evidence on the role of dietetic factors in erythropoiesis, which remain as isolated facts, without correlation with one another.

Studies on hæmopoiesis, conducted so far, have been mainly on the influence of individual food factors. The role of proteins, individual amino-acids, vitamins and inorganic constituents and their inter-relationship have been studied in detail. Proteins which are qualitatively best constituted for supporting somatic growth are also considered to be most effective for hæmoglobin formation.

But, in a recent nutritional survey of a group of middle class South Indian vegetarians, on a very low animal protein-intake, the average blood picture was found to be essentially normal, thus indicating that even a diet deficient in high-quality protein and vitamin still possesses good hæmatopoietic efficiency.

The current trends in nutritional research based on clear-cut evidence point to the fact that both the essential and non-essential nutrients are in constant interplay with the body and hence quantitative appraisals are inter-dependent. The quality of the diet as a whole and not of any single one or more nutrients should be taken into consideration.

Diet can influence hæmopoiesis not only directly by supplying the known essential ingredients for blood regeneration but also in other indirect ways. It is possible that synthesis of substances may vary with different articles of food. We now know that the vitamin synthesising bacterial flora undergo alteration with changes in diet. Differences have been noted in different people on different diets in the therapeutic response to refined liver extract and vitamin B₁₂.

In any survey of the nutritional value of a diet, therefore, hæmatopoietic efficiency should form an essential part. Nutritional studies, conducted so far in India, have dealt mainly with the

* Specially contributed to THE ANTISEPTIC

effects of malnutrition and the incidence of deficiency diseases, and not on the efficiency in the regeneration of blood.

Anæmia is a major health problem in India due to various causes *e.g.*, nutritional deficiencies, infectious diseases, parasitic and helminthic infections, pregnancy anæmias and postpartum hæmorrhages. Very few of the sufferers can afford the cost of treatment with potent hæmatopoietic drugs. Diet is therefore, the mainstay in recuperation for such people.

The studies which comprise the theme of this article, were undertaken with a view to assessing the blood-regeneration value of some of the natural diets. Rice and beef, rice and egg albumin and wheat with milk were the diets selected for experimentation. Wheat is the staple diet of the people in Northern India and rice of those in South India. The present investigation deals with the hæmatopoietic efficiency and a comparative evaluation of these three natural diets.

This evaluation has been done on the "acute hæmorrhagic anæmia of dogs" and the results obtained should be interpreted as applying only to this type of anæmia as different types of anæmia react differently to the same treatment.

Experimental.—The experiments were carried out in healthy male adult dogs of almost the same weight, obtained from the municipal lethal house. Dogs, after being brought from the dog-pound, were cleaned thoroughly with carbolic soap and kept in hygienic surroundings in the animal house. The animals were protected from infection by isolation and careful handling.

Once a day the animals were fed stock diet, consisting of cooked rice and beef mixed with a little salt. The animals were kept for a period of three weeks to get themselves acclimatised to their new surroundings, before starting the experiments. The following constituents of blood were determined during the period of acclimatisation and at intervals of one week after producing experimental anæmia. (1) Erythrocyte count. (2) Hæmatocrit. (3) Diameter of R.B.Cs. (4) Hæmoglobin content. (5) Iron content. (6) Leucocytic counts, total and differential.

The severity of anæmia is a factor of much importance in hæmoglobin and red-cell production. The hæmoglobin output is increased, as the amount of circulating hæmoglobin decreases. In the present experiments the animal was bled 33% of its total blood volume, which was determined by the Evans blue-dye concentration method prior to bleeding. The animal was bled through the femoral vein, applying light suction under Seconal anæsthesia when necessary.

The amount of diet fed to the animal was calculated on the basis of its calorific requirements. Dogs weighing 7 kg. and over require for the maintenance of body-weight between 70 and 80

calories per kg. per day.¹ This permits maintenance in the adult animal and also allows a slight increase of body weight in growing dogs. In our experiments the diets were so adjusted that the dogs received 80 calories per kg. per day. As excessive drinking of water, which occurs after bleeding might vitiate the results by hæmodilution, the quantity of drinking water was limited to the normal amounts, consumed by the dog before the production of anæmia.

Using three animals for each diet, the blood regeneration value of three diets has been estimated: (a) Rice and beef; (b) rice and egg-albumin; and (c) wheat and milk, and the comparative efficiency of these diets has been evaluated. Some of the organic and inorganic constituents of diets like protein, fat, calcium, phosphorus, iron and vitamins have been quantitatively estimated in an attempt to explain their relationship to hæmatopoietic activity (*vide Table I*).

TABLE I
The composition and the food value of the different diets used

		Components of the dry uncooked diets		
		Diet 1	Diet 2	Diet 3
Rice	...	66.28%	58.52%	—
Beef	...	33.14%	—	—
Salt	...	0.58%	0.41%	0.34%
Egg-albumin	...	—	41.07%	—
Wheat flour	...	—	—	91.35%
Milk powder	...	—	—	8.31%
		...		
		Constituents of the dry cooked diets		
Proteins	...	14.58%	14.36%	14.98%
Fat	...	4.75%	2.2%	4.20%
Carbohydrate	...	49.72%	43.28%	67.65%
Calcium	...	0.3101%	0.0806%	0.8680%
Phosphorus	...	0.2226%	0.2380%	0.7240%
Ca: P	...	1.39	0.339	1.199
Iron (mg./100 g. of the diet)	...	2.12	1.64	7.15
Vitamin B ₁ (Thiamin) (mg./100 g. of the diet)	...	163.0	105.3	493.3
Vitamin B ₂ (Riboflavin) (mg./100 g. of the diet)	...	92.79	177.0	109.6
Nicotinic acid (mg./100 g. of the diet)	...	3.70	1.45	4.57

Results.—The estimations of the various constituents of blood have been carried out by the usual standard hæmatological methods.

The hæmatological changes observed in acute hæmorrhagic anæmia are presented in Table II.

TABLE II

The table indicates the average erythrocyte count, erythrocyte volume hæmoglobin concentration, the erythrocyte indices and the percentages of the cells of different diameters, before and 48 hours after the production of anæmia.

	Before the production of anæmia	48 hours after the production of anæmia
R. B. C. (millions cmm.)	6.97 ± 0.54*	2.97 ± 0.79
Hæmatocrit %	33.00 ± 1.80	19.74 ± 4.36
Hæmoglobin (gm./100 ml.)	11.31 ± 1.26	4.70 ± 0.45
Mean corpuscular hæmoglo- bin (M.C.H.) (%)	16.23	15.82
Mean corpuscular volume (M. C.V.) (cubic microns)	47.35	66.46
Mean corpuscular hæmoglobin concentration (M.C.H.C.)(%)	34.28	23.81
Iron (mg./100 ml.)	36.85 ± 5.71	15.29 ± 1.14
Diameter of erythrocytes		
4.5µ	3.16%	5.10%
5.25µ	1.25%	2.12%
6.00µ	29.32%	48.94%
7.50µ	58.64%	43.84%
8.00µ	7.63%	Nil

* Standard deviation = $\sqrt{ED^2 / (n-1)}$

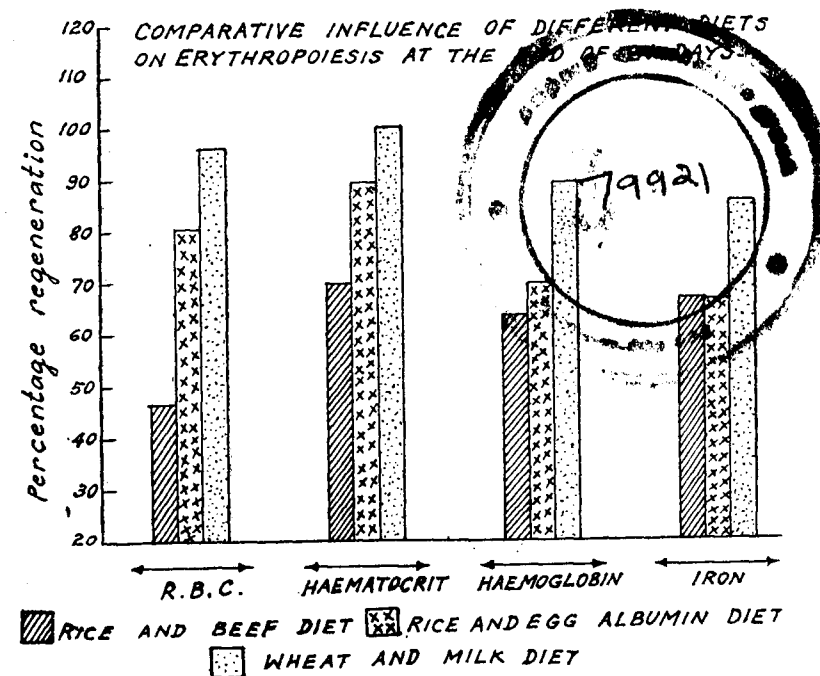
For the evaluation of comparative efficacy, the actual values obtained are expressed as percentages of the fall in the values constituents obtained after bleeding, as compared to their normal values, e.g., the normal hæmoglobin value of dogs on the normal beef diet is 10.22 gm. per 100 cc. of blood. The fall has been 5.59 gm. per 100 cc. of blood. A regeneration of this amount would be considered as equivalent to 100% regeneration. The criterion holds good for the other constituents also.

Discussion.—An arbitrary period of 21 days was chosen to evaluate the hæmatopoietic efficiency of these diets. As it was noticed, that at this time the R.B.C. count and the hæmatocrit value in the case of one of the diets (wheat and milk) had reached the normal pre-hæmorrhagic value, this period was considered suitable for a comparative study.

It will be seen from Figure I, which gives the comparative influence of different diets on erythropoiesis at the end of 21 days, that the regeneration of the various constituents of blood are

affected differently by the different diets both as regards the rate and the extent of regeneration.

FIG. I



The hæmatopoietic efficiency of diet No. 3 (wheat and milk) is superior to the other two diets, from Fig. I and Table III (*vide page 42*). When the diets 1 and 2 are compared, it is noticed that diet 2 though slow in its effect on the regeneration of R.B.C., as compared to diet 3, reached its original count at the end of 30 days, while diet 1 at this period is exhibiting only 64% regeneration.

Diets 1 and 2 have shown almost equal influence on the regeneration of hæmoglobin and iron content of the blood, but the latter diet has greater influence on the regeneration of R.B.C. This clearly indicates that different diets not only elicit different hæmatopoietic responses, but also that different constituents of blood are affected to different extents by the same diet. Wheat and milk diet is shown to be better than rice and egg-albumin and rice and beef diets. Of the three, rice-beef diet is found to be the least active, for blood-regeneration.

Price-Jones curves drawn in order to determine the size of the red blood cells, showed that the peak of the curve was shifted from 7.5µ to 6.0µ as a result of bleeding. Determinations during the experimental period show that the cells of 8.0µ diameter are still absent, even at the end of 30 days, the percentage of which was

7.63 prior to bleeding; cells of 6.0μ diameter, the percentage of which was increased to 48.94, forty-eight hours after hæmorrhage as against the normal value of 29.32%, is found to be 22.5, 28.1 and 13.1 in the case of rice-beef, rice-egg albumin and wheat-milk diets respectively. The cells 7.5μ diameter which dropped from 58.64%, a pre-hæmorrhagic value to 43.84% after bleeding, were now 71.30, 70.40 and 82.90 per cent with the respective diets. The wheat-milk diet thus shows less number of 6.0μ cells and more of 7.5μ cells as compared to the other two diets.

TABLE III

Percentage regeneration of various constituents of blood at the end of different intervals of experimental period with reference to the three diets

Type of diet	Regeneration at the interval of			
	7 days	14 days	21 days	30 days
(a) Percentage regeneration in erythrocytes				
1. Rice and beef	12.95	31.83	46.25	63.81
2. Rice and egg-albumin	16.70	52.34	80.79	105.3
3. Wheat and milk	50.83	79.64	96.61	106.3
(b) Percentage increase in hæmatocrit				
1. Rice and beef	19.98	43.28	69.55	69.90
2. Rice and egg-albumin	23.16	64.07	89.50	92.28
3. Wheat and milk	58.70	90.90	100.30	105.1
(c) Percentage regeneration in hæmoglobin				
1. Rice and beef	47.76	51.17	63.16	74.59
2. Rice and egg-albumin	20.43	47.20	69.71	74.57
4. Wheat and milk	62.63	85.37	89.15	99.19
(d) Percentage increase in iron content				
1. Rice and beef	47.66	50.14	66.64	74.26
2. Rice and egg-albumin	18.48	43.27	66.22	70.98
3. Wheat and milk	62.52	86.46	85.47	96.58

The results relating to the influence on the total leucocytic counts were very irregular. The general trend noticed was an increase during the first week after hæmorrhage, except in the case of the rice egg-albumin diet where the peak of the rise was on the second day only. There was then a gradual drop. At the end of four weeks, the counts have reached normalcy with rice-beef

diet, but were still above normal in the case of wheat-milk diet, while registering a value below the original with the rice and egg-albumin diet.

Since the level of protein in the diets is kept constant, the different hæmatopoietic responses may be attributed to the biological value of the total protein of the diets. The higher the biological value of the protein, the greater will be the capacity to restore the hæmoglobin content of blood. The increased hæmopoietic activity of the wheat-milk diet, thus indicates that the combined protein of wheat and milk possesses the higher biological value than the protein of rice-beef and rice-egg albumin diets.

The activity of rice-beef diet is found to be less than that of rice-egg albumin diet, though the iron content of the former is higher. This discrepancy is explained on the basis of the available iron content. Hill *et al.*,^{2,3,4} have stated that it is the available iron content of the diet, that plays the role in hæmopoiesis and not the total iron content. Hence, it is concluded that the amount of available iron is more in the rice-egg albumin diet than in the rice-beef diet. The hæmatopoietic efficacy of wheat-milk diet accords with its content of iron.

Tompsett⁵ observed greater absorption of iron, when the calcium content of the diet was low. Kletzien⁷ stated that low calcium-phosphorus ratio facilitated the absorption of iron. The greater the absorption of iron, the better the hæmopoietic response; hence the better hæmopoietic response of rice-egg albumin diet as compared to the rice-beef diet is attributed to its lower calcium content and lower Ca : P ratio, based on Tompsett's and Kletzien's observations. But the hæmopoiesis influenced by wheat-milk diet is not found to be in consonance with its calcium content and Ca : P ratio. This might be either due to its higher content of iron, and the biological value of its combined proteins, or due to some other unidentified factors.

Vitamin content may be one such factor, influencing the regeneration of blood. Riboflavin, nicotinic acid, pyridoxin and various folic acid compounds are now definitely shown to be essential for the formation of red blood corpuscles. The apparent maintenance of erythrocytes in human blood upon Vitamin B₁₂, found to be identical with the extrinsic factor, was confirmed by Miller and Rhoads⁸. The deficiency of Vitamin B complex has been observed to cause the fluctuation in the concentration of erythrocyte and hæmoglobin¹⁰. The thiamin and nicotinic acid contents of the wheat-milk diet is found to be greater than the other two diets while riboflavin is present to a higher degree in the rice-egg albumin diet. The exact significance of these findings and their relationship to hæmopoiesis needs further elucidation.

References :

1. Karr, (1920)—J. Biol. Chem., 41: 255.
2. Hill, R., (1930)—Proc. Roy. Soc., London, Series B, 107: 206.
3. Elvehjem, C. A., Hart, E. B. and Sherman, W. C., (1933)—J. Biol. Chem., 103: 61.
4. Kohler, G. O., Elvehjem, C. A., and Hart, E. B., (1936)—J. Biol. Chem., 113: 49.
5. Sherman, W. C., Elvehjem, C. A. and Hart, E. B., (1931)—J. Biol. Chem., 107: 383.
6. Tompsett, S. L., (1934)—Biochem. J., 28: 1802.
7. Kletzien, S. W., (1938)—Biochem. J., 15, suppl. 16.
8. Miller and Rhoads, C. P., (1934)—New. Eng. J. Med., 211: 921.
9. Sure, Kik and Walker, (1929)—J. Biol. Chem., 83: 387.
10. Guha, B. C. and Mapson, L. W., (1931)—Biochem. J., 25: 1674.

SIMPLE TECHNIQUE FOR TREATMENT OF GRANULOMA OF THE UMBILICUS

In the vast majority of normal infants the umbilical cord will dry and divide by the sixth to the eighth day of life. Some slight degree of infection, usually by saprophytic organisms, almost invariably occurs in the wound after the shedding of the cord. Normally thin skin and scar tissue form in the wound and healing is complete in two weeks. Some wounds remain open and do not heal for weeks. The most common cause for delayed healing is umbilical granuloma. This is a nubbin of exuberant "proud flesh" that extends upward from the base of the wound and prevents epithelialization. This tissue is identified as soft, vascular and granular, dull red or pink in colour, and may have a seropurulent secretion.

Classically the treatment as described in most textbooks, has been by cauterization with silver nitrate sticks and the application of various powders and dressings. This usually takes weeks for healing, and occasional bleeding, purulent discharge, and even secondary cellulitis are sources of great concern to both parents and the attending physician.

The following is a simple technique that has been used with great success by Dr. Sarah Braud, M.D. of Louisiana.

When the true character of the pathology has been ascertained to be a granuloma, the wound is cleaned with alcohol on a cotton applicator. An assistant places superior and inferior traction with the fingers at the umbilical margins. This causes the base of the wound to flatten and protrude outward. Now a long length of No. 40 white cotton sterile ligature is placed around the granuloma and worked as close as possible to the base of the wound by means of a hæmostat. This ligature is tied as tightly as possible, then the ends are cut about 2½ inches long and allowed to lie out of the wound. Next the proud flesh is cauterized in the classical manner with a silver nitrate stick, and alcohol is once again applied to the wound with cotton-tip swab. The traction is released and the granuloma falls back into the wound with the cotton-tie ends sticking out. No dressing is applied. The parent is instructed in the method of twice daily cleansing of the wound with a cotton tipped applicator. Eight grams of a liquid ointment that contains 4000 units of polymyxin B sulphate and 200 units of bacitracin are prescribed with instructions to instil 3 to 4 drops twice daily in the umbilical wound.

Because the blood supply to the granuloma has been interrupted, in the majority of cases it will now separate and leave a clean base in about five to seven days. Only on one occasion has it been necessary to apply a second ligature; however, in rare cases it may be necessary to cauterize the proud flesh for the second time.—(J. Louisiana State Med. Soc., June 1954).

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Cases and Comments

PULMONARY SYPHILIS

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IN heredosyphilis, interstitial pneumonitis is a common feature, and every student of pathology knows about 'pneumonia alba' in a still-born baby or in one that dies shortly after birth, when the basic disease is congenital syphilis.

In acquired syphilis, pulmonary involvement is considered very rare, and it may be solitary gumma, diffuse syphilitic fibrosis, and diffuse bronchopneumonia with secondary pleuritis. Hilar syphilis can merge with syphilitic mediastinitis. Gumma of the trachea and bronchi, bronchiectasis, and asthmatic syndromes with syphilitic basis are also known.

Delayed resolution of pneumonia (Head and Seabloom), massive infiltration of the right upper lobe (Fitz Hugh) and acute pneumonia with delayed resolution (Warthin) similar to known spirochaetal crises should suggest acquired pulmonary syphilis.

The symptomatology :—"Healed apical tuberculosis" in association with syphilitic manifestation in the upper respiratory tract should attract more attention. "In no case can a diagnosis be made without collateral evidence of syphilis, and autopsy or a successful therapeutic test, carefully guarded against nonspecific misinterpretations. Gumma of the lung may pass for neoplasm, softened gumma for pulmonary tuberculosis with cavitation, and interstitial pneumonitis for nontuberculous lung infection, and even pulmonary fibrosis such as pneumoconiosis"—Hohn H. Stokes, Herman Beerman and Norman R. Ingram (1945).

Pulmonary syphilis is confirmed by collateral evidence of syphilis, continued absence of tubercle bacilli in the sputum, and positive therapeutic response to mercury or bismuth as arsphenamine and iodide are relatively nonspecific for assessment. I consider it unwise to try out arsenic or bismuth or mercury and it is safe to elicit only a therapeutic response to penicillin or iodine preparations in the tertiary stages of lues.

The following case reports all suggest evidence in favour of pulmonary syphilis and therefore, I wish to stress in this communication the need for remembering the possibility of the existence of acquired pulmonary syphilis in adults and congenital pulmonary syphilis in children while observing patients in an institution.

Case 1.—S., adult female, 20 years. Admitted on 31-8-1950 and discharged on 20-9-1950.

Complaint and duration:—Cough and fever for one year and one month. *Clinical*:—Thin build. Nails clubbed; afebrile throughout; abdomen soft; liver and spleen not palpable. Heart: pulmonary second sound accentuated. Lungs: breath sounds harsh over both upper zones.

Investigations:—Urine—no sugar and no albumin. Blood—differential count: Polymorphs 57; Lymphocytes 20; Eosinophile monocytes 1; and basophiles 1 (in percentages). Kahn and Wassermann: positive; Sputum—negative for acid-fast bacilli. Elastic fibres and secondary organisms present.

Screening of the chest (31-8-1950):—Trachea central. Left base appears more opaque. There is a small opacity at the level of 2nd and 3rd right interspaces, of the size of a lemon. Heart tends to deviate to the right side. Screening on 5-9-1950: The circular patch of pneumonitis (?) has become a smaller (absorbable) patch. *X-rays chest A-P* (12-9-1950); Cavity-like-appearance in the right upper zone. (Vide picture 1, page 47).

TREATMENT:—This patient was given a mixture containing Pot. Iodide with benefit. (Pulmonary gumma was the diagnosis in this patient).

Case 2.—C., an adult male, 25 years. Admitted with fever cyanosis, and acute dyspnoea of about a fortnight's duration, on 3-10-1952. Discharged cured on 13-11-1952.

Clinical:—Thin in build. Abdomen tumid, liver $\frac{1}{2}$ " and spleen $\frac{1}{2}$ " below costal margin. Heart: first sound soft at apex. Lungs: dullness present over right lower zone with diminished breath sounds. Haemoptysis occurred on 6-10-52.

Investigations:—Urine—no sugar and no albumin. Sputum—negative repeatedly for acid fast bacilli. Blood—Kahn and Wassermann positive. Sternal puncture—negative for L.D. bodies. Motion—no ova; no cysts (repeatedly negative).

X-rays chest A-P:—11-10-52:—"Pneumonitis" at right mid and lower zones. 25-10-52:—The same with commencing resolution; 8-11-52:—Marked resolution; 15-11-52:—Remarkably clear; slight residual opacity present. (Vide pictures 2, 2-a, 2-b and 2-c, pages 47 and 48).

TREATMENT:—Penicillin and later "Entodon" (Bayer) an iodine preparation one ampoule I.M., daily for 5 consecutive days cleared the condition. Orally, Pot iodide was given with benefit.

DIAGNOSIS:—Pulmonary syphilis—Pneumonitis type.

Case 3.—S., a male, 35 years. Admitted on 20-1-1953 with fever, bronchopneumonic signs, meningeal symptoms; exhibited suicidal tendencies. Sputum negative for acid-fast bacilli. Lumbar puncture: Sanguineous fluid drawn on three different occasions. Fluid was not under pressure. (Vide picture 3, page 48).

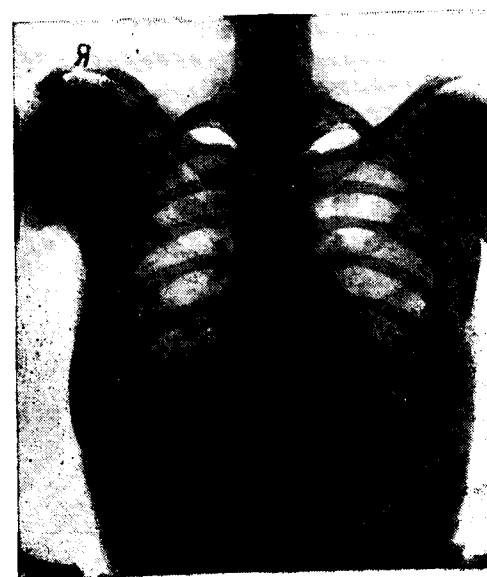


FIG. 1. S., female, 20 years, Chest A.P. (12-9-'50).

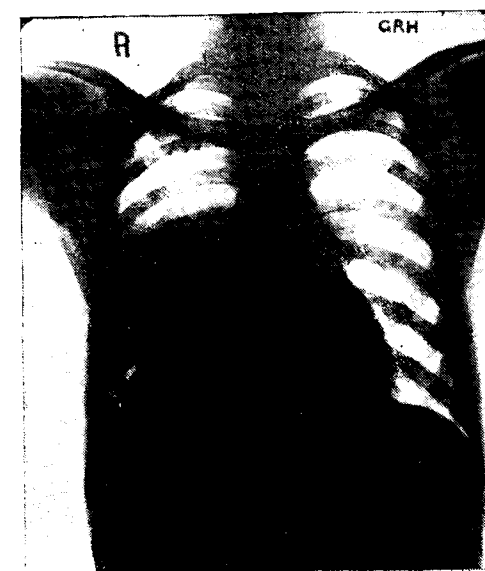


FIG. 2. C., adult male 25 years, Chest A.P. (11-10-'52).

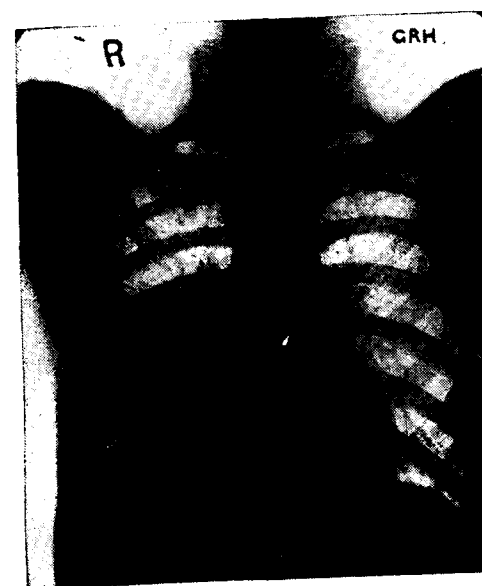


FIG. 2-a. C. Chest A.P. (25-10-'52).

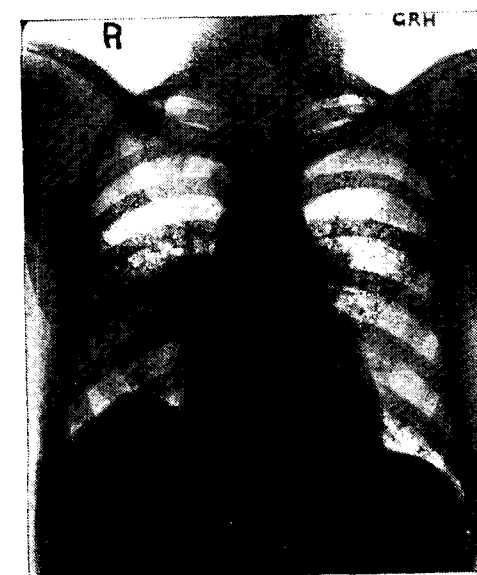


FIG. 2-b. C. Chest A.P. (8-11-'52).

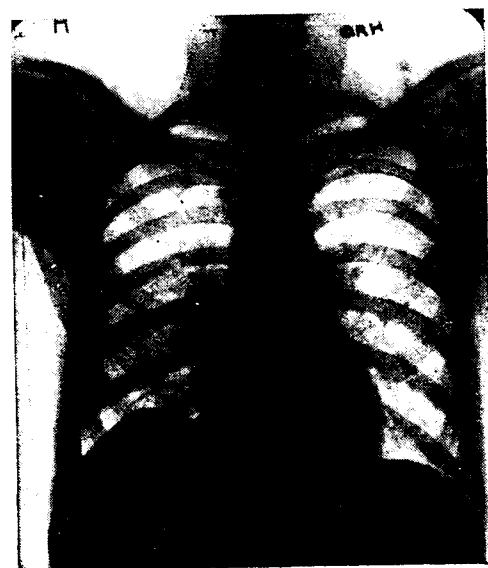


FIG. 2-c. C. Chest A.P. (15-11-'52).

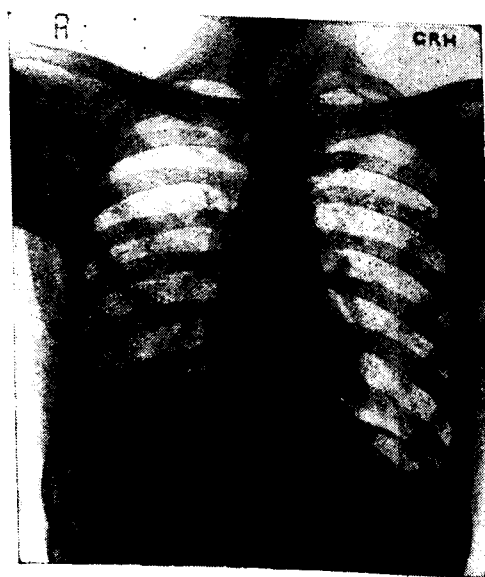
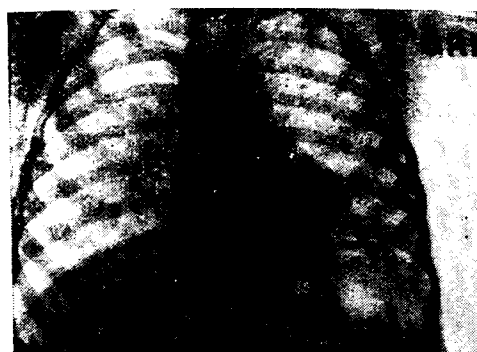
FIG. 3. S., male 35 years.
Chest A.P. (20-1-'53).

FIG. 4-a. R., female child, 2 years. Chest A.P. (21-1-'53).

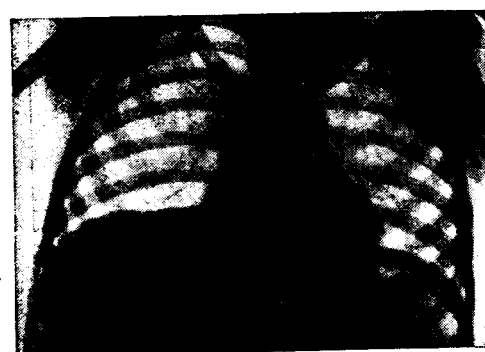


FIG. 4-b. R. Chest A.P. (11-3-'53).

FIG. 5. D.L., baby girl 1 year.
Chest A.P. (23-2-'53).

Treated with penicillin and oxygen inhalations. Improvement was marked.

Blood—Kahn positive. X-rays chest A-P—Right basal shadow present 'Pneumonitis.' Diagnosis:—Pulmonary syphilis.

Case 4.—R., a female child of 2 years. Admitted on 13-2-'53 with fits and fever of 10 days' duration. Unconscious without head retraction of Kernig's sign. Conjugate deviation of eyes present to right and also right hemiplegia. Heart sounds of poor quality. Lungs—nil particular, except for a few rales in interscapular zone. Liver and spleen not palpable below costal margin. Lumbar puncture—fluid clear. Total proteins 20 mg%, Globulin nil. Chlorides 750 mg%. Sugar 48 mg%. Mother's blood:—Kahn positive.

X-rays chest A-P of the baby:—Mottling of right midzone present. (21-1-1953). Both lungs show mottling confined specially to the perihilar region: (11-3-1953). X-rays of bones: nil particular. (Vide pictures 4-a and 4-b, page 48).

Case 5.—D.L., a baby girl of 1 year; admitted with bronchopneumonia and diarrhoea. While in the ward developed left-sided hemiplegia. Mother's blood: Kahn positive. Chest A-P: Both lungs show generalised soft mottling. (Vide picture 5, page 48).

[I am particularly thankful to Dr. M. K. T. Rajan, B.A., M.B., B.S., D.M.R. Radiologist of the Government Royapettah Hospital for his co-operation and valuable opinion in this study. My thanks are also due to Dr. M. A. Latif Khan M.B., B.S., Superintendent, for his kind encouragement].

References:

1. Boyd, William, (1944)—A Text Book of Pathology, IV Edition.
2. Stokes, Joh H., Beerman, Herman and Ingram Norman R. (1945)—Modern Clinical Syphilology: Diagnosis, Treatment, Case Study, III Edition.
3. Price, Frederick, W. (1950)—A Text Book of the Practice of Medicine, VI Edition.

TENNIS-ELBOW

Varying conclusions about the efficacy of hydrocortisone injections in relieving the pain due to tennis-elbow (epicondylitis humeri) are recorded in the *Lancet* of 31st July, 1954. Thus Freeland and Gribble, London Hospital, in a controlled series of 14 cases, injected into the point of maximal tenderness 1 cc. of a suspension containing 25 mg. of hydrocortisone. The results were no more effective than were the results of injecting 1 cc. of procaine solution (5 per cent). On the other hand, Quin and Binks (Middlesex Hospital) and Murley (St. Bartholomew's Hospital) are satisfied that hydrocortisone injection produces relief in a high proportion of cases. As for the aetiology of tennis-elbow, Quin and Binks are not convinced that trauma is the chief aetiological factor. In 21 of 31 cases the patients could not associate the onset to their symptoms with any form of injury. No patient suffered from rheumatoid arthritis, but three patients had generalized osteoarthritis and one patient gave a history of lumbago and sciatica.—(*Rheumatism*, London, October, 1954).

MARCUS GUNN SYNDROME

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THIS term is applied to a curious phenomenon of oculo-facial associated movements first described by Marcus Gunn in which a unilateral ptosis is associated with an ability to raise the upper lid only when the mouth is opened simultaneously. This is the most common congenital synkinetic movement. It may commence in later life sometimes apparently spontaneously and sometimes after trauma, in which case it may be only temporary. The phenomenon decreases as age advances or even disappears or it may become more marked. Rarely it is bilateral in which case the lids can only be raised when the mouth opens (Marin Amat).

Normally there is a certain association between the movements of eyes and lids, their association being effected partly by the palpebral attachments of the ocular muscles and partly also by connections between the motor nuclei of the fifth and facial nerve. Certain abnormal associations have been observed which have been associated to peculiarities in nerve communication due to alteration of supranuclear nerve connections which travel in the posterior longitudinal bundle to the muscle concerned (Lutz). The levator is considered to be nervously connected not only with the third nucleus but also with the external pterygoid portion of the fifth nerve nucleus.

Thus in jaw-winking the upper lid rises when the mouth is opened and the upshot of the lid is higher than the normal eye but it is not maintained if the mouth is kept open. If the lower jaw is moved laterally towards the same side as the ptosis, the latter increases and on throwing the jaw towards the opposite side by means of the action of the external pterygoid, a further upward movement is produced (Cooper). The lid may rise when suction movements are made, each movement being accompanied by a synchronous movement in the drooped eye lid (Zimmerman) though there does not usually appear to be any connection between this phenomenon and the movements of deglutition but it may occur with inspiration or opening the mouth (Brain). The lower lid may be everted when the mouth is opened or when the tongue protrudes (Robson). It may occur with or without congenital ptosis (Fuchs).

Bishop Harman traces the morphological evolution of this phenomenon and suggests that it is an atavistic anomaly, the orbicularis palpebrum being the descendant of the original spiracle or gill musculature which, in fishes, works rhythmically with the deep spiracle muscle, now represented by the pterygoid muscles. He

draws an interesting parallel with the associated movements of opening the mouth and dilatation of the spiracle in fishes. This spiracle is divided into two parts, the deep part which opens the jaw on contraction (external pterygoid) and the superficial part which guards the orifice of the spiracle (orbicularis palpebrum) which relaxes on contraction of the deeper part.

Although it usually persists into adult life, it is seen in its most marked form, in infancy. The recorded cases are all of infants or children; males are more effected than females and the left side is more frequently involved than the right in the proportion of 18 to 7 (Sinclair). A familial tendency in this phenomenon has been noted. Partial or complete ptosis is usually present though it is invariably not so and in such cases where ptosis is absent, retraction of the lid occurs and may be associated with other muscular paresis such as paralysis of the superior rectus or internal rectus or even external ophthalmoplegia. Spaeth estimated that the incidence of this phenomenon is about 2% of all cases of congenital ptosis. The patient cannot voluntarily lift the lid except to a slight extent by the use of frontalis (Foster Moore).

Case report.—D., a three-month old male child from Hapur was brought to the Infirmary by his parents on the 2nd July, 1954. The parents were worried because the infant kept his left eye closed while the right eye was functioning normally. The mother gave the information that whenever the baby opened his mouth then only the left upper lid was raised but was kept closed the rest of the time when the mouth was shut. The parturition history was normal. There was no trauma of any sort to the baby and there was no history of forceps delivery or any ante- or post-natal infection. The complaint dated back to the time of delivery. The first few weeks were lost because of the uncertainty of the disease but when later on, no improvement occurred and there was no evident effort on the part of the baby to raise the left upper lid, the parents got worried and were further frightened by relatives and friends with the seriousness of the condition. There was no other history of any congenital malformation or hereditary affections in the family on either the paternal or maternal side.

On examination, the child was found to be thoroughly healthy in all other respects; the left lid was completely closed making a complete ptosis. There was no movement in the left lid when the baby played. It opened only when the baby opened his mouth. The lids, conjunctiva and cornea were all normal. There were perfect movements in the eye in all directions and the pupil was reacting to light and was not dilated. When the right eye was closed either by the baby or by the parents there was no movement in the left lid nor any effort to raise it. It only opened at the time of opening his mouth and even then not fully. The movements of the lid could not be seen while feeding.

The parents were assured of the innocuous nature of the condition and were advised to come again to the Infirmary when the baby was two years old to see if any correction to the ptosis may be effected.

References :

1. Brain, (1933)—Diseases of Nervous System, Lond., 150.
2. Cooper, (1937)—*Ann. of Ophth.*, 13: 198.
- 2-a. Duke Elder, (1952)—Text Book of Oph., 5: 4686.
3. Fuchs, H. E., (1924)—Text Book of Ophthalmology, 349.
4. Foster Moore, R. (1925)—Medical Ophthalmology, 277.
5. Gunn Marcus, (1883)—*Tran. Oph. Soc., U.K.*, 3: 283.
6. Harman Bishop, (1903)—*Ibid*, 23: 356.
7. Lutz, (1919)—*Arch. of Oph.*, 47: 144.
8. Marin Amat, (1924)—*Siglo Med.*, 73: 347.
9. Sinclair, (1895)—*Oph. Review*, 15: 312.
10. Spaeth, (1947)—*Am. J. Oph.*, 30: 143.

RETROLENTAL FIBROPLASIA

Retrolental fibroplasia is an œdematous, hæmorrhagic and proliferative process of the retina and vitreous, leading to the development of a membrane behind the crystalline lens, occurring in the first few months of life of premature infants. In 1942, Terry described retrolental fibroplasia as a syndrome and associated it with prematurity.

Clinical signs of retinal involvement have been observed as early as 2 or 3 days after birth and as late as the 5th month, generally about the fourth week. The early pathologic changes seen clinically are patches of lesioned retinal transparency often seen near the ora serrata, engorged retinal vessels and, sometimes, visible hæmorrhage. The differential diagnosis of the disease usually is no problem to the ophthalmologist completely familiar with the condition. It usually is stated that it must be differentiated from pseudoglioma, toxoplasmosis, retinoblastoma and septic endophthalmitis. Breisasher and Lelly of Charleston state that the tragic consequences of this disease warrant the utmost care on the part of the pædiatrician. It should be recognised early and the infant's parents made aware of its presence at an early stage.

Dr. Esposito of Huntington presents 12 cases of retrolental fibroplasia, this newest mystery on the ophthalmologic horizon which is of interest to us all, but especially to the obstetrician, the pædiatrician, the general practitioner and, of course, the ophthalmologist. Although this past decade of research (since Terry first described the disease in 1942) has failed to reveal its ætiology, or a method of treatment, we now know that: 1. It is a disease of prematurity, being more prevalent among those infants weighing three pounds or less and increasingly so with decreased birth-weight. 2. It is not present at birth. 3. No associated congenital or mental abnormality is present. 4. A vitreous haze is an early sign but a clear vitreous may or may not go on to retrolental fibroplasia formation. 5. The disease can regress although no specific therapy is given. 6. The first pathologic lesion occurs in the nerve fibre layer of the retina near the equator of the eyeball, with no inflammatory lesion present and, finally, involvement of the vitreous to detach the retina and produce a complete retrolental membrane in 20 to 22 per cent of those infants in whom this disease develops. 7. The active or acute phase occurs from the first to the third month of post-natal life and if the disease has not developed by the third month, it usually does not appear thereafter. 8. There appears to be good evidence that the oxygen therapy of the newborn has a definite place in the ætiology of the disease.—(*West. Virg. Med. Jour.*, Sep. 1954).

EXPERIENCES WITH THE USE OF A CYCLOHEXANE PREPARATION IN SCABIES

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CYCLOHEXANE (Benzene hexachloride) is an old chemical having been synthesized by the photochlorination of benzene by Michael Faraday in 1825. Its insecticidal property was discovered in 1942 independently, but almost simultaneously in England and France. Additional studies made in England in 1943 showed that the greatest activity resided in the gamma isomer. In 1945, the gamma isomer was shown to possess outstanding usefulness in veterinary medicine as a miticide and to be effective against lice, fleas, bed-bugs, and other parasitic insects. It has been employed since 1948 for the treatment of scabies, pediculosis, and phthiriasis in humans.

This report deals with the clinical trial of cyclohexane in 27 cases of scabies, partly from the department of Dermatology of the Civil Hospital, Ahmedabad, and partly from cases in my private practice.

An one per cent ointment in a vanishing cream base was used in the majority of cases; cyclohexane lotion in a greaseless base of the same strength was used in the younger age groups.

Method of application.—1. Without preliminary bath, a thin film of the ointment was rubbed into the entire cutaneous surface of the infected infants and from the neck to the sole of the feet in infected adults with particular reference to the involved sites. 2. The patient was asked to take a good bath 24 hours later; he was then asked to wear well-washed clean clothes. 3. The patient was re-examined 4 and 7 days after the initial treatment and a second application was given in some cases on the 4th day where the clinical response was not satisfactory. The patients were then asked to report if the disease recurred.

The diagnosis of scabies was based entirely on clinical findings, viz., itching mostly at bed time and typical scabetic lesions localised to the usual areas. The following statement gives the age distribution of the patients :

Age period	No. of Cases
0—9	3
10—19	4
20—29	16
30—39	2
40—49	1
50 and above	1

Total 27 of whom 23 were males and 4 were females.

The degree of severity of scabies was clinically classified as mild, moderate and heavy: six cases belonged to the mild and 17 to the moderately severe group; and in 4 cases the scabetic lesions were profuse. Secondary pyogenic infection was present in only two cases.

Response to therapy.—Symptomatic improvement was observed in all cases within a period of 3 to 4 days. Itching diminished or the conditions ameliorated after a single application. Nearly half the cases received a second application after 4 to 6 days, which led to the healing of uncomplicated scabetic lesions. Chronic sequelæ like small indurations persisted for a considerable time even after the second application.

In a study reported by Wooldridge³ in May 1948, 72 patients with scabies were treated by a similar preparation, 69 of whom were completely cured and 3 suffered relapse. Of the three who relapsed, one was successfully treated by a second application. Wooldridge subsequently extended the treatment in his series to more than 300 patients, and obtained cures in more than 95 per cent of them. In another study reported by Cannon and McRae¹, all the 100 patients treated with 1% cyclohexane ointment were completely cured, 61 by a single application, while 36 needed two and 3 others needed 3 applications of the ointment. Kornblee and Combes² obtained cure of scabies in 73 of 76 patients treated with 1% cyclohexane ointment.

On the whole the therapeutic results obtained in the present investigation compared well with those obtained by the other investigators, cited above.

Acknowledgement.—Cyclohexane ointment and lotion used in this investigation were obtained through the courtesy of Dr. C.J. Modi of Sarabhai Chemicals India, and Messrs E. R. Squibb and Sons, New York. My grateful thanks are due to the Civil Surgeon, Ahmedabad and the Hon. Dermatologist, Civil Hospital, Ahmedabad for permission to utilise the case records of the Hospital.

References :

1. Cannon, A. B. and McRae, M. E. (1948)—J.A.M.A., 138: 557.
2. Kornblee, L. V. and Combes, F. C. (1950)—Arch. Dermat. and Syphilol., 61: 407.
3. Wooldridge, W. E. (1948)—J. Invest. Dermatol., 10: 363.

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Associate Editor: U. VASUDEVA RAU, M.B., B.S.

Editorial & Publishing Office: 323-24, Thambu Chetty St., Madras-1

Annual Subscription: Rs. 7-8-0. Foreign—Rs. 10—Post Paid

Vol. 52

JANUARY, 1955

No. 1

EVENTFUL 1954—A REVIEW

ANOTHER year has rolled by during which we had the unique privilege and pleasure of celebrating in April 1954, the Golden Jubilee of this Journal in a fitting manner. We received blessings from numerous well-wishers and appreciative references from sister publications all over the world to the Golden Jubilee issue—a bumper number which was hailed as a marvellously compendious book of reference for the general practitioners as it contained 58 original articles in which experts in various branches of medicine reviewed in clear short compass, the progress made in their speciality during the last 50 years.

During the year 1954, international affairs claimed the constant and vigilant consideration of all nations. The Korean tangle was satisfactorily solved—thanks to the tactful good offices of India's Prime Minister Shri JAWAHARLAL NEHRU. As a true disciple of MAHATMA GANDHI, he has held fast to the creed of peace and non-violence and by his astute intelligence and unerring diplomacy has succeeded in bringing about an atmosphere of calm and co-operative thought and action amongst the nations of the Far East. The fact that the four big Western powers agreed to meet for evolving an agreed plan to terminate the cold war is due in no small measure to the magnetic influence and persuasive eloquence of India's Prime Minister, who has persistently advocated the need for peace, goodwill and harmony among nations and the terminating of all belligerent activities. His recent visits to China and Indonesia and his welcoming foreign diplomats to India for free and frank discussions are events of international importance. Power blocks have been held in check to some extent. As MARSHAL TITO said the other day in his address to the Union Parliament of India, "We do wish to increase the number of States and of Nations who place the safeguarding of peace above all else and who struggle for relations based on equality

for peaceful co-operation among nations and for an active co-existence of States with different social systems. What is needed is not a sort of passive co-existence but an active co-operation and a peaceful and agreed settlement of different problems." To this Shri NEHRU gave his hearty support through a joint statement issued on the 23rd December 1954. Such co-existence is a practical possibility and is essential if we are to avert a new world war with all its ghastly tragedies. All nations who are activated by this high purpose will be able to help in the solution of international problems through their participation in the U. N. deliberations. Many important countries which are not represented in the UNO, should join and broaden the basis of the U.N.I. In this great effort many nations are looking up to India for guidance.

The recent statement by the U.S. Secretary of State Mr. DULLES that American present military policies would gradually involve the use of atomic weapons as conventional weapons for 'tactical'—not 'strategic' purposes, is not however comforting. Their policy in the Far East was to withdraw some land forces and rely chiefly on the striking power of mobile, sea and air forces to deter aggression. There need however, be no alarm over these happenings, as we are confident that wiser counsel will ultimately prevail and peace will pervade the world.

The year 1954 has been an eventful one for us in India. In the fields of Medicine and Public Health, it witnessed considerable advances. Reforms were introduced in Medical Education as evidenced by changes in the curricula, in the selection of teachers, in the upgrading of particular departments in medical colleges and in providing greater facilities for post-graduate training, and in the grant of special scholarships for research and higher studies overseas.

The Employees' State Insurance and the Health Services provided under the Community Project schemes were measures designed to extend medical relief and preventive health work over an extensive area. The implementation of these welfare schemes is proceeding. Child health is one of the important subjects which has received attention from the Central and State Governments and the Prime Minister recently pleaded for high priority being given to it in the WHO, UNICEF, and other programmes. A contributory health service scheme has been introduced to cover all classes of Union Government employees. The National Malaria Control scheme was functioning very effectively and the results of malaria control are reported to be very encouraging. 125 field units were functioning in various centres during the year. In the matter of Tuberculosis control, more beds were provided in sanatoria—these have really quadrupled during the past 5 years though it will take very long to reach the target of 50,000 beds. The Union Government decided to establish a central Leprosy Training and Research Institute at Tirumani, near Madras, where there is

already a well-established leprosarium run by the Madras State Government. The Cancer Research Institute at Bombay is a most welcome and necessary addition to the Research programme of the Union Government. The Department of Maternal and Child Health established at the All India Institute of Hygiene and Public Health at Calcutta is a joint co operative effort between the Union Government and the UNICEF. The Pharmaceutical Enquiry Committee's exhaustive report containing valuable recommendations for the manufacture and sale of genuine drugs in India and for the effective suppression of the adulteration of the drugs was made available to the Union Parliament and to the public in September 1954. It remains to be seen how the recommendations will be received and translated into enforceable legislative enactments.

The Drugs and Magic Remedies (objectionable advertisements) Act was passed by the Union Parliament on 26th April 1954 and rules for enforcement of the Act have now been published for eliciting public opinion. There is already, a considerable volume of public opinion which is not favourable to these rules—as they are considered to extend far beyond essential limits and might be worked to the detriment of manufacturers, advertisers and publishers, by overzealous officers, who are charged with interpreting the various sections and who may not appreciate the difficulties of those affected thereby.

The problem of rural medical relief continued to engage the attention of the Union and State Health Ministries but the practical aspect of the problem has not progressed beyond the mobile dispensaries already in use and the proposal to train auxiliary Health personnel. In the matter of water supply improvements, the formation by the Union Government of a proper National Water Supply and Sanitation Programme, is under contemplation. The All India Institute of Mental Health was inaugurated in August last at Bangalore by the Union Health Minister to deal with problems of mental health.

It is regrettable that acute differences of opinion arose in October last, over post graduate medical education between the Indian Medical Council and the Union Government, who had created an All India Council of post-graduate medical education in total disregard of the statutory provisions of the Indian Medical Council Act, which vested the Medical Council with powers and responsibilities in this regard. The Union Government has consistently failed to take the independent medical profession into its confidence in all vital matters and so, Government cannot expect wholehearted co-operation unless there is a thorough change of heart.

The Prevention of Food Adulteration Act, passed by the Union Parliament, provides for heavy fines and even imprisonment for repeated offences; this should act as a deterrent to the indiscriminate adulteration which has become a real menace to health.

DR. CANDAU, the Director General of the WHO, visited India in November 1954; he was greatly impressed with what India was doing against malaria and tuberculosis. The Scientific Advisory Committee of the Indian Council of Medical Research met in Baroda on 22nd November 1954 and discussed several problems of research *e.g.*, cancer, viruses, leprosy, mental diseases, etc..

The 31st annual session of the All India Medical Conference was inaugurated at Lucknow on the 26th December 1954 by Shri GOVIND VALLABH PANT. Dr. S. C. SEN delivered the Presidential address. We shall be commenting on these proceedings later.

Before we close, we wish to offer our hearty felicitations and grateful thanks to all our readers, our contributors and to our advertisers, but for whose abundant and hearty co-operation we could not have achieved significant success in our attempts to cater to the needs and aspirations of the medical profession. We wish them all a very happy and prosperous New Year.

CURRENT CONCEPTS OF DIABETES MELLITUS

(A Review of the Recent Literature on the Subject)

THE modern treatment of diabetes with insulin has increased the duration of life in diabetics from some 5 to 25 years between the ages of 20 and 60 years. The commoner form of diabetes in civilised countries today occurs in obese middle-aged persons from 45 to 60. In the last 30 years it has been computed that the incidence of this type has become twice as common in females as in males. Diabetic coma seldom threatens and insulin treatment is not necessary unless infective complications arise. The other form of diabetes which occurs at ages between 20 and 40 is more severe; wasting and ketosis develop and prior to the insulin era, death occurred in 1 to 4 years. Life can now be maintained from 20 to 30 years by judicious insulin treatment in most cases. Unexpected complications have however, been found to creep on the diabetic even when his vigour and general health are assured by insulin treatment. The concepts relating to diabetes mellitus have undergone great changes and the views currently in vogue as gleaned from the recent medical literature, are therefore, presented for the benefit of our readers.

An important development in modern times has been the elucidation of the part that enzyme systems play in metabolism by tremendously accelerating the rates of reactions.

Aetiology.—According to our present concepts, there is a specific *gene* for every specific enzyme within a cell. When that gene is lost, as by mutation, the enzyme system is lost, and a certain reaction is blocked. 'Hormones determine the rate of activity of

specific reactions. The hormone avidly combines with the intact cell and then exerts its action on specific reactions catalysed by specific enzyme systems.' For example, pituitary thyrotropic hormone combines with the thyroid cell, and then determines the activity of the reactions concerned with the uptake of iodine and the synthesis and delivery of the thyroid hormone; insulin combines with muscle and other tissues, and determines the rate of entry of glucose into the active metabolism of the cell. Dr. SOL SHERRY in his address to the New York Academy in February 1952, said:

"The human body is geared to the carbohydrate as its major source of fuel for the energy requirements. All types of muscle—smooth, striated, and cardiac—use carbohydrate as a fuel stuff; it is not metabolic machinery like proteins, nor a source of fuel-storage, like fat. Rather it is the active fuel of the body and is stored as glycogen to a very limited extent. Glycogen is only a very small appendage of carbohydrate metabolism, and though very important, represents a turnover of about 3 per cent of the total amount of carbohydrate utilized daily. Thus, carbohydrates being the active fuel must be continually supplied in the diet.

"The absorption of the digested sugars is confined mainly to the small intestine with only traces absorbed in the stomach and large bowel. These monosaccharides are absorbed by two processes; (i) a non-specific slow diffusion based on osmotic principles; and (ii) a very rapid, and specific process requiring the use of energy and termed phosphorylation. Phosphorylation is a very fundamental reaction necessary for cellular transport and glucose phosphate is formed. The enzyme concerned with the phosphorylation of glucose in the tissues is called hexokinase. The glucose-phosphate formed can then either be built up to glycogen; or anaerobically broken down in a series of reactions to pyruvic acid, with the liberation of some energy. The two reactions are reversible. The delivery of glucose into the circulation from glucose phosphate in the liver is of extreme importance in maintaining the blood sugar level, and is catalysed by a phosphatase. This phosphatase is lacking in Von Gierke's or glycogen-storage disease and as a result, glycogen accumulates in the organ in tremendous quantities and yet hypoglycæmia and ketosis may be evident systemically."

The glucose formed in the liver enters the systemic circulation and within half an hour elevates the plasma-sugar level. A portion of the glucose is converted into glycogen in the liver and in the muscles. Glucose required for energy is broken down into lactate, pyruvate and other 3-carbon fragments, most of which undergo oxidation and some are converted into fatty acids. Part of the lactate and pyruvate is convertible into glycogen in the muscles and in the liver and into glucose. When the demands for glucose increase glycogen is broken down in the liver into glucose:—*glycogenolysis*. It is only in the liver and *not* in the muscles that free glucose can

be formed from glycogen. Of the total glucose which is normally daily metabolized in this way, it has now been estimated from tracer studies (*J.A.M.A.*, 132: 1946) that 67 per cent is oxidized to carbon dioxide and water, 30 per cent is converted to fatty acids *via* pyruvic acid, and 3 per cent is converted to glycogen. 'The origin of this glucose which is daily metabolized has been estimated as follows:—65 per cent is of dietary origin, 32 per cent is obtained from gluconeogenesis, and 3 per cent from glycogen. If these figures are fair estimates of what is going on in the normal human, then the individual is in glycogen balance, derives about one-third of his carbohydrates from protein, and diverts about one-third of his carbohydrate into fat synthesis.'

Metabolic blocks.—(1) 'The diabetic is unable to convert glucose to pyruvate, and cannot convert glucose to glycogen, yet he is perfectly capable of synthesizing glycogen from pyruvate and other small fragments; the major metabolic block in carbohydrate metabolism in diabetes is an inability to form glucose phosphate from glucose.' This concept of the carbohydrate metabolic block in diabetes forms, according to SHERRY, the basis for recent studies on the possible usefulness of fructose. Fructose is phosphorylated independently of glucose and this action does not appear to be blocked in diabetes. The fructose phosphate formed, may then enter the intermediary metabolism of carbohydrate below the initial block. (2) One other metabolic block, which tracer studies of STETTEN have revealed as present in diabetes, is the inability of the liver to form fatty acids from glucose. Since the normal animal diverts one-third of the carbohydrate into fat-synthesis, this may be of considerable significance. Since uncontrolled diabetics promptly go into negative nitrogen balance, it may well be that there also exists a metabolic block for normal protein synthesis in this disease. "Thus diabetes can be considered as a generalised disorder in which the normal pathways for glycogen, fat, and protein synthesis are interfered with" says Dr. SHERRY.

Fundamental defects.—There are two fundamental defects in the carbohydrate metabolism in diabetes mellitus. The first is an insufficiency of insulin and the second (which is the result of the first) is an under-utilization of glucose. Insulin insufficiency is frequently only relative to the needs of the body. All the physiological disturbances and the clinical manifestations of diabetes mellitus are traceable to the failure to oxidize glucose in the tissues.

"The secretion of insulin by the normal pancreas appears to be dependent on the level of blood-sugar, with more being discharged, the higher the blood-glucose. The anterior pituitary contains a hormone which will combine with the intact cell and prevent the incorporation of glucose into the cell-metabolism. The thyroid hormone affects carbohydrate metabolism by increasing the rate of

absorption across the intestinal mucosa, and by accelerating the oxidative reactions within the cell. In this glycogen is more rapidly broken down, and protein is diverted into increased gluconeogenesis. Hyperglycemia results."

The role of the liver.—The liver plays a very important role in the maintenance of the blood sugar; since the blood sugar represents an equilibrium between the amount of glucose delivered by the liver and the amount utilized by the tissues, the liver must necessarily play an important role in the homeostasis of the blood sugar. When the blood sugar drops below normal, the liver responds by increasing glucose liberation and when hyperglycemia is produced through an influx of carbohydrate, the liver responds by rapidly removing glucose and storing it as glycogen. Endocrines do play on these reactions but we must have an intact liver for their successful action. On this basis, we find an abnormal carbohydrate tolerance in cirrhosis and acute hepatitis. Hyperglycemia, as it occurs in the diabetic individual, has been shown by recent tracer studies by COLOWICK and KAPLAN to result not only from an inability to metabolize glucose, but also due to the liver's inability to synthesize fatty acids from carbohydrate, and possibly other routes of over-production by the liver.

The endocrine imbalance of diabetes renders the liver incapable of performing its blood-sugar-regulating activities, and the resultant hyperglycemia leads to glycosuria, which represents a loss of calories, as well as of water and minerals. Despite a large intake of food and water, there is uncontrolled and wasteful conversion of body protein and fat into unneeded carbohydrate. This, in turn, contributes to the loss of weight, dehydration, and demineralization in diabetes, says Dr. ALPERT of Bellevue hospital.

Prognosis.—In diabetes mellitus, blood sugar levels are persistently elevated because of (i) decreased utilization of glucose, and (ii) gluconeogenesis. Normally the fasting blood-sugar levels vary between 80 and 100 mg. per cent of which, it is now known, 15 to 30 mg. per cent, are due to reducing substances other than sugar. Following a liberal carbohydrate diet, the blood-sugar level rises normally to about 150 mg. per cent in half to one hour and then returns in the course of two hours to normal or just below normal. Normally the blood sugar level does not exceed 150 mg. to 170 mg. per cent in half to one hour after the ingestion of glucose and returns to normal in two hours, and the urine is sugar-free. If blood sugar levels exceed 170 mg. per cent at the end of an hour or does not return to normal at the end of two hours, diabetes mellitus should be suspected. Many mild diabetics have fasting blood sugar levels within normal limits, but levels determined one hour after a carbohydrate meal reveal more than 170 mg. per cent. It is the persistent hyperglycemia which is of diagnostic importance

in diabetes, since transitory hyperglycemia may be alimentary, or result from emotional strain, hyperthyroidism etc.

The ultimate goal in treating the diabetic patient is the prevention of the vascular degenerative complications. Although achievement of this success is not immediately at hand, it appears that progress will be made by optional control of the metabolic abnormality. This can be accomplished by insulin therapy when necessary, and the provision of a diet adequate in calories, and proteins and minerals which may be supplemented by a suitable vitamin formula. In line with the objective of allowing the diabetic a more "normal life" modern techniques have simplified the translation of the nutritional requirements into dietary prescriptions to conform to the feeding habits of the general population.

Complications.—(1) *Diabetic acidosis*:—In diabetic acidosis the patient's blood sugar is abnormally elevated. "His hepatic glycogen and tissue glycogen reserves are depleted, and in spite of hyperglycemia, his total body carbohydrate is depleted. He has abnormally high levels of ketones in his blood. His blood pH is very low, and his alkali reserve has been depleted. He has marked extracellular and intracellular dehydration. The total salinity of his body is considerably reduced. His body potassium, phosphate, and probably magnesium content are reduced but because of extracellular dehydration and concentration, the serum levels of these constituents may be and are usually abnormally high. He exhibits a moderate elevation of NPN and other metabolites. He may have a considerable lipemia, since fat is constantly being mobilized from the fat depots for energy purposes." (SHERRY).

(2) *Diabetic coma*:—It is a further stage of diabetic acidosis; the patient now loses consciousness. When adequate amounts of carbohydrate are not available to meet the body's requirements for energy, fat and protein must be consumed to an increasing extent. The protein demands when not counterbalanced by an appropriate intake, lead to tissue wasting; and the increased fat demands produce a depletion of the fat stores. The physiological and biochemical mechanisms involved in the rapid utilization of large amounts of fat says Dr. SOL SHERRY, cause the appearance of a ketosis, which when severe, leads to an extensive acidosis. Diabetic coma, represents therefore a violent metabolic disturbance of this nature, involving impairment of carbohydrate utilization along with excess fat and protein destruction. As a consequence, severe abnormalities in electrolyte physiology and water balance become manifest. The condition poses one of the most important threats to the health and survival of the diabetic.

The common therapeutic tools employed by the practitioner include insulin, glucose, sodium chloride and water, which have markedly reduced the mortality from diabetic ketosis. Insulin is of primary or paramount importance, regardless of whether the

original disturbance is a relative or absolute lack of insulin, and is capable, when used appropriately, to set in motion the normal physiological consumption of carbohydrate, and to cut down on the demands for fat and protein consumption. Further, WEINHOUSE *et al* have recently demonstrated that carbohydrates, by supplying the necessary precursors, are capable of turning the metabolic wheel of the tricarboxylic-acid-cycle more rapidly, and allow for a more rapid utilization of ketones. Thus there is some evidence again that "fat burns better in the flame of carbohydrate."

Salt and water are used not only to make up the losses of these elements but have the important function of rapidly overcoming the renal failure which if left uncontrolled, will rapidly lead to devastating results. Carbohydrate, when properly used, is capable of replacing the losses of tissue glycogen and preventing the appearance of hypoglycemic episodes when adequate insulin action has been established.

(3) Among other complications are: Kimmelotiel-Wilson's disease, acute pyelonephritis, arteriosclerosis, retinitis, cataracts, carotinemia, diabetic neuropathy, skin infections, tuberculosis and osteoporosis.

References

1. Bull. N. Y. Acad. Med. (1950), (1952), (1953), Vol. 26: 11, 28: 1, and 29: 3.
2. N. Y. St. Jour. Med. (1953), Vol. 53: Nos. 12 to 28 (12 issues).
3. Qly. Med. Rev. (1954), Vol. 4, No. 3.
4. J. Mich. St. Med. Soc. (1953), Vol. 52: No. 10.
5. New. Eng. J. Med. (1951), Vol. 245.
6. J. Clin. Endocrin (1952), Vol. 12: 458.
7. G. P. (1953), July and November.
8. J. Lab. Clin. Med. (1951), Vol. 38.
9. Am. Rev. Biochem (1951), Vol. 20.
10. Jour. Am. Med. Assoc. (1952), Vol. 150: 959.

THE MEDICAL EXPOSITOR'S TEN COMMANDMENTS

1. Thou shalt not, unless circumstances be extraordinary, release for publication a paper that neither contains anything new nor sheds new light on something old.
2. Thou shalt not allow thy name to appear as a co-author unless thou hast some authoritative knowledge of the subject concerned, and hast laboured on the report, weighing every word and quantity therein.
3. Thou shalt not fail to place within quotation marks the words of another, nor fail to verify the accuracy of thy quotations.
4. Thou shalt not consider that, to alter the words of another, relieves thee from the obligation to credit that other with an idea that thou hast borrowed from him.
5. Thou shalt not publish a reference so as to make the reader think thou hast read a certain article, if thou hast read only an abstract or paraphrase thereof.
6. Thou shalt not write to please thyself but to meet the needs of thy reader.
7. Thou shalt not publish, as if thou wert sure of it, that of which thou are not sure.
8. Thou shalt not allow one part of thy paper to disagree with another part thereof.
9. Thou shalt not mix categories.
10. Thou shalt not fail to verify, again, and yet again, thy arithmetic.—(Dr. R. M. Hewitt in *Jour. Am. Med. Assoc.*, 2nd Oct. 1954).

REJOICE WITH US DEAR READER!

(Further extracts from Reviews of our Golden Jubilee issue)

WE promised in our issue of September 1954, to let our readers have a further share in our happiness over the success of our venture in regard to the publication in April last, of the Golden Jubilee number of the ANTISEPTIC as evidenced by the encomiums and unqualified appreciations received from several sister publications in America and our own country. Needless to add our readers would feel really happy that their favourite journal has been so well received in foreign lands as well. It will be our whole-hearted endeavour to continue to deserve well of our readers and constituents in the years to come, so that when we reach the Diamond Jubilee, we may feel still more proud and happy over our having served the profession with greater zeal and devotion through another quarter of a century.

The South African Medical Journal for September 1954, says:

"The ANTISEPTIC, a monthly journal of medicine and surgery, published in Madras, India, celebrated its Golden Jubilee in this year's issue for April. The volume is a truly monumental one of some 500 pages, which opens with a 'Foreword' by a distinguished Indian doctor, Sir A. L. Mudaliar, now Vice-Chancellor of Madras University. There follows an interesting historical editorial with life-sketches of the founder, Dr. U. Rama Rau, and of Dr. T. M. Nair, the first editor, both of whom the reviewer had the pleasure of knowing. An interesting feature is a series of contributed articles on the progress of medical science during the 50-years' life of the ANTISEPTIC. These original articles summarize 58 separate branches of medicine which together cover nearly the whole field of medical science throughout the most active half-century of medical development. In addition to these 'special' features of this issue there are numerous abstracts and short items, while articles held over for subsequent issues amount to the staggering figure of 120 and form a reserve that would make any medical editor's mouth water. The period covered by the ANTISEPTIC's 50 years of life—it was founded in 1904—has witnessed many distinguished medical men pass across the stage. Hospitals were built, medical schools and colleges were founded, research institutes were established and successive generations of Indian youths were trained in scientific principles and practice as opposed to the dogmas and ritual of ancient empiricism. The volume under review is itself a tribute to the success of this training and a demonstration of the degree to which scientific medicine has replaced the old systems. In this process the ANTISEPTIC has played a notable part, having consistently opposed sham and charlatanism in medicine."

The Bulletin of the Vancouver Medical Association for August '54, writes:—

"The Golden Jubilee Volume, is unique in several aspects. This issue contains a half century review in all fields of medicine.

[64]

Nothing new in medicine has been omitted and what is new, has been well integrated with the old. These reviews amount to a reference book consisting of 500 pages—six times the size of the ordinary edition. The section on Venereal Disease control is written in a very generous and easy style ending with the work of the World Health Organization. It ranks with the contemporary articles on the subject.

This special issue is worthy of considerable note—not only from the issue itself, but for the fact it represents the survival of a Medical Journal through a very stormy passage in Indian medical history."

The American Journal of Ophthalmology for August '54, says:—

"The Golden Jubilee number of the ANTISEPTIC, its April, 1954, issue is an impressive volume of over 700 pages which contains a series of summaries of the achievements of the last 50 years in each of the special fields of medical interest, among them ophthalmology, and also many original essays by contributors from many lands. There are four ophthalmic articles on immunologic therapy on vitamin-A deficiency, on retinal detachment, and on the plastic lens in cataract surgery."

The Saint Luke's Hospital Bulletin for August '54 writing on The Golden Jubilee number of the ANTISEPTIC, says:—

"The volume contains splendid papers on various subjects presented by physicians from all over the world. It is truly a remarkable collection of papers. We repeat our congratulations. We deem it a privilege to receive this journal monthly, in exchange for *Saint Luke's Hospital Bulletin*, and we wish it continued usefulness and prosperity."

The Journal of the Michigan State Medical Society for July 1954, says:—

"The Golden Jubilee number has contributions from all over the world with photographs of many of the contributors, including Louis A. Bauer, past President of the American Medical Association, from New York, also doctors from Ohio, Illinois, Washington, Minnesota, New York, Wisconsin, Maryland, Pennsylvania, Louisiana, Washington, D.C. The book is well-edited and well-executed."

The Journal of the All-India Dental Association, Bombay for June 1954, says:—

"The very fact that it is completing fifty years of service in the cause of public health, medical relief, medical education and Research is definite proof of its meritorious service rendered to the Indian medical profession. It has played a very prominent and leading part in bringing about numerous reforms in medical education, medical services and in various other activities connected with medicine, surgery and public health."

The Journal of Obstetrics and Gynaecology, Ludhiana for August 1954, writes:—

"The articles published have dealt with various subjects, including Nursing. They are educative. We recommend this number to every member of the Medical Profession."

The Indian Journal of Venereal Diseases and Dermatology, Bombay for the third Quarter of 1954, writes:—

"Befitting the occasion of the Golden Jubilee of the ANTISEPTIC, the journal has brought forward an issue which is six times the usual size containing more than 500 pages. The issue contains 58 original articles, which it is stated constitute only a third of the total contributions received for publication. The remaining ones are held over for subsequent monthly issues. The articles in the present number written by specialists in different fields undoubtedly are as useful to the general practitioners as they are to specialists and research workers. It is noteworthy that an article on nursing is included. The subjects of articles held over (a list of which is published) would help to extend the coverage in the survey of the advance of medical knowledge in various fields during the last fifty years. There is no doubt that these would be valuable to the members of the medical profession for reference."

The Premier Medical Review, Guntur for the III Quarter 1954, says:—

"In this unique volume the progress of medical science for over fifty years has been fully described in a series of leading articles by experts in the medical profession all over India and outside. Dr. A. L. Mudaliar says "in its very first issue the ANTISEPTIC envisaged the necessity for united medical profession, for a General Medical Council for India and for a Medical Registration Act; and today we can well congratulate ourselves that we have secured these ideals." We are sure that this Jubilee Number will be quite instructive and useful."

The Indian Journal of Medical Sciences, Bombay, writes:—

"It is a matter of great pleasure to go through the Golden Jubilee Number of the ANTISEPTIC which is an outstanding volume of nearly 500 pages full of valuable articles on all branches of medical science from prominent medical men of India and abroad. It is a matter of pride that the ANTISEPTIC has been serving the medical world and through that our people uninterruptedly for the last 50 years."

The Journal of the Indian Medical Association, Calcutta for September 1954, says:—

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see for themselves, how this monthly journal has come to its stature from very modest beginnings, fifty years ago. This voluminous number, with a total reading matter of over 500 pages full of very good and illuminating articles will be of great benefit to medical men, specially those who do not have the facilities of consulting a well-equipped and up-to-date library."

The Patna Journal of Medicine for June 1954, says:—

"The Golden Jubilee issue of the ANTISEPTIC is an event of importance in the history of Medical Journalism in India. This particular number, printed on good paper and in clear style reviews the whole field of medicine and surgery in a masterly fashion. The contributors are drawn from all over the world and the volume is a testimony of international co-operation. It shows that the art and science of medicine has an universal appeal which cuts through the frontiers of race, caste, creed and narrow nationalism. The contributors are all eminent physicians and surgeons of repute and authorities on the subjects on which they have written. Hence the standard of the articles is very high indeed."

Sight Seeing Review, New York, U.S.A. (Full issue) 1954:—

"Founded in 1904 by a group of independent medical men, the ANTISEPTIC which has recently brought out a special Golden Jubilee number has crusaded for half a century to raise the standard of medicine in India and has played a prominent part in bringing about numerous reforms in medical education, public health service, hospital administration and the medical services generally. This issue contains an extremely interesting summary of the advances made in the practice of Ophthalmology during the past 50 years, besides numerous other articles."

The American Journal of Psychiatry, Canada, August 1954, writes:—

"The April 1954 issue of the ANTISEPTIC is a greatly enlarged special number commemorating the Golden Jubilee of that publication. This monthly journal of medicine and surgery was founded in 1904 by Dr. U. Rama Rau. His pioneering work in the promotion of scientific medicine and in disseminating medical knowledge through the medium of this journal deserves special commendation, when it is recalled that medical journalism has flourished in India during only the last 2 or 3 decades."

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The Journal of the Christian Medical Association, Vellore for November 1954, says :—

"The editor is to be congratulated on the very comprehensive manner in which the various fields in medicine and surgery have been covered by articles written by authorities on those subjects. It should serve as a very good reference work on modern conceptions of diseases and their treatment."

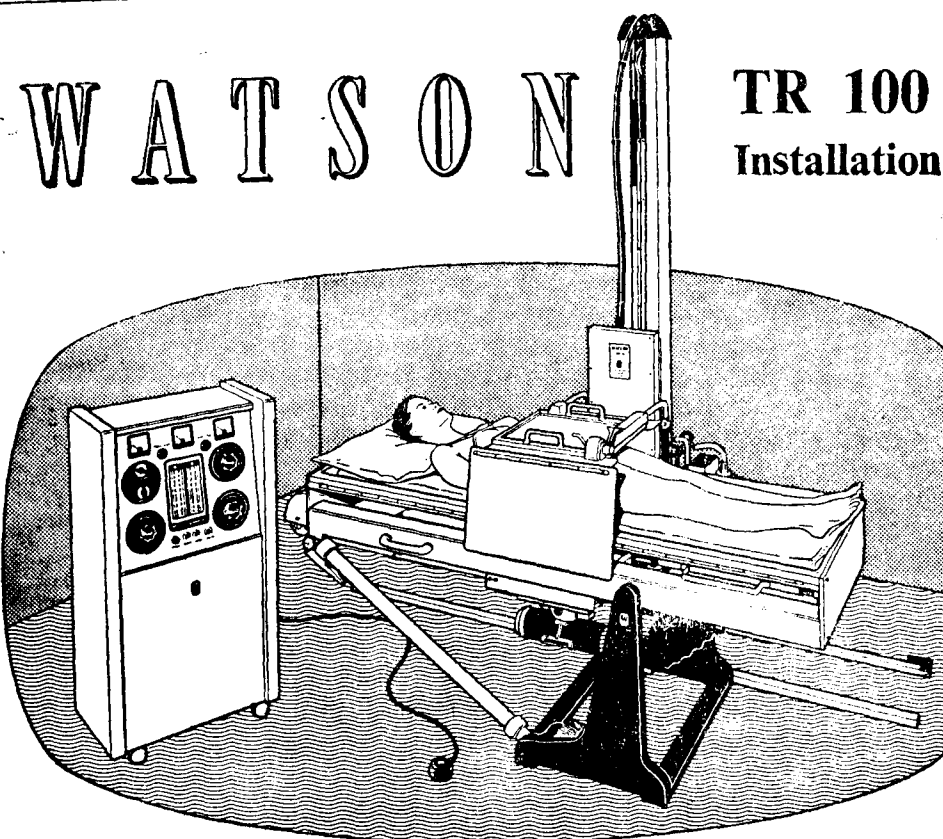
MICROCOCOCCUS ENTERITIS WITH SHOCK FOLLOWS ANTIBIOTIC THERAPY

In the April 1954 issue of *Gastroenterology*, the Army Medical Corps physicians Lt. Col. C. S. Christianson, Capt. M. P. Dacquist and Lt. W. H. Dobbs warn that increasing use of the broad spectrum antibiotics means that physicians may anticipate an increase in micrococcus enteritis cases with shock, and consequently more fatalities.

They recommend the following precautions in the administration of broad-spectrum antibiotics :

1. "Antibiotics should be used only when a definite indication exists, and preferably after sensitivity studies have been made.
2. "Gastro-intestinal upsets, particularly diarrhoea, should be a warning signal, and if symptomatic therapy does not give relief, the offending antibiotic should be discontinued.
3. Should the diarrhoea become intractable and the stool cultures show *staphylococcus aureus*, erythromycin should be given promptly.
4. "If *staphylococcus* is suspected as the cause for enteritis, the laboratory personnel should be notified. Appropriate media may then be utilized and resistance studies accomplished."

The Medical Corps physicians made their recommendations in the course of reporting the first instance of a patient's surviving shock secondary to micrococcus enteritis following broad-spectrum antibiotic therapy. —(*Jour. Iowa State. Med. Soc.*, July 1954).



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Gleanings From The Medical Press

SURGERY

Patellar fractures.—(*Surg. Gynaec. Obst.*, May 1954).

Although Lord Lister was the first surgeon to advocate open operation for fractures of the patella, yet to-day the treatment of these fractures seems to differ in different clinics.

Reich and Rosenberg, of Cleveland, Ohio, have reviewed the results of 68 consecutive fractures which were submitted to operation. The Listerian method of open operation and suture of the periosteum covering the fragments should be used for transverse fractures only.

Good results may be anticipated following excision of all but the largest fragment, if that fragment is the upper two-thirds of the patella and if the technique of suture is such that it will allow the patella to remain in normal relation to the line of quadriceps-pull and the femoral condyles.

Patellectomy is definitely indicated in comminuted fractures involving a major portion of the patella and in those rare fractures involving only the upper pole. The period of disability is approximately half as long following patellectomy as after other methods of treatment.

Rupture of the patellar tendon.—(*Bull. Hosp. Joint Dis.*, 15: 1, 1954).

Dr. Zadek reports three cases of patients who injured a knee more than once. It would seem that at the time of either the first or a later accident the patient ruptured posterior fibres of the patellar tendon, possibly due to impingement against the anterior upper edge of the tibia in flexion. On clinical examination prior to operation, and on exploration, the superficial portion of the patellar tendon seemed intact, no local rupture of the fibres was evident. An attenuated patellar tendon was found, which was smooth in outline and in contour clinically.

In each case it was the second accident which caused the marked dis-

ability. None of the patients was able to extend the knee against gravity.

Each patient had an operative procedure different from the other two, but all the procedures shortened an elongated patellar tendon. In one case this was a typical "Z" shortening. In the second, it was a similar procedure, with one leaf of the tendon fixed to the tibia. In the third case, the tendon was shortened by scarifying it and overlapping the redundant tendon, and then securing fixation by fascia lata passed through the tendon itself and through a drill hole in the upper part of the tibia.

The true condition had not been previously recognized in any of the patients.

The patients were all markedly benefited by the operative shortening of the patellar tendon, so that they could walk without a limp and could extend the knee against gravity, though they still had difficulty in negotiating stairs.

The early rehabilitation of flat feet.—(*Medical Press*, 25-8-'54).

While infants may grow out of their flat-footedness, it is also true that pronation of the feet acquired in infancy may persist throughout life. In order to balance when learning to stand, the infant broadens his base by separating his legs, and adds a little more base by turning his feet out. In this posture the body weight is thrown on to the inner side of the feet and the arches are depressed. As walking on a flat hard surface offers no challenge to the intrinsic muscles, pronation becomes established.

The author recommends a sponge plastic pad set with convex knobs as a flooring for infant play pens. This pad, which simulates the resilience and irregularity of an outdoor terrain, prevents the pronated stance; also, by causing constant changes in balance, automatically exercises those muscles of the foot and leg which tend to support the arch.

Localisation of brain tumours with RIHSA.—(*Surg. Gynaec. Obstet.*, May 1954).

Any method which will improve the accurate localisation of cerebral tumours is worth consideration.

Howard S. Dunbar and Bronson S. Ray, of New York, consider that localisation of intracranial neoplasms with I^{131} as di-iodofluorescein or radio-active iodinated human serum gives an accurate result in from 75 to 95 per cent of cases.

The method is most valuable and accurate in neoplasms of the cerebral hemispheres; for neoplasms of the posterior fossa, pituitary tumours, and other small lesions about the base and in the midline, the method is of questionable value in its present stage. Subdural hæmatomas can be consistently localised. The usefulness of the method in cerebrovascular lesions is yet undetermined. The over-all accuracy of the method is better than electroencephalography, but not so good as pneumoventriculography. These results surely justify continued investigation of this line of research.

Aneurysm of the hepatic artery.—(*Lancet*, 2-10-'54).

"What do you do if you operate for massive gastrointestinal hæmorrhage and fail to find the bleeding point?" "Blind gastrectomy" was one answer when this question was asked at this year's meeting in London of the American College of Surgeons. But blind gastrectomy can be contemplated only after full examination at laparotomy, including a search for the rarer causes of hæmorrhage. One such cause is aneurysm of the hepatic artery. Some may regard this as a collector's piece, but Quattlebaum has recorded 96 cases.

Clinically this disorder may give rise to pain, hæmorrhage, and jaundice. Commonly the patient tells of pain in the epigastrium or hypochondrium, passing through to the back—a history that may easily lead to the erroneous diagnosis of bleeding duodenal ulcer. Hæmorrhage was the first indication in 40 of the 85 reported cases studied by Mallory and Jason. In some of these cases the hæmorrhage occurred into the peritoneal cavity

or liver substance, but usually it manifested itself by profuse hæmatemesis or severe melæna, as a result of rupture directly into the stomach or duodenum or through the biliary passages: the rupture is not necessarily fatal at once, and bleeding may recur. Jaundice was present in only 36 of the 85 cases studied by Mallory and Jason.

At operation the aneurysm, which is sometimes intrahepatic, may not be large enough to make its presence felt: the sac, say Mallory and Jason, "may vary from the size of a barley-corn to that of a child's head." Finding such an aneurysm the courageous surgeon, if apparatus for wiring is not at hand, may attempt aneurysmorrhaphy. Most surgeons will prefer simple ligation of the hepatic artery. The ligature must be placed near the origin of the artery to allow anastomotic flow to the liver through its distal branches; and antibiotics should be given for two weeks or so after operation, to prevent proliferation of anaerobic organisms within the liver. Reinhoff and Woods have ligated this artery successfully in 16 of 23 patients with hepatic cirrhosis; which suggests that the low esteem in which the operation was held in pre-antibiotic days is no longer justified.

Development of congenital dislocation of the hip.—(E. W. Somerville, *J. Bone Surg.*, 1953, 35-B: 568; *Internat. Abst. Surg.*, June 1954).

This study is based on 35 consecutive open reductions of congenital dislocation of the hip. The author shows that a constant finding at open operation is an infolding of the limbus at the superior-posterior border of the acetabulum. He believes that the sequence in his development is as follows: the foetal position of the femoral neck is in 45 to 50 degrees of anteversion, the hip is held in a flexed position, and as the hip is extended it must either go into medial rotation or abduction, or both. Otherwise, a considerable strain will fall on the neck of the femur and the anterior capsule of the joint tends to twist the femoral neck and stretch the capsule. If the latter is the case, then one of three things may happen: the excessive anteversion will remain without subluxation or dislocation, the upper end

of the femur will gradually yield under intermittent pressure so that the excessive anteversion will be slowly molded away and a normal hip will result, or the anterior capsule will stretch and allow subluxation and later dislocation to develop. The author believes that this hypothesis is upheld by successive treatment based upon it. His treatment is aimed to turn the limbus out of the point and permanently prevent the laterally rotated position at the hip. A rotation osteotomy is usually done in order to reduce the time of immobilization.

Tuberculosis of the elbow—A study of 31 cases.—(J. N. Wilson, *J. Bone Surg.*, 1953, 35-B: 551; *Internat. Abst. Surg.*, June 1954).

The author reports a follow-up study of 33 elbows in 31 patients with tuberculosis. The type of lesion is classified as synovial, extra-articular, coronoid, massive, and unclassified. The most common was the massive lesion involving all joint surfaces, occurring in 40 per cent of this series. Complications were three in number: the development of sinuses, ulnar nerve paresis, and the development of other tuberculous lesions.

Treatment in general was by prolonged immobilization. Most patients were admitted to the hospital for a period of from 3 to 6 months. Streptomycin was available for only 4 cases and it was the author's opinion that it affected the condition most favourably. The average period of immobilization was 18 months.

One patient was treated by local excision of the lesion located in the medial epicondyle. The final result was good. Arthrodesis was carried out in 3 cases. The end results showed that 1 patient had died of pulmonary tuberculosis, 5 patients had residual pain or a persistent sinus, 17 were able to return to work, 7 needed permanent support, and 3 showed spontaneous ankylosis.

The author believes that fixation in a position of 120 degrees is optimum for most patients.

For intramuscular injections—A useful tip.—(*G.P.*, June 1954).

The penetration of the needle in an intragluteal injection can be made painless in the following way:—The doctor or assistant thrusts in the needle just after striking the sacral area of the patient's back with his other hand. This blow is painless but effectively masks the sharp pain of a needle injection. In this procedure, *timing is crucial*: the patient's back must be hit the barest fraction of a second before the needle goes in, rather than simultaneously or a full second or more before the needle injection. 'Most of my patients have been grateful for the use of this procedure' says Arthur F. Greenwald, M.D.

Pulled elbow.—(*Surg. Gynaecol. and Obst.*, June 1954).

Subluxation of the radial distally under the annular ligament at the proximal radio-ulnar joint, commonly called pulled elbow, has long been considered one of the more common injuries to the upper extremity in young children, it is considered a distinct anatomic elbow injury. This diagnosis can be and often is overlooked, even if the examiner knows the real nature of the lesion.

An almost uniformly consistent history of sudden, forceful traction in the long axis of the radius causing the subluxation of the radial head under the annular ligaments is obtained.

The subjective complaints vary widely. Numerous patterns of referred pains in the upper extremity are noted. Fretfulness and patient's refusal to use the limp arm are nearly always noted. A careful and logical examination of the upper extremity reveals little other than elbow tenderness to palpation, particularly at the radial head, and rubbery type of resistance to attempted passive extension and supination.

Magill and Aitkin of Boston find the incidence of pulled elbow considerably higher than reputed by Van Arsdale—27.5 per cent of cases of fractures or dislocations of the elbow in children under 10 years of age. Pulled elbow was diagnosed in 3 per cent of all children 8 years of age and under, who were seen in the plaster room, regardless of the type of trauma or lesions present. The average age of 2.6 years

coincides with the average age when pulled elbow is incurred, as reported by Anderson and Poincot. Pulled elbow is seen in greatest frequency on the left side. There were no cases of pulled elbow in children over 8 years of age. These statistics were derived from analysis of the 3,390 children, 10 years of age and under, who were seen in the plaster room of the Boston City Hospital over a two year period.

Immediate reduction without anaesthesia by passive extension and supination with light pressure applied to the patient's radial head has been quite uniformly successful in our hands. No post-reduction immobilization other than a sling for a few days is required. We think that the incidence of recurrence is probably quite high.

Ruptured aortic aneurysm—A surgical emergency.—(Editorial, *Surg. Gynec. Obst.*, June '54).

Symptoms from an abdominal aortic aneurysm mean that it is expanding, pressing upon adjacent structures, or rupturing. Perforations in the wall permit greater or lesser quantities of blood, or haemoglobin by-products, to escape retroperitoneally; and if this dissection occurs posteriorly the pain is in the back, if anterior the symptoms and signs are those of peritoneal irritation. These symptoms are associated with a pulsating mass, and roentgenograms will reveal the calcified wall of the aneurysm.

The diagnosis of an abdominal aortic aneurysm usually had been made before rupture occurs, but it is not uncommon for symptoms caused by rupture to call attention to the aneurysm for the first time. It is likewise not unusual for an operation to be performed on a painful or tender abdominal tumour which only then is discovered to be, in fact, an aneurysm.

Clinical studies by Estes and others showed that the life expectancy of those who have the lesion is appreciably shortened, but even of more significance is the fact that, if symptoms appear, a fatal issue from rupture is apt to occur within a year. Most important, however, is the observation that fatal rupture frequently is preceded by repeated episodes of pain or mild shock extending over a period of days or weeks before a final haemorrhage settles the issue. This delay no doubt occurs because of the large thrombi so frequently found in these aneurysms, which temporarily occlude the site of rupture. Therefore, one often has time to prepare for surgical intervention, or to transport the patient to a hospital where it can be done.

Although it may be necessary to employ such means as wiring of the aneurysm, the experience of Dubost, DeBaakey and Cooley, Bahnson, and others including our own, has really demonstrated that resection of the diseased abdominal aorta, with replacements by homograft is not only anatomically feasible in most instances, but is attended by a low operative mortality rate. It is also clear that one can operate after rupture has occurred, obtain control of the situation, and replace the aneurysm with an aortic homograft. In fact, we have been able to perform the operation successfully even after massive haemorrhage has resulted from a large rupture.

It is therefore, important to consider a patient with signs or symptoms of an abdominal aortic aneurysm as having a surgical emergency; operation should be performed as soon as the proper arrangements can be made, and every effort directed towards resection of the aneurysm with restoration of continuity by aortic homograft.

OBSTETRICS AND GYNAECOLOGY

Ovarian influence upon survival in breast cancer.—(*Arch. Surg.*, 67: *Internat. Abst. Surg.*, June 1954).

The authors have made studies of the duration of life after the onset of disease in 125 autopsied cases of breast cancer.

They contrast 102 cases (82%) of ovarian cortical stroma hyperplasia with 23 cases (18%) in which the ovaries were atrophic. The average durations of total disease in patients without castration in the two ovarian groups were

nearly identical, when all cases of mastectomized and untreated women were analysed separately.

For patients both mastectomized and castrated in another series, the comparable durations of total disease differed considerably: 47 months for those with ovarian stroma hyperplasia and 29 months for those with atrophic ovaries.

It is suggested, but not proved statistically, that in mastectomized women with ovarian stroma hyperplasia, castration was beneficial in prolonging life. Ovariectomy should be considered in patients with breast cancer who have this ovarian condition both before and after the menopause.

Postmaturity syndromes.—(*J. Paediatrics*, 44: 1, 1954 and *G.P.* 9: 6, 1954).

When a foetus remains in the uterus after the estimated date for delivery, usually there are no important consequences. However, Clifford has shown that postmaturity is of tremendous importance to primiparous women, one in ten losing her baby. He explains this adverse effect with the hypothesis that the placenta undergoes premature senile degeneration for reasons that have not been elucidated. The effect on the infant is essentially one of malnutrition. The clinical findings in these postmature infants are divided into three groups, depending on the stages of "placental dysfunction" encountered.

Group one—infants are relatively long and thin, appearing to have lost weight *in utero*. The skin is dry, cracked, or parchmentlike, due to loss of vernix caseosa. Group two—infants show similar changes in more advanced degree. In addition, they reflect signs of severe intrauterine anoxia—the amniotic fluid, placenta, umbilical cord, and skin are stained green, because of liberation of meconium. Group three—infants show the effects of longer anoxia, the skin, nails, and cord now being stained yellow. The outcome of the syndrome in more advanced stages is a bad one; morbidity and mortality rates are higher due mainly to atelectasis secondary to aspiration.

Clifford proposes that the seriousness of post-maturity in primiparous women

—particularly in elderly ones—makes it an indication for caesarean section.

Cortisone and ACTH in pregnancy.—(*New England J. Med.*, 250: 366, 1954).

There is experimental evidence that the administration of cortisone and ACTH to animals during pregnancy may be dangerous to the foetus. However, despite the adverse effect on the offspring when these steroids are given experimentally to pregnant animals, Katzenstein and Morris were unable to find any reports of damage to the baby from steroid therapy administered to pregnant women. These authors report a case of dermatitis herpetiformis of pregnancy treated with ACTH and cortisone, with birth of a normal baby.

In order to explain the discrepancy between the clinical results of steroid administration during pregnancy in animals and in humans, the authors suggest that the dosage given to human beings on a weight basis was much smaller than that used in the experimental animals. Furthermore, species differences and the time during pregnancy when the drugs were given may also be factors.

For evaluating pelvic complaints.—(*Here is a helpful hint: G.P.*, June 1954).

A valuable, frequently neglected procedure is digital vaginal examination with the patient standing. She bears her weight on her right foot and places her left foot on a low platform, and the examiner sits facing her right hip and examines with his right index finger while she strains, for uterine prolapse, cystocele, rectocele, uterine tenderness, and retroversion. The diagnosis of third degree retroversion while the patient is lying down is often erroneous, since frequently when she stands the uterus rises into a more vertical position. When it is really seriously retroverted, it descends still farther backward and downward with the patient standing, and backache and bearing down sensations may result.—J. W. Visher, M.D.

Possible role of vitamin P in habitual abortion.—(*Mod. Therap: Med. Times*, March '54).

Positive tests were obtained indicating capillary fragility, in 80 per cent of a group of women with habitual abortion. This incidence was much greater than in a control group.

Twenty patients, 7 with a history of 3 to 8 abortions and 13 with 2, were treated with 3 to 6 capsules a day, each containing 50 mg. hesperidin and 50 mg. vitamin C. Treatment was begun before or soon after conception and continued until after parturition. The usual supplemental therapy was employed where indicated. Greenblatt reported in (*Obst. Gynaecol.*, 2: 530, 1953) that 57.1 per cent of the women with 3 to 8 abortions previously and 84.6 per cent of the women with 2 previously carried to term and were delivered of living children. Although the number of cases were small the author felt that the percentage increase in the delivery of living children in these cases was significantly higher than would normally be expected under circumstances without hesperidin and vitamin C therapy.

The treatment of asphyxia neonatorum.—(Josephine M. Lord, B. W. Powell, and Hilda Roberts, *The Lancet*, Lond., 1953, 11: 1001).

A clinical study of cases of asphyxia neonatorum is reported for the 4 years from February 1949 to the end of 1952. During the last year of this period, three innovations have been made in treatments: (1) immediate pharyngeal aspiration for babies delivered by Caesarean section, (2) gastric oxygen for premature babies, (3) the use of "augmented respiration" whereby the infant's own respiratory efforts are assisted. No pressure measurements were made during intubation, and the cases have been assessed without reference to X-ray appearance, spirometry, or oximetry.

Oxygen is given endotracheally if there is no response to routine treatment within 5 minutes after delivery. The routine treatment consists of holding the baby up by its feet in order to improve drainage, and when there is moderate asphyxia, aspiration is repeated and a small metal airway is inserted. The baby is next rocked in an oxygen box. If there is no response

after these routine treatments, an endotracheal tube is inserted. If the infant is limp and severe asphyxia is present, intubation is performed immediately without preliminary rocking. After Caesarean section a single gastric suction is done once respiration has been established. The administration of gastric oxygen may oxygenate the blood sufficiently to enable the respiratory centres of the asphyxiated infant to recover and initiate respiration. It is believed that this is a useful part of the treatment of premature infants.

In this study endotracheal insufflation has been reserved for full time babies and the larger premature babies. For small premature babies gastric oxygen is used. This is administered through a 1 mm. polythene tube attached by a 16 gauge needle to the oxygen source, the oxygen being run in at about 0.25 litre a minute. Endotracheal suction and the insufflation of oxygen form an effective treatment for the initial apnoea of full time infants and large premature infants. Until the cause of secondary atelectasis and the formation of hyaline membrane is better understood, it seems wise to aim at early oxygenation and the removal of inspired material from the trachea and the main bronchi.

Gastric oxygen has been the routine treatment for apnoea in premature infants, and every infant so treated has become pink. During this time postural drainage and pharyngeal suction are practised. If the baby cannot subsequently expand its lungs in spite of making respiratory efforts, it is treated by augmented respiration.

The routine for immediate resuscitation of asphyxia neonatorum reported in this study is early aspiration and endotracheal insufflation for mature infants, and gastric oxygen for small premature infants. Persistent atelectasis is treated by augmented respiration. It is believed that endotracheal intubation is safe in skilled hands, and it is thought that only by having a well planned and efficiently practised technique of resuscitation in the labour room, the number of deaths from asphyxia neonatorum can be reduced. Deaths from postnatal asphyxia are to a

large extent preventable.—(*Int. Abst. Surg.*, July 1954).

Brow presentation.—(*J. A. M. A.*, 19-6-1954, page 768).

Drs. J. Onofre Araujo and A. Guariento of Sao Paulo reported 11 cases of brow presentation observed in 10,027 consecutive deliveries performed at the Sao Paulo State University Hospital. The distribution of the three varieties of brow presentation observed were frontal left anterior in six cases, frontal right transverse in three cases and frontal left transverse in two cases. The factors causing the deflection of the head are maternal, foetal and ovarian. An important maternal cause is multiparity: out of the 11 cases two women had been delivered twice, one four times, one five times and one seven times. Another maternal cause is pelvic and one which was not present in any of the cases of the series. The excessively small and excessively large volume of the foetus is also considered an important factor of deflection. In this series, the weight of the foetus was from 2,501 to 3,000 gm. in two cases, from 3,001 to 3,500 gm. in five cases, from 3,501 to 4,000 gm. in three cases and from 4,001 to 4,500 gm. in one case. Although the prognosis for the mother is generally bad, in this series there was no maternal fatality. There were two stillborn foetuses, one from a woman with placenta praevia in whom the heartbeat from the foetus was not audible on admission and the other died during the surgical intervention (symphysiotomy). The corrected foetal mortality was 9.1%. The authors believe that the use of forceps should be limited to the patients in whom maternal and foetal conditions are favourable especially when the foetal head is fully engaged. Three infants were delivered by forceps. The authors believe caesarian section, resorted to in six of these cases is the treatment of choice in brow presentation, for the sake of both mother and foetus.

Use of cortisone in genital endocrinology.—(*J.A.M.A.*, 19-6-1954, p. 771-772).

At a recent meeting of the French Society of Gynaecology, Paris, Jayles

et al reported on the use of cortisone in endocrinology. It inhibits the adrenotropic function of the hypophysis and may stimulate its gonadotropic function. In moderate doses it may be used as a regulator of these two hypophyseal activities. Its function is particularly interesting in case of hyperandrogenism, which the authors state is not necessarily accompanied by hirsutism or virilism. Cortisone may aid in the diagnosis of the adrenal or ovarian origin of the androgenism. Cortisone is also indicated in treating patients with luteal functional disorders accompanied by sterility and repeated early abortions and not only in patients with disorders of hypophyso-adrenal origin.

The prevention of eclampsia and severe pre-eclampsia.—Dr. Stevenson of Sydney writing in the *Bulletin of the Post-graduate Committee on Medicine* of the University of Sydney, Vol. 10, July '54, is of the opinion that it is difficult in theory to try to prevent eclampsia and its precursor, pre-eclampsia, since their cause is still unknown. The author stresses the fact that the clinician may lessen the incidence of eclampsia and pre-eclampsia by ensuring: (a) correct diet throughout pregnancy, (b) strict weight control throughout pregnancy and (c) by the earliest detection of the onset of pre-eclampsia.

Regarding diet, the author stresses the value of high protein, high vitamin, low carbohydrates and minimum fat containing diets. The caloric content may vary between 2500 calories as an upper limit and 1200 calories as a lower limit according to the condition of each individual. A diet embodying the above considerations may be easily obtained by instructing the patient to eat daily liberal helpings of lean meat, one egg, one pint of milk, salads, green and good vegetables, ordinary helpings of fruit, two slices of bread and a little butter, tea, coffee, nuts, fruit juice and 3 to 4 glasses of water. As far as possible, foods containing flour other than the two slices of bread and sugar should be taken sparingly. Fats should be taken in minimum quantities. Patients should be told to eat at mealtimes only.

Tea, coffee, milk and water may be taken between meals.

Regarding weight control, the author is of opinion that patients who are of normal weight at the commencement of pregnancy should not gain more than 21 to 24 lbs. throughout the pregnancy. This weight gain should be fairly evenly distributed with a maximum of 4 lbs. per month after the third month of pregnancy. Women who gain weight rapidly are particularly prone to develop pre-eclampsia in the last three months of their pregnancy.

Regarding early detection of pre-eclampsia, the author thinks that the earliest warning is generally an excess gain in weight especially in the later months as this means retention of fluid. The corrective measures at this stage are to reduce the diet, reduce or eliminate salt intake and take two hours rest each day. Bilateral, peripheral or facial oedema may also be regarded as the first sign of pre-eclampsia unless it is proved to be the result of other factors. The treatment at this stage is to eliminate salt from the diet and to prescribe increasing amounts of rest. Blood-pressure readings of over 130 mm. Hg., for the systolic pressure readings and of over 80 mm. Hg. for the diastolic pressure must, according to the author, be regarded as indicative of pre-eclampsia.

Regarding urine, the author quotes the old saying—two pints of urine a day keeps eclampsia away. He is of opinion that diminution in the daily output of urine is indicative of fluid retention and hence of pre-eclampsia. The last sign is the appearance of albumin in the urine. Once this appears patients should be put to bed, preferably in hospitals and should be kept under strict and frequent observation.

Accidental haemorrhage and eclamptogenic toxæmia.—(M. K. Krishna Menon, *J. Obstet. Gynaec. India*, 3: 1 *Internat. Abst. Surg.*, June 1954).

In India the incidence of premature separation of the normally implanted placenta in 17,047 deliveries during 1949 and 1950 was 1 in 57, which is very much more common than in other countries.

Of the 300 cases of premature separation only 19.1 per cent showed any sign of toxæmia; 80.9 per cent did not show any evidence of even the mildest form of toxæmia.

During the same period, the incidence of accidental hæmorrhage was only 4.2 per cent among 1,104 cases of pre-eclamptic toxæmia admitted into the hospital, and of the 305 patients with eclampsia seen during the same period, only 2 developed accidental hæmorrhage.

It is justifiable to conclude that hypertensive toxæmia plays a minor role in the production of premature separation of the placenta.

Nutritional-hormonal therapy for infertility and prevention of abortion.—(*J.A.M.A.*, 154: 908—910) 1954, *Abst. Modern Medicine* 15th May 1954).—Glass, and Lazarus, of Lebanon Hospital, Los Angeles, believe that functional infertility and abortion may result from deficient sex hormone metabolism associated with nutritional and hepatic insufficiency in either sex partner. Results were favourable with nutritional-hormonal therapy in a majority of 72 men and women treated. Improved spermatogenesis was slight in men with testicular atrophy.

Daily nutritional supplements include: (1) sufficient caloric intake; (2) protein content of 1.5 to 2 gm. per kilogram of body weight; (3) vitamin A, 25,000 to 50,000 units; and (4) foods rich in protein and vitamin B complex, such as edible or desiccated whole liver, 30 cc. of rice bran extract (Galen B), 60 to 90 gm. of brewer's yeast flakes, and 30 to 60 gm. of wheat germ.

Palatable recipes help insure the patient's co-operation. Special capsules containing concentrates of brewer's yeast, whole liver, vitamins A and B complex, and mixed tocopherols can be substituted for the crude dietary supplements that are not well tolerated by some patients.

After thirty to sixty days of nutritional regimen, sex hormones are prescribed. Men receive testosterone propionate 50 mg. intramuscularly every other day until a total of 500 mg. is given.

Women receive 0.25 to 2.5 mg. of oral oestrogen daily from the fifth to twenty-fifth day of the menstrual cycle and 20 to 40 mg. daily of buccal progesterone from the fifteenth to twenty-fifth day for 3 to 6 cycles, decreasing the oestrogen dosage. If necessary, treatment may be resumed for three to six months more after a lapse of 1 or 2 cycles.

Women who become pregnant during treatment receive progesterone by intramuscular injections of 100 mg. of macrocrystals every five or ten days or 125 mg. in oil every other day, or orally in tablets of 40 to 60 mg. daily.

Vomiting in pregnancy.—(*Psychosom. Med.*, 16: 1-9-1954).

Hyperemesis during pregnancy is often associated with emotional immaturity.

The pregnant woman who vomits excessively usually has a pregravid history of gastrointestinal dysfunction provoked by emotional disturbance. Severe difficulties with sexual life, numerous neurotic and psychosomatic anxiety symptoms, and extreme dependency are common. Harvey and Sherry of Pennsylvania Hospital, New York City, carried out a detailed study of 20 women with hyperemesis gravidarum which revealed a correlation between the kind and degree of emotional disturbance and the severity and duration of vomiting. Anxious and depressed patients usually had severe, acute illnesses, while immature and personally inadequate patients vomited at random for longer periods.

Patients often had feeding difficulties during infancy or obesity or anorexia during adolescence. All patients reported complete sexual frigidity; some had an aversion to coitus, especially during pregnancy, and nausea and vomiting often occurred as a result or in anticipation of intercourse. Vaginismus and dyspareunia were common.

Personality features were varied and difficult to classify. All the patients, however, showed general psychologic immaturity, exhibiting a pattern of dependence on others, easy discouragement in the case of difficulties, and demands of attention to self-centred hypochondriasis. Reliance on mother or mother figures was common; loss of the mother by a separation or death often precipitated an attack.

In one group of patients of average to low intelligence, vomiting was apparently a hysterical symptom. Adult life was met with affective and imaginative repression, superficial emotional reactions, and restricted ideational content. Positive dependency was moderate. Overt anxiety and poor emotional control, however, suggested lack of a fixed hysterical neurosis.

A second group exhibited immaturity more openly with shyness, sensitivity, desire for approval, home sickness, and feelings of inferiority. The patient spoke childishly, expressing unusual infantile ideation, and frequently retreated into unrealistic day dreams. Marriage and pregnancy were undoubtedly traumatic influences and vomiting was a physiological response.—(*Mod. Med.*, May 15, 1954).

MEDICINE AND THERAPEUTICS

Penicillin or the newer antibiotics?—(*Practitioner*, Aug. '54).

Answering a very sensitive question as to whether in the treatment of the common infections met with in general practice, there are any indications for the use of any of the newer antibiotics in the first instance in preference to penicillin or sulphonamide, Dr. T. Anderson, M.D., F.R.C.P. (Edin), F.R.F.P.S. says:

The simple answer is:—Very few. In the surge of claims made for newer and better antibiotics, it is easy to lose one's perspective and to forget the plain fact that the majority of infections will yield to sulphonamide or penicillin. A few notable exceptions may be made:—

(1) *Laryngo-tracheo-bronchitis*:—This acute obstructive inflammation is so often due to infection by staphylococci resistant to penicillin, that it is better

not to waste time but to proceed at once to use one of the tetracyclines.

(2) *Suspected staphylococcal infection*:—Although by no means all staphylococci are penicillin-resistant, it may be wise, especially in the severer illness due to this organism, to proceed at once to the broad-spectrum drugs. A useful pointer may be that the patient or a member of his family has been an in-patient of a hospital or is attending a hospital out-patient department.

(3) *Whooping-cough*:—In my opinion, it is not necessary to treat every case of whooping-cough by antibiotic; the alterations produced in the patient's normal microflora of mouth and bowel may produce results as serious as the original disease. There are three main indications for the use of antibiotics: (1) when the child is under the age of 3 years; (2) when the condition is diagnosed in the first ten to fourteen days of illness; and (3) when there are complications.

(4) *Dysentery*:—The tetracyclines are the most effective treatment so far, for Flexner or Sonne dysentery. They should be used in a dose not exceeding 25 mg. per kg. of body weight and treatment should last for five days.

In other words, in general practice penicillin or a sulphonamide will be the drug of first choice in the great majority of cases. But, just because the patient is not completely recovered 24 hours later, the practitioner must avoid being panicked into an immediate change of treatment. The experienced clinician can usually assess when his patient has not improved at all or is worse; in such cases treatment must be changed at once. If at all possible, one should try to obtain bacteriological advice—admittedly not always easy in every part of the country—or at least to supply a bacteriologist with material for examination. It is thoughtless therapy, for instance, to use penicillin for 24 hours, change to aureomycin for the next 48 hours and then perhaps to chloramphenicol or oxytetracycline—all without a hint from the bacteriologist!

—
Treatment of bacterial pneumonia with erythromycin.—(*Archives of Internal Medicine*, 93: 556, April 1954).

Seventy-five adult patients admitted to the infectious disease ward of a hospital from July 1952 to July 1953, with bacterial pneumonia were treated with erythromycin. "The patients were predominantly in the older age groups. Many were suffering from the multiple concomitant diseases which are so common among the indigent and the aged, and a large percentage were severe alcoholics. Sixty patients were men, and 15 were women. Only 14 were under the age of 40 years; 47 were 50 years or over, and 16 were over 70 years."

"Thirty-five patients were considered seriously ill, 34 moderately ill, and 6 mildly ill, as determined by clinical appearance, fever, and extent of X-ray and physical findings. Patients were treated with erythromycin when gram-positive cocci were found to be the predominating organism on direct smears of the sputum, without waiting for the results of blood and sputum cultures."

"Patients were given either 0.3 or 0.5g. of erythromycin at 3:00 and 9:00 a.m. and at 3:00 and 9:00 p.m., so that food would not interfere with the absorption of the antibiotic. The drug was administered in acid-resistant tablets, which dissolve only in an alkaline medium, such as prevails in the small intestine."

"On the basis of clinical appearance of the patient, subsidence of fever, decrease in sputum production, and clearing of physical and X-ray signs of pneumonia, the response to therapy was considered good in 63 of the 75 cases (84 per cent). Twenty-one patients became afebrile (oral temperature 99°F. or less) within 24 hours after the initiation of erythromycin therapy and remained afebrile for the remainder of their hospital stay. Twenty-two patients required two days, 12 patients, three days, and 5 patients, four days to become consistently afebrile. Thus, 60 of the 75 patients, or 80 per cent, had normal temperatures within 96 hours after erythromycin therapy was begun."

"Three patients who showed striking improvement in their pulmonary findings continued to have low grade fever over five days after therapy was begun. Two of these patients had urinary tract

infections, and one had infected skin abrasions to account for the sustained temperature elevation."

"The good response which occurred in 63 of the patients may be exemplified as follows: A patient would be admitted with a five or a six day history of fever, cough productive of yellow or rusty sputum, chest pain, anorexia, and weakness. Physical and X ray examinations would reveal signs of consolidation over one or more lobes, and sputum smears would show large numbers of gram-positive cocci. Within two or three days the patient would be afebrile, comfortable, taking food and fluids well and would be discharged on the seventh to ninth hospital day."

"Superinfections due to antibiotic-resistant staphylococci have been encountered with increasing frequency in patients with pneumonia treated with oxytetracycline, chlortetracycline, and penicillin. This complication did not occur in the present series and should be uncommon during erythromycin therapy, since most staphylococci are, at present, sensitive to this antibiotic."

"The results are considered to be comparable to those obtained with the broad spectrum antibiotics and with penicillin. Side-effects were negligible, consisting of nausea and vomiting in only one case. It is concluded that erythromycin is highly effective in the treatment of pneumonia due to gram-positive bacteria."

—
Burning sensation in the mouth.—(*J.A.M.A.*, via *Ind. Dent. Rev.*: 23, May-June 1954).

A physician wrote to the *American Medical Journal*, requesting advice and treatment for a man of 60 years of age who has had a constant burning in the mouth for about ten years. It is not affected by cold drinks, local anaesthetics or antiseptics, nor was there any seasonal or daily variation in the sensation. Neither was it affected by the presence or absence of dentures. Smoking a pack of cigarettes a day aggravated the condition slightly. There seemed to be no visible change in the mucosa. The buccal and gingival surfaces were involved, but not the tongue.

The answer stated:—"A burning sensation of the tongue and oral mucosa is fairly common, possibly caused by a systemic disease such as diabetes, vitamin A deficiencies, pernicious anaemia, and decreases in the output of saliva. Usually the mucosa appears irritated. As dry mouth occurs with aging, associated with the loss of keratinization of the mucosa, the stickiness of the saliva leads to mechanical irritation. This may not cause much change in the mucosa. Sometimes the burning sensation of the mucosa is psychogenic. Since the sensation in this patient is not relieved by local anaesthetics, it appears that the pain is not a localised reaction to irritation, but results from some conditions that the patient interprets as a burning reaction."

—
Toxic hepatitis due to PAS.—(*Br. Jour. Tuberc. Dis. Chest.*, April 1954; *Abst. in Pract.*, Aug. 1954).

In reporting a case of toxic hepatitis due to PAS, W. M. Dixon reviews the data available on the 26 cases (including his own) of this complication of PAS therapy which have been recorded in the literature. Jaundice occurs twenty-two to forty-six days after the start of PAS therapy, and the dosage necessary to produce jaundice varies from 163, to 820 grammes. It is preceded by pyrexia of sudden onset, and a rash. As a period of two to sixteen days may elapse between the rash and the appearance of icterus, it is considered unwise to start desensitization until at least a month after the last signs of hypersensitivity have disappeared. Eosinophilia was found in 18 of the 21 cases in which the blood was examined and is considered of 'diagnostic importance as it is rare in other forms of jaundice.' Other manifestations of hypersensitivity are nearly always present: lymphadenopathy (11 cases), angioneurotic oedema (6 cases), glossitis and stomatitis (3 cases), splenomegaly (2 cases), joint pains, (2 cases). Anuria occurred in three cases, and exfoliative dermatitis in eight cases. Three of the cases proved fatal, but in one there was a granulocytosis, whilst hypokalaemia was present in another. Treatment consists in

immediately stopping the administration of the drug. It is important to ensure that no other salicylates are given. Provided renal function is unimpaired, a high-protein diet and ample fluids should be given. Antihistamines may be helpful in relieving symptoms but 'seem to have little effect on the progress of the hepatitis.' Desensitization to PAS is usually possible without great difficulty.

Anticoagulants in coronary disease.—(B.M.J., 23-9-1954).

The mechanism of the production of myocardial infarction is discussed in the light of newer knowledge concerning the arterial lesions of obliterative coronary disease on the one hand and the development of a subsidiary inter-arterial anastomotic circulation on the other.

In general the clinical recognition of frank infarct formation depends more on the metabolic upset which accompanies tissue destruction than on the duration of the pain, dyspnoea, or syncope, any one of which may mark the onset of the acute attack. The disease of extremes, acute myocardial infarction runs a treacherous and unpredictable course. There are only "good-risk" cases in retrospect.

Evidence continues to accumulate in support of the contention that anticoagulant drugs used early and efficiently, and continued for a minimum of four weeks and a strict laboratory control, are capable of halving the death rate and reducing the incidence of thromboembolic episodes commonly observed during the first six weeks of the illness.

Necropsy experience substantiates the claim that anticoagulant therapy reduces the frequency of thromboembolic lesions.

The overall reduction in mortality cannot be attributed solely to the

decrease in frank thrombo-embolic deaths. It appears that the severer grades of cardiogenic shock are favourably influenced by these drugs.

A claim can also be made for the prompt use of anticoagulants when a succession of attacks of acute coronary insufficiency suggests that myocardial infarction is imminent. There is also a justification for their use in selected patients on a long-term basis in the hope of preventing recurrences amongst those who have already sustained one or more myocardial infarcts.

No anticoagulant is uniformly successful. None is devoid of risk. Their successful use demands close clinical supervision supplemented by reliable laboratory facilities. Efficiently used, anti-coagulants make a distinct contribution to the treatment of acute myocardial infarction.

R.S.V.P. in psychotherapy.—(Gordon R. Kamman, M.D. in *Journal Lancet*, p. 61-62, Feb. 1954 via. U.S.A.F.M.J. July '54.)

It has been said that effective psychotherapy for the mild anxiety states can be summed up by the letters R.S.V.P. "R" stands for reassurance. "S" stands for suggestion which includes everything from verbal suggestion to hypnosis as well as the occasional use of mechanical devices such as high frequency currents, massage, and relaxing exercises. "V" stands for ventilation. It is extremely important to allow the patient to talk his troubles out. This requires patient listening by the doctor. "P" stands for persuasion. The patient must be persuaded to persevere in his efforts to get well, to co-operate with his physician, to attend to his physical as well as to his mental hygiene, not to rely too much upon pills and potions, and to participate in activities of which he formerly was afraid.

OPHTHALMOLOGY

Complications after cataract extraction.—(Am. J. Ophth., 37: 672-695, via *Mod. Med.*, 1-10-'54).

Even with antibiotics, infection may cause vitreous abscesses, retinal detachments, or dense secondary membranes. If bacteria are in the conjunctiva or

lids before operation, the process is usually recognized on the second or third postoperative day when purulent material gathers about the sutures. Hypopyon and vitreous involvement develop. Infections occurring weeks after surgery are usually endogenous and are

caused by foci of infection elsewhere in the body. Uveitis may result from an exacerbation of quiescent uveitis or from a sensitivity to lens protein that sometimes occurs after extracapsular extraction. Sympathetic ophthalmia may be noted after incarceration or prolapse of uveal tissue and generally means loss of the eye.

Progressive prolapse of the iris causes loss of aqueous and the anterior chamber. Immediate excision of the prolapsed iris and resuture of the wound are necessary.

Corneal damage varies from the transitory clouding caused by trauma to the endothelium during delivery of the lens to permanent keratitis. Hyaloid contact with the posterior surface of the cornea causes tearing, photophobia, and foreign body sensation. Separation of the hyaloid from the cornea clears the cornea but contact for over two weeks produces permanent damage.

The cornea overlying the detached membrane shows a permanent opacity if Descemet's membrane is detached by a sharp instrument during surgery.

Delayed restoration of the anterior chamber may cause peripheral anterior synechias and subsequent secondary glaucoma. Epithelization may also occur if the anterior chamber remains flat too long. Epithelium implanted into the iris during surgery may grow as long as the intraocular pressure is low and the anterior chamber shallow.

Deeply placed corneal sutures frequently delay restoration of the anterior chamber. Occasionally, the wick-like action of through-and-through sutures permits aqueous liquid to escape. If the sutures are removed, the chamber is promptly restored.

Besides causing severe uveitis, rupture of the lens capsule with retained cortex in the anterior chamber prevents strong healing. Also, the epithelium of the capsule may undergo metaplasia and extend over the surface of the vitreum, causing grayish lines. Subsequent contraction draws the pupil toward the wound creating an eccentric pupil. Proliferation of the epithelium can obscure vision by forming translucent spherules that fill the pupil.

Haemorrhage from small capillaries in the scar occurring about the sixth post-

operative day may rupture the wound and cause prolapse of the iris or lead to vitreous opacities. If the haemorrhage is sufficient to cause glaucoma, prompt drainage of the blood in the anterior chamber is necessary. Firm corneoscleral sutures may prevent the consequences of late haemorrhage. Choroidal or expulsive haemorrhage is extremely rare but usually means loss of the eye.

The severity of vitreous loss depends on the type not the amount extruded. Completely fluid vitreous loss is generally not serious, but semifluid vitreous flow may cause a secondary membrane to form with updrawing of the pupil. Incarcerated vitreous matter in the wound causes weak approximation. Loss of normal vitreous jelly is serious. Subsequent shrinkage causes the iris to be drawn toward the wound, or retinal detachment may occur if vitreous-retinal adhesions form. The eye remains irritable for weeks and secondary glaucoma is common.

A detached retina may be easily re-approximated provided no vitreous matter has been lost. If inflammation of the vitreum with shrinkage has caused the detachment, the prognosis is poor because vitreous organization effectively separates the retina.

Occasionally, iridodialysis is produced during the enlargement of the incision with scissors because traction exerted by the closure of the shears tears the base of the iris. The use of right- and left-handed scissors is recommended. Multiple small bites should be made parallel to the limbus curve with equal pressure to both sides of the cornea.

Activity of the cerebral cortex in amblyopia.—(G. Parsons-Smith, *British Journal of Ophthalmology*, 37: p. 359, June 1953).

Existing evidence suggests that loss of vision in amblyopia exanopsia in children is affected by the brain, since even in extreme cases associated with strabismus no abnormality is demonstrable in the eye. Loss of sight in one eye results from the arrival at the cerebral cortex of two images instead of one, and the subsequent production of an inhibitory process suppressing vision in the

squinting eye. If treated, the process is reversible; if untreated visual loss is permanent. Supportive evidence for the cerebral origin of the squint was found in the electroencephalogram (EEG), in which an appreciable proportion of children suffering from strabismus showed abnormalities in the occipital region of the cerebral cortex, while normal children rarely displayed occipital abnormalities.

To determine whether any relationship exists between the variety of cortical rhythms and the degree and aetiology of amblyopia, resting EEGs in 50 amblyopic children of ages five to twelve were assessed and compared with the

general clinical state and ophthalmic condition. Only 12 of the 50 patients had normal EEG tracings, seven showed records of doubtful normality, and 31 had grossly abnormal patterns. Epileptic dysrhythmia appeared in eight patients, only one of whom had a family history of the condition. Of 21 cases with family histories of strabismus only five had normal EEG records.

Amblyopia was congenital in 13 of the 50 cases, and in 37 it was acquired. The neurological and EEG findings are similar in congenital cases which failed to respond to occlusion therapy, while only 54 per cent of the acquired cases failed to respond.

DERMATOLOGY

Uses and abuses of antibiotics in the treatment of dermatoses.—Harry M. Robinson, Jr., M.D. (*U.S.A.F. Med. Jour.*, July 1954).

Antibiotics are potent weapons with which the physician may now successfully combat some diseases for which no satisfactory means of therapy previously existed. He must have a thorough knowledge of the limitations, indications, and contraindications of the antibiotic drug prescribed.

It is unfortunate that many physicians regard the antibiotics as a panacea for all ills and, therefore, administer them with impunity in disregard of the possible harmful side and sensitizing effect on the patient. The fact that penicillin is not a completely innocuous drug has been reported many times. In the past year, four patients have died in this hospital indirectly as a result of administration of this antibiotic.

With the prolonged administration of the broad spectrum antibiotics, the danger of moniliasis arises. Part of the routine examination of any patient should include the culture of any exudate for pathogenic micro-organisms, and the results of such studies are frequently helpful in the selection of the antibiotic to be used.

The ideal antibiotic ointment is one which contains as its active ingredient a drug which is not intended for systemic administration. If a patient

becomes sensitized to one of the antibiotics when it is used locally, he might also show evidence of sensitization when it is given systemically.

The fact must be emphasized however, that while the secondary pyoderma is eradicated by the antibiotic ointment, the underlying eczema, epidermophytosis, contact dermatitis, atopic dermatitis or seborrhoeic dermatitis is not benefited. The ideal antibiotic for local use is one which is effective, has a low index of sensitizing power, and is not intended for systemic administration.

Antibiotic therapy should only be used where there is a specific indication and the drugs should be administered in adequate dosage. Long continued systemic administration of any of the antibiotics is not considered good practice because rest periods are necessary to prevent the destruction of the natural flora of the skin. The ideal drug for local applications is one which is not used for systemic administration.

Penicillin is the drug of choice in the treatment of syphilis, but aureomycin, oxytetracycline, chloramphenicol, and erythromycin are also spirochaetocidal.

The antibiotics are indicated in the treatment of the pyodermas. Local therapy will suffice in most cases of impetigo contagiosa, ecthyma and secondarily infected dermatoses. Systemic administration is necessary in furun-

culosis, erysipelas, lymphangitis and cellulitis.

All of the systemically administered antibiotics except penicillin produce healing of granuloma inguinale lesions, but to prevent relapses treatment must be continued for at least one week after all lesions have healed and the dosage must be adequate.

The majority of patients with erythema multiforme will respond to treatment with all of the systemically administered antibiotics except penicillin and streptomycin.

The antibiotics are an adjunct to the treatment of acne vulgaris, but do not replace the standard method in present-day use.

Antibiotic therapy is contra-indicated in moniliasis, gastro-enteritis, chronic discoid lupus erythematosus, and in diseases where statistical studies prove them to be of no value and their systemic administration is contra-indicated where there is a history of sensitivity to their local application.

REVIEWS OF BOOKS AND PERIODICALS

The Journal of Family Welfare. Vol. 1, No. 1, Nov. '54. Whiteaway Building, Bombay 1.

We have just received a copy of the first issue of a new journal—*The Journal of Family Welfare*. This new venture is under the guidance of Dr. A. P. Pillai who is the Chief Editor and whose work on behalf of family planning and sexology are well known. Knowledge of sex and family-planning is so meagre in our country that the new journal is doing a great service in trying to remove the appalling ignorance and distorted notions that prevail. The present issue contains a number of interesting articles among which may be mentioned 'Artificial insemination' by Dr. Pillai himself, Family Planning by Smt. Dhanvanthi Rama Rau, and Sterilization of the Male by Dr. G.M. Phadke. Mr. V. T. Krishnamacharya, Deputy Chairman, Planning Commission, has blessed this journal and is of opinion that such a journal will be of very great use at the present time. We wish Dr.

As a result of careful surveys Dr. Robinson concludes that there are many conditions in which antibiotic therapy is not indicated unless there is evidence of secondary infection. The drugs will then only eradicate the secondary infection and have no beneficial effect on the primary dermatosis. The conditions studied are: acne keloid, alopecia areata, atopic dermatitis (eczema), condyloma acuminatum, dermatitis venenata, lichenoid eczema (neurodermatitis), eczema nummulare, epidermophytosis, epitheliomata, folliculitis decalvans, Foxfordyce disease, granuloma annulare, herpes simplex, keratosis follicularis, lichen planus, lichen sclerosus et atrophicus, lupus erythematosus (chronic discoid type), miliaria rubra, molluscum contagiosum, otitis externa, papular urticaria, pityriasis rosea, psoriasis, rosacea, sarcoid, scleroderma, seborrhoeic dermatitis, tinea capitis, tinea versicolor, trichophytosis corporis, verruca plana juvenilis, verruca plantaris and verruca vulgaris.

Pillai all success in his endeavours.

U.K.R.

Calcutta Medical Review, Vol. 21, No. 8: August '54 (Special Number on Venereal Diseases—Part 1) P51, Golf Club Road, Tollygunge, Calcutta.

We have received a copy of the special number of the *Calcutta Medical Review* on Venereal Diseases. The subject of Venereal Diseases control has not received the attention it deserves in this country and therefore, the efforts of the *Calcutta Medical Review* to focus public attention on Venereal Diseases is very welcome and opportune. In the first part of this volume the following are some of the interesting articles. Treponematoses programme of the WHO by Drs. Willcox and Guthe, Venereal Disease Control Programme in India by Dr. Thambi, and Some Aspects of the Epidemiology of Syphilis by Dr. E. Gurney Clark. We congratulate the Editor on the success of his efforts.

U.K.R.

BOOKS RECEIVED

Antibiotic Therapy in Medical and Veterinary Practice—By M. L. GUJRAL, M.B., M.R.C.P. (Lond.), pp. 170. Published by Scientific Publishing Co., 85, Nethaji Subhas Road, Calcutta-1. Price: Rs. 12-8 or sh. 18.

Demonstrations of Physical Signs in Clinical Surgery (12th Edition,

Fully illustrated)—By HAMILTON BAILEY, F.R.C.S., F.A.C.S., F.I.C.S., F.R.S.E. Assisted by ALLAN CLAIN, M.B. (Capetown), F.R.C.S., (Eng.), pp. 456. Published by John Wright & Sons, Ltd., Medical Publishers, 42/44, Triangle West, Bristol 8. Price: 38 sh. 6d.

CORRESPONDENCE

To the Editors, The ANTISEPTIC, Madras

Sirs, Will any of your numerous readers kindly give information relating to a preparation called 'Venone'—an injectable preparation containing venom from different species of snakes, i.e. puff-adder,

weight-adder, cobra and mamba for use in Hysteria and Epilepsy? Where can it be had in India?

96, Tees Hazari, }
Delhi, 17-12-1954. }

Yours faithfully,
R. L. GOVER,
Physician

NEWS AND NOTES

Commonwealth Health and T. B. Conference

World Experts will meet in conference arranged by the NAPT at the Royal Festival Hall, London from June 21 to 25.

The subjects for discussion at the main session will include:—

The Preventive outlook Today. Child Hygiene and Infection.

Tuberculosis—a problem of different races.

Do Death-rates Matter?

X-ray and Tuberculosis Surveys—Their meaning and interpretation.

Choice of drugs in Medical and Surgical Treatment of Tuberculosis.

The Psychology of the Patient and Relatives as a Factor in Successful Treatment.

Discussion and clinical meetings will be held and time given for practical demonstration, visits to sanatoria, hospitals and clinics. (B.I.S. Circular, 14-12-1954).

PREPARATIONS AND INVENTIONS

Fer-G-Nate with Cobalt Tablets.—Sanitex have introduced a new anti-anæmic for the treatment of Iron deficiency anæmias. It combines Ferrous gluconate with a trace of Cobalt gluconate to stimulate bone-marrow causing multiplication of cells and release of erythrocytes into the blood stream; and facilitating hæmoglobin formation and prompt Iron utilization. This preparation is indicated whenever strong hæmopoietic stimulus is needed particularly in acquired and congenital

hæmolytic anæmias, essential hypochromic anæmias, anæmias due to tumour, toxic anæmias and other iron refractory states. Toxically damaged bone marrow due to infectious anæmias requires a hæmopoietic stimulus which extends beyond that of the supply of Iron so that the blood formation may be set in motion. In such cases, Cobalt is said to be an almost absolute indication. The Dosage is 2 to 3 tablets of Fer-G-Nate with Cobalt 3 times a day is recommended.

ANNOUNCEMENT

6th All India Industrial Medical Conference

"The Sixth All India Conference of the Society for the Study of Industrial Medicine will be held in Ahmedabad on 5th, 6th, and 7th February, 1955. Scientific papers on various

subjects will be read at the Conference. An Exhibition on Safety Devices will be held during the Conference and a Souvenir, will be published. For further details write to: Dr. A. P. Shukla, Organising Secretary, 6th All India Industrial Medical Conference, Prarthana Samaj, Raikhad, Ahmedabad."

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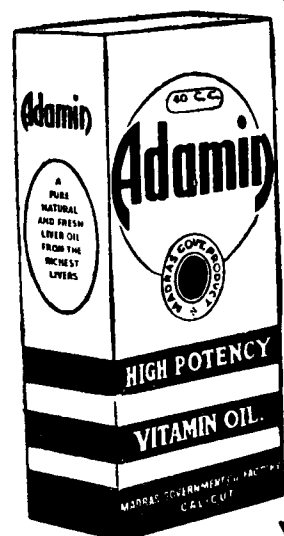
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Build up a Store of extra vitality and resistance against disease with **Adamin**



Each Gramme contains
Vit 'A' ... 12000 I.U.
Vit 'D' ... 1000 I.U.

and SHARK LIVER OIL

Each Gramme contains
Vit. 'A' ... 1,500 I. U.
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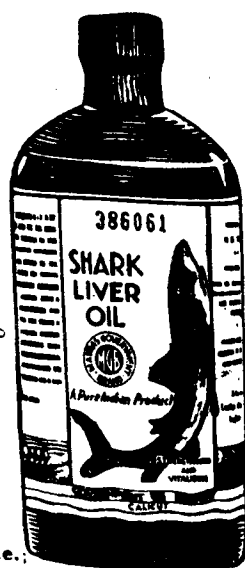
No one is too young to take them.
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MGZ-6 A

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There is no sounder malt tonic than OSTOMALT. It contains protective vitamins A & D at high concentration, with added calcium glycerophosphate. And its flavour—like orange toffee—makes sure your patients keep to the tonic routine ... to the last spoonful.

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1 lb. & 1/2 lb. jars.

the concentrated tonic malt food



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Time has proved the value of mixed bacterial catarrhal vaccine in the prevention and treatment of nasopharyngeal catarrh. By improving antibody defence, Cold (anti-catarrhal) Dissolved Vaccine 'Glaxo' gives the physician a degree of control over this most common sequel to the common cold.



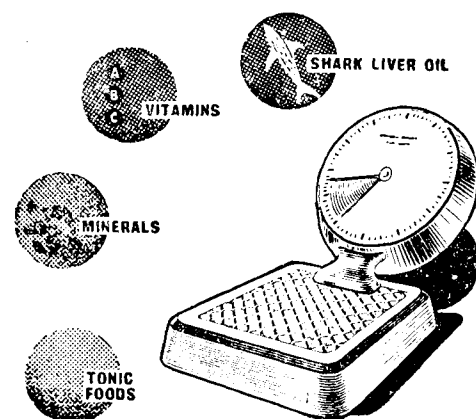
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- Antigens are in solution giving immediate antigenic response
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A valuable tonic and nutrient for increasing weight and building up resistance to diseases.

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Each fluid ounce of SHARKOFERROL represents:—

Vitamin A (from 40 mins. of Shark Liver Oil approx.)	25,000 I.U.
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Saccharated Oxide of Iron N.F.	55 grs.
Hypophosphites of Lime, Sodium & Potassium B.P.C.	12.5 grs.
Vitamin B ₁ B.P.	3 mgms.
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Niacinamide B.P.	40 mgms.
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Palatable Base enriched with Flavoured Malt Extract	Q.S.

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Elixir of Proteolysed whole Liver Extract with Digestive Enzymes and Vitamins of B Complex and C. Cum Hypo Phosphites and Tonic Elements.

COMPOSITION:

Each fluid ounce of C. B-Complex Elixir contains:

Proteolysed whole Liver Extract 1 Fl. dr.	
Vitamin B ₁	... 10 mg.
Vitamin C	... 75 mg.
Calcium Hypo Phospite	... 4 grs.
Ferrous Gluconate	... 1 gr.
Strychrine HCl	... 0.3 mg.
Glycerinum Papaini	... 20 mms.
Syrup	... Q.S.
Alcohol content 8% v/v of absolute alcohol	

PRESCRIBED BY THE MEDICAL PROFESSION EVERYWHERE

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The price of Cholragon has now been reduced from Rs. 3/8/- to Rs. 2/8/- per bottle to members of the Medical Profession.

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PRESCRIBED BY EMINENT PHYSICIANS AND USED BY HOSPITALS SINCE 1931



WHEN CONSTANT MOIST HEAT IS REQUIRED

1. To subside inflammations and stop PAIN.
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Trial size (4½ oz.), Rs. 11-8 per doz.

No. 1 size (10½ oz.), Rs. 21/- " "

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Hospital size (5 lbs.) also available

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Two c.c. contains:

Liver Extract	... 50 gm.
Folic Acid	... 75 mg.
Vitamin B12	... 25 mcg.

Indicated in:

Acute pernicious anaemia, Macrocytic Anemias, Sprue.

Subnormal growth in children is reported to respond to Vitamin B12. Increased appetite were noted in the patients treated and also for the functioning of bone marrow.

Dosage: To be injected intramuscularly 2 cc. daily or alternate days as directed by the physician.

Packing: 2 c.c. amps and 10 c.c. & 30 c.c. R.O. phial

CALCIDOXON

(Calcium Gluconate with Vitamin C)

Five c. c. contains:	Ten c. c. contains
Calcium Gluconate 10%	10%
Vitamin C 100 mg.	200 mg.

Indicated in:

Pregnancy, lactation, periods of rapid growth, febrile conditions, old age convalescence and debility states, in Haemorrhagic & development of teeth and bones.

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The average Indian diet is poor in B vitamins. As a result, deficiency of more than one factor is common. Such mixed deficiencies are potentially serious and if not corrected may lead to conditions as diverse as macrocytic anaemia, neurological complications, cardiovascular disturbances, gastro-intestinal disorders, cheilosis, glossitis, etc. Symptoms such as anorexia, lassitude, insomnia, and depressive states are often due to B complex deficiency.

Complex B 'Glaxo' provides in standardised combination therapeutic amounts of six major components of B complex including vitamin B₁₂, the anti-anaemic factor. Complex B 'Glaxo' can be safely relied upon for a swift and satisfactory response in vitamin B deficiency syndrome.

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VITAMIN B₁₂/B COMPLEX INJECTION



Each cc. contains:

Vitamin B ₁₂ (Crystalline)	10 micrograms	Nicotinamide	50 mg.
Vitamin B ₁	10 mg.	Pyridoxine hydroch.	3 mg.
Calcium pantothenate	5 mg.	Riboflavine	1 mg.

In 10 cc. rubber-capped phials

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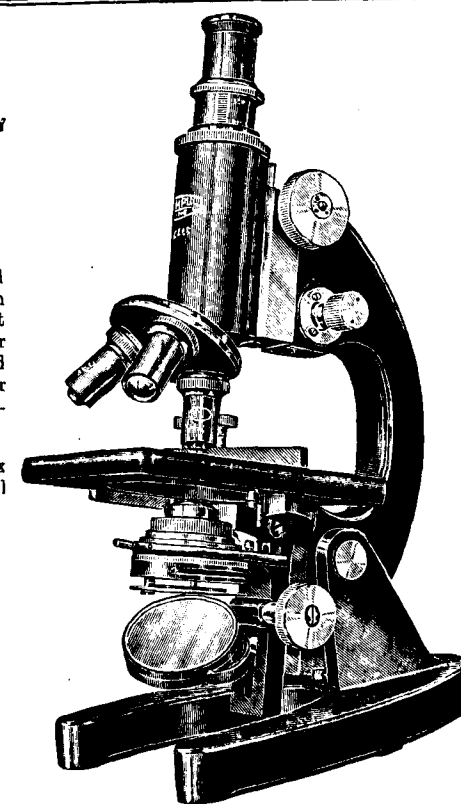
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Glycerophosphate of Iron, Sodium, Calcium, Strychnine and Manganese, Vitamin B Complex Ext., Vitamin C, Sodium-Calcium Formoxyl, Kola Nuts Fluid Ext., Wahoo Fluid Ext., Intestinal Ferments, Papaine, Organic Copper Salt, Iron Sulphate, Manganese Sulphate in Palatable base.

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For over 25 years

SOLD EVERYWHERE

**FOR ALL DISEASES
RESULTANT OF
HYPOVITAMINOSIS**

MUL-MIN

A multi-vitamin Tonic Syrup containing all the important factors of the Vitamin B Complex along with the Hæmatinic principles Folic Acid & Vitamin B₁₂, together with Vitamins A & D and the Lipotropic factors Choline and Methionine.

COMPOSITION :

Each fl. oz. contains :			
Vitamin B ₁	... 10 mg.	Choline Chloride	... 100 mg.
Vitamin B ₂	... 5 mg.	Biotin	... 100 mcg.
Vitamin B ₆	... 2 mg.	Inositol	... 50 mg.
Vitamin B ₁₂	... 10 mcg.	P.A.B.	... 50 mg.
Folic Acid	... 1.5 mg.	Vitamin A	... 5000 I.U.
Nicotinic Acid Amide	... 150 mg.	Vitamin D	... 1000 I.U.
Calcium Pantothenate	... 20 mg.	Traces of manganese	
Methionine	... 100 mg.	Copper, Cobalt and	

ASSOCIATED DRUG CO. LTD.
YERCAUD, : : (S. INDIA)

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A UTERINE TONIC AND SEDATIVE

Each fluid ounce contains:—

Calcium Lactate	... 15 Grs.
Potassium Bromide	... 15 "
Ext. Aletis Liq.	... 10 m.
Ext. Ashoka Liq.	... 15 "
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Ext. Ashwagandha Liq.	... 10 "
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Ext. Piscid Liq.	... 15 "
Ext. Hydrast Liq. B.P.C.	... 5 "
Drakshaswa	... 2 Dr.
Syrup	... Q. S.
Alcohol	5% V/V.

ALETROL is a combination of sedatives uterine tonics, and nutrients useful in the treatment of the common disorders of female reproductive system especially of uterus.

INDICATIONS: Irregular menstruation and other menstrual disorders like menorrhagia, dysmenorrhoea, inflammation of the uterus, threatened abortion, premature delivery, leucorrhoea, salpingitis and salpingoovitis.

Dose: 1 to 2 teaspoonfuls three times a day.
PACKINGS: 4 oz. and 1 lb.

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Spermatorrhoea

**SEXUAL SEDATIVE &
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COMPOSITION Suvarnavang

Combined with extracts of Salep misri (Orchis mascula) Chharila (Parmelia parvula) Kahu (Lactuca scariola) Gokhru (Tribulus terrestris) Talamakhana (Hygrophila spinosa) Kavach (Mucuna pruriens) Vriddharaka (Argyria speciosa)

DOSAGE: Two tablets twice a day with milk.

PACKING: 50, 100, 500 & 1000 tablets.

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"I have used it on forty carefully observed cases and on the whole the results have been very encouraging. I am interested in these cases as there was no medicine for this disease. I can say that the drug is very effective. The drug is particularly useful in removing the nervous symptoms and neurasthenia etc. Judging from the results of the present investigation the response to treatment with Sperman is very satisfactory and it has a definite place in the treatment of cases of spermatorrhoea."

K. C. Sahu, M.B., B.S. (Pat.), D.P.H. (Eng.), D.C.M. (R.C.P. & S.) D.T.M. & H. (L'pool), F.D.S. (Lond.).

Medical Digest, Vol. 22, No. 9, Sept. 1954

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Improved Formula with Folic Acid

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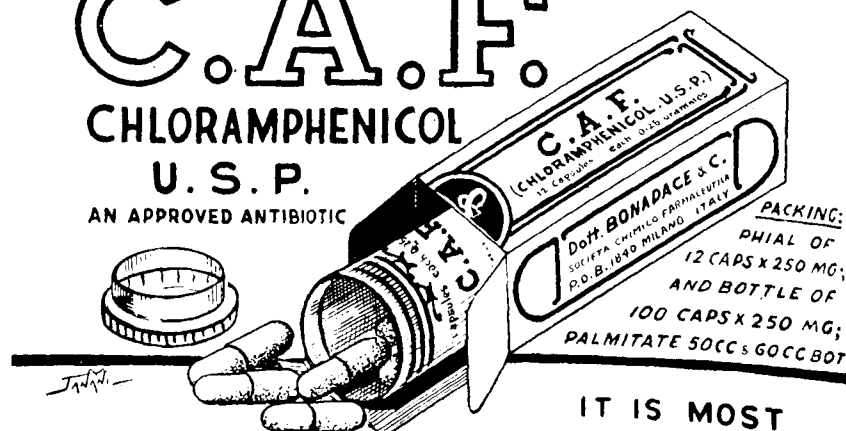
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Boxes of 5 and 50 x 2 cc.

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For Vigour and Vitality

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Vitamin B₁ 3 mgs.
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Extract Wild Cherry,
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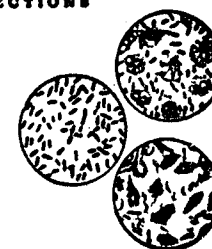


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DOSAGE

4 tablets initially followed by 2 tablets every four hours
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PRESENTATION

Tablets each containing 0.5 gm. (7 1/2 grs.) in bottles
of 30, 100, 200, 500 and 1000.



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HAY FEVER

Composition:

Aminophylline ... 1½ grs.
Phenobarbital ... 1/6 gr.
Ephedrine Hcl. ... 3/8 gr.

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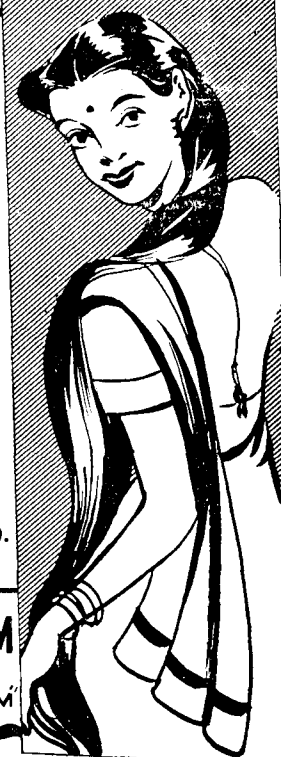
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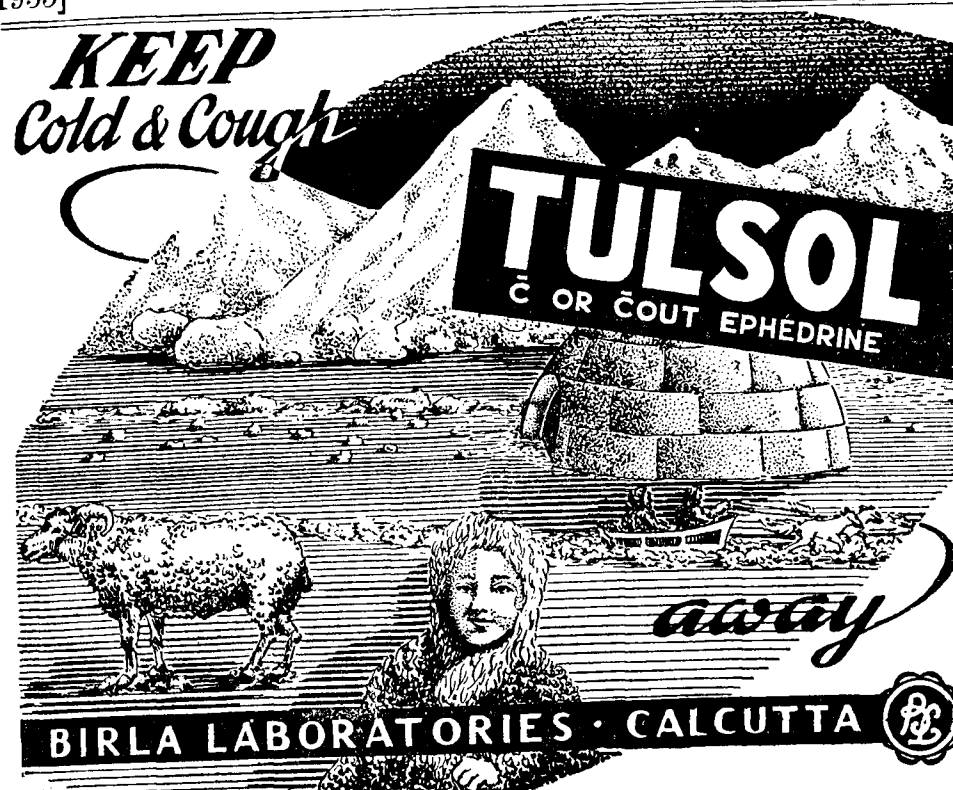
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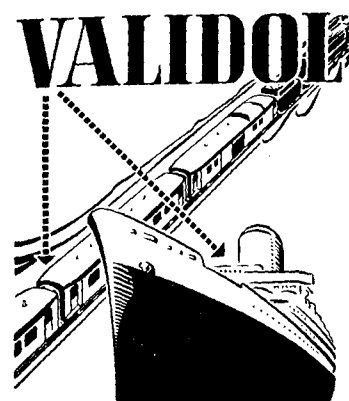
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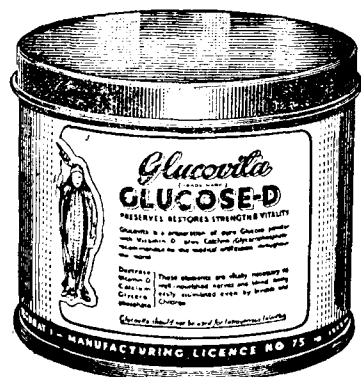
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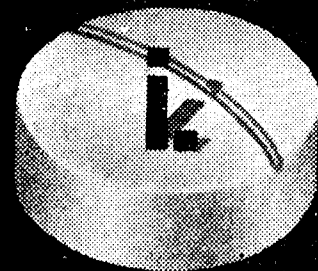
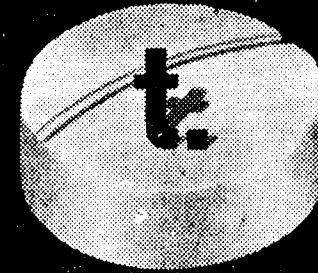
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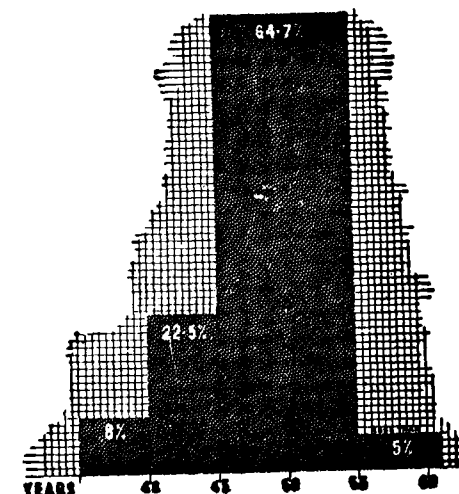
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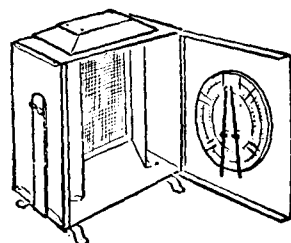
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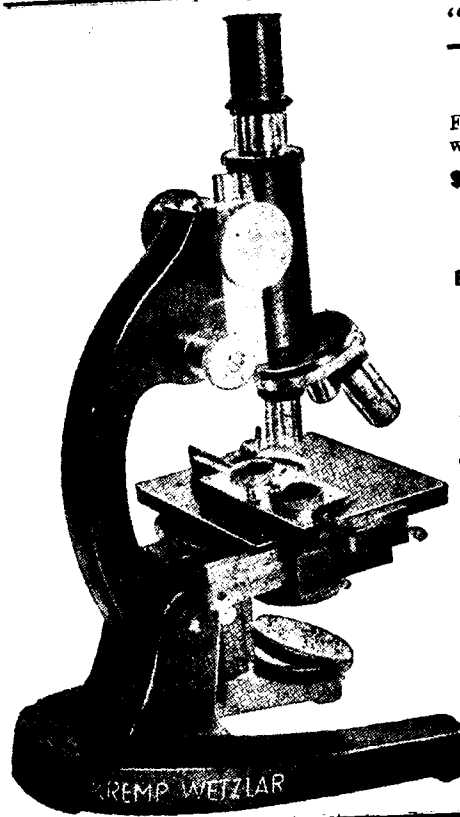
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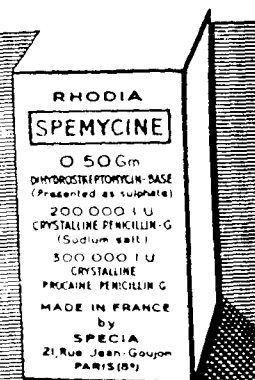
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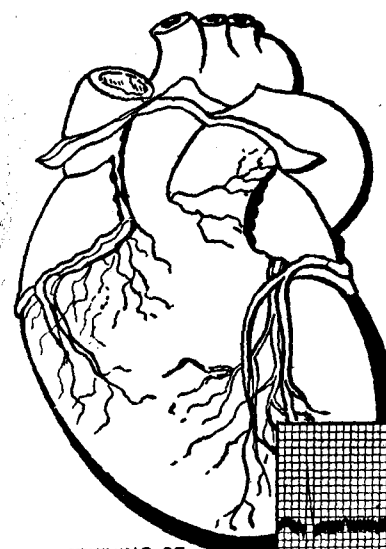
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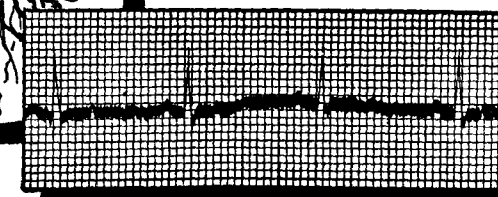
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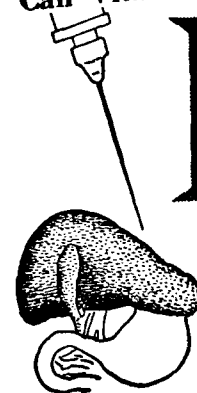
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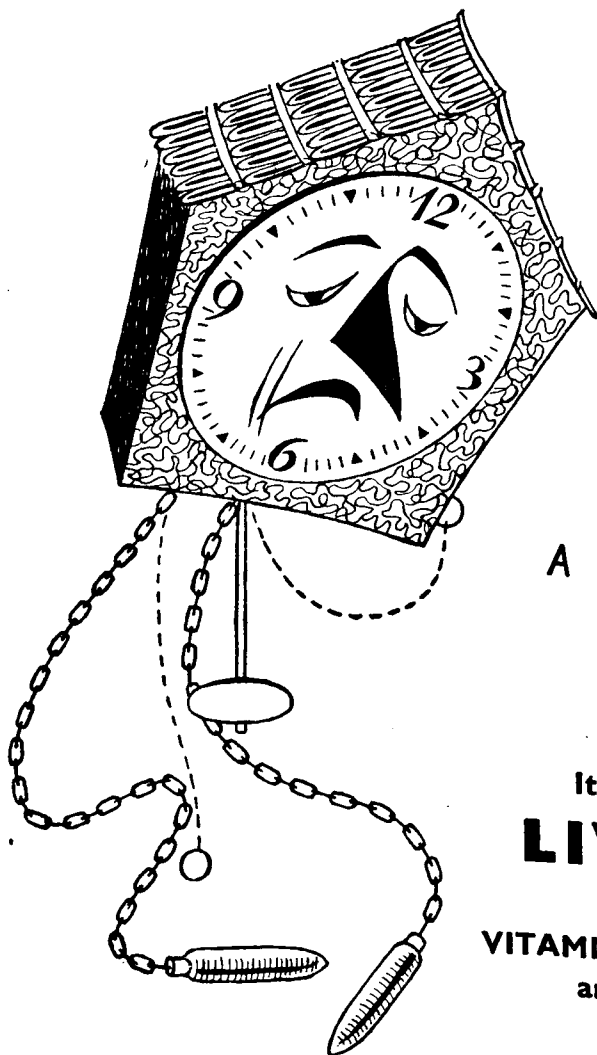
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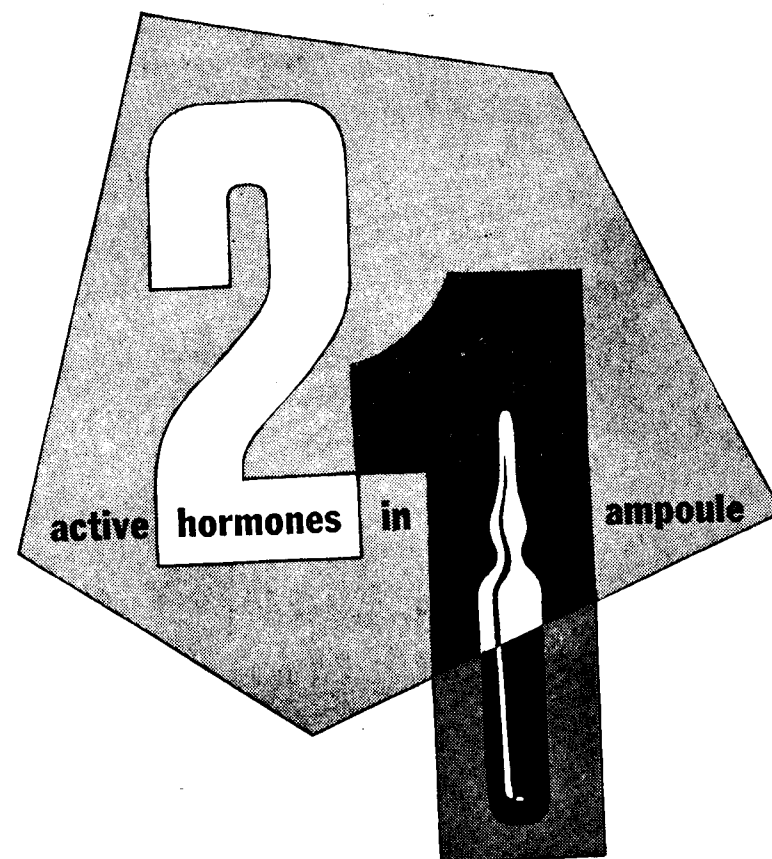
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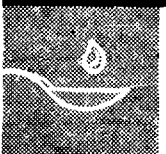
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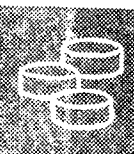
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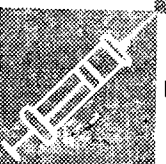
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INDUSTRIAL ROAD, BARODA-3 (INDIA)

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Cold & Cough

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All injuries to the joints, ligatures and muscles e. g. through dislocation, contusions, sprains, strains, also with effusion into a joint are best treated by means of a Leukolastic Bandage. Its amplified compression over the point of most intense pain gives successful and immediate relief. Leukolastic provides a firm support and greatly reduces the pain. It keeps the injured part at rest and yet ability to walk and often ability to work can be maintained.



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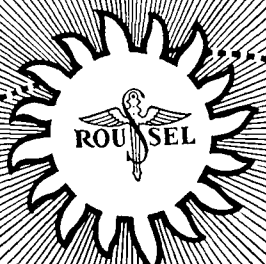
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LIVER EXTRACT INJECTABLE (CRUDE)

COMPOSITION

Each c. c. represents Hemopoietic principles derived from 15 Grams of fresh liver and 10 mcg. of vitamin B₁₂

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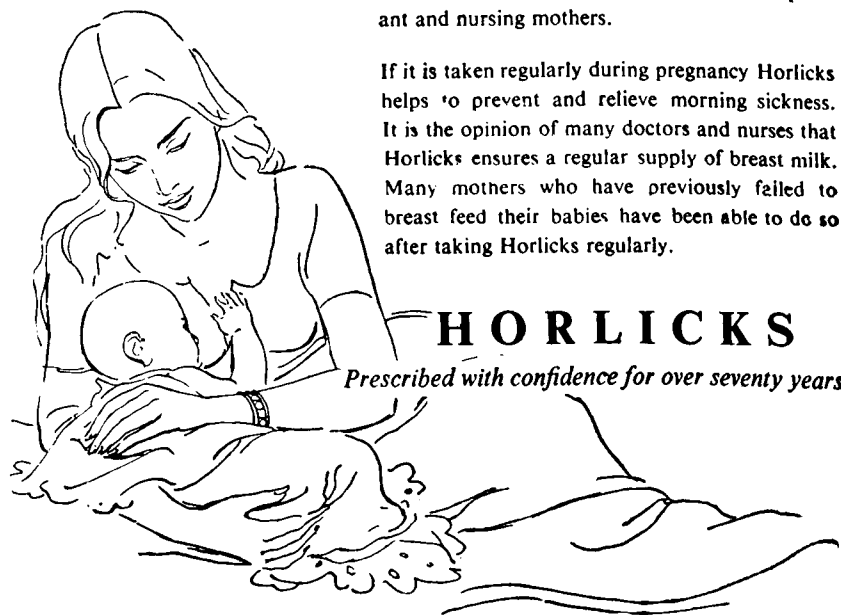
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Boxes of 6 x 2 c.c., 50 x 2 c.c. & 100 x 2 c.c. ampoules.

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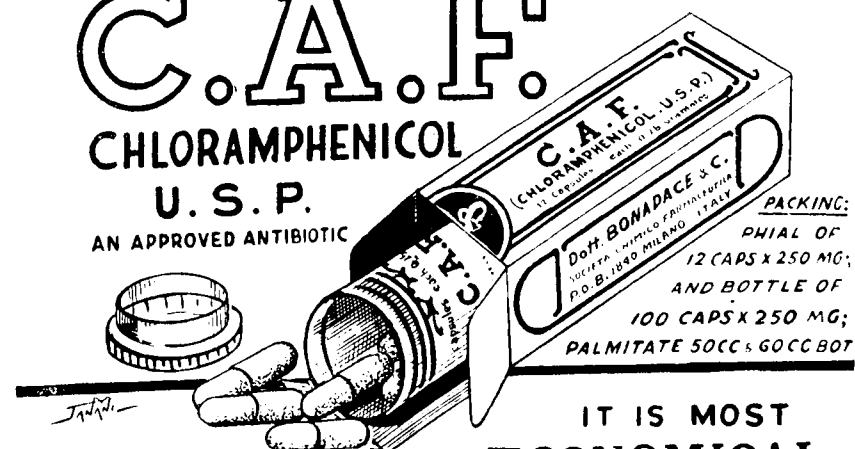
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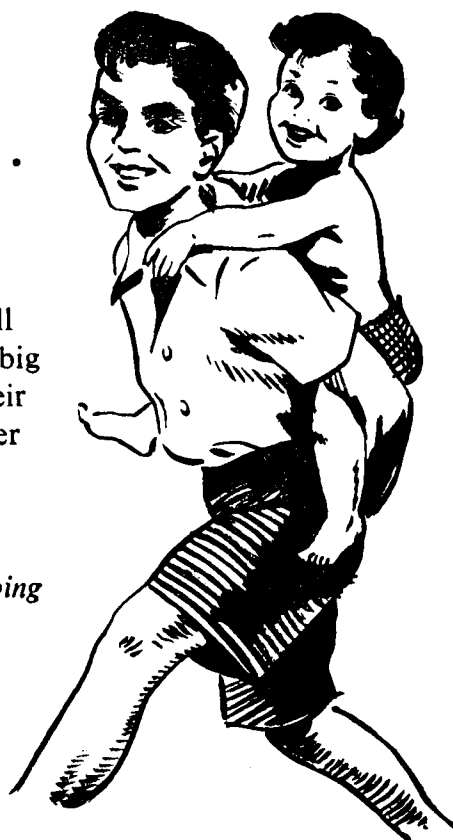
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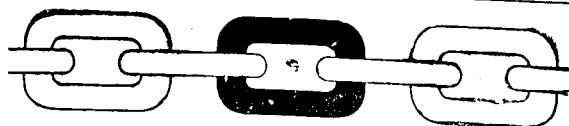
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HEALTH-PROMOTING

Average Composition

Fat	9.50
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Malt Sugars	60.50
Residual Moisture	2.20
Mineral Salts	2.71
Calories per oz. (dry)	120

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Vitamin B₁₂ potentiated by folic acid
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Where the marrow is megaloblastic, both folic acid and Vitamin B₁₂ are necessary to re-establish normal erythropoiesis.

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ORAL-LIQUID (Including Vitamin B₁₂)
(Mainly derived from natural sources)

PARENTERAL
(Vitamin B₁, B₂, Niacinamide, B₆, Choline and d-Pantothenyl Alcohol with liver base)

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Absorbs Bacterial Toxins

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Facilitates and promotes the absorption of
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Packings :

2 ampoules of 25 Viscosity units Cilag
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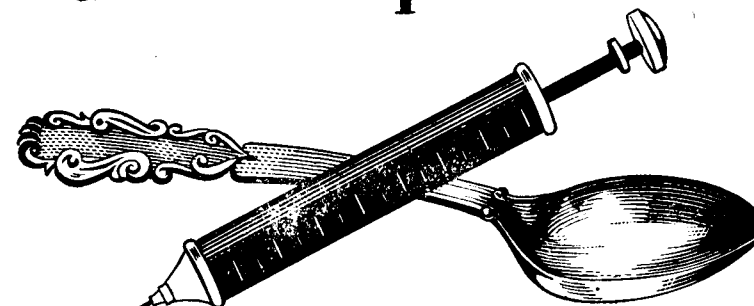
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Injection	Injection	300,000 units per 5 cc.
1,200,000 units	600,000 units	Bottles of 2 fl. oz.

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VITAMIN B COMPLEX
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1 lb. & 1/2 lb. jars.

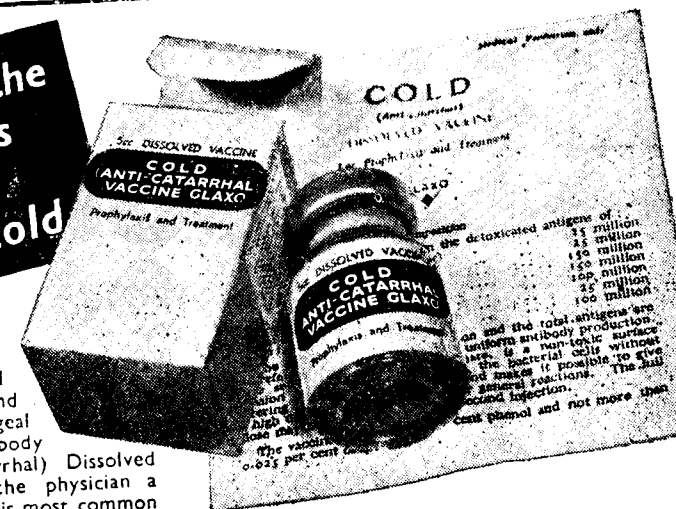
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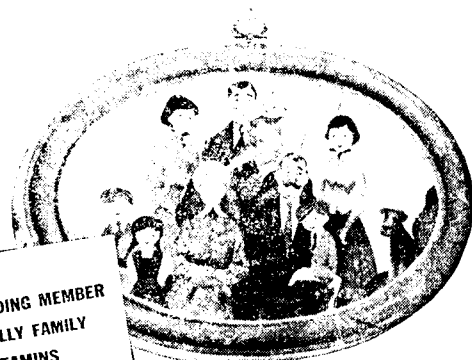
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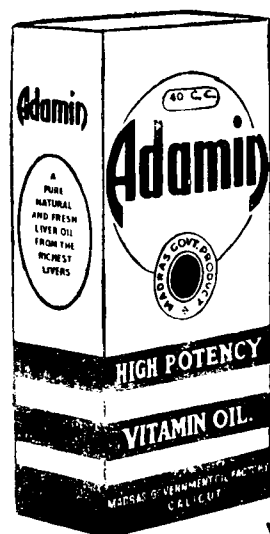
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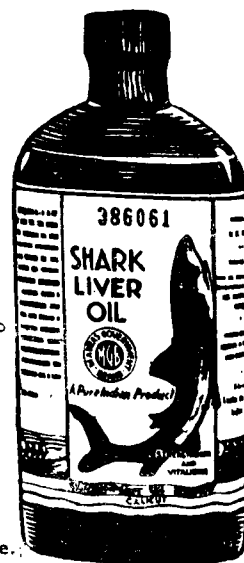
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Phenol	5 gr.
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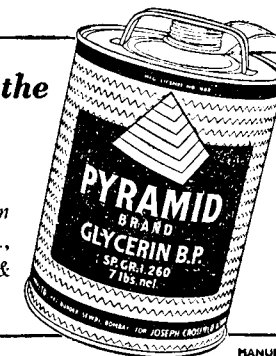
GLYCERIN IS AN ANTISEPTIC

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containing all factors
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Packings of 50 Tablets

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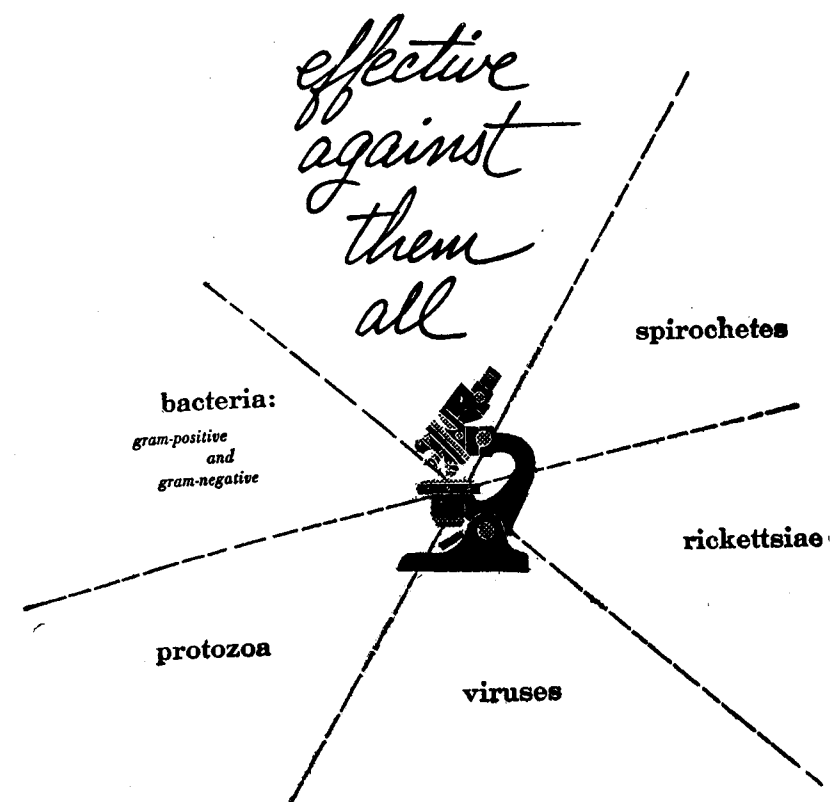
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broad-spectrum of anti-infective action

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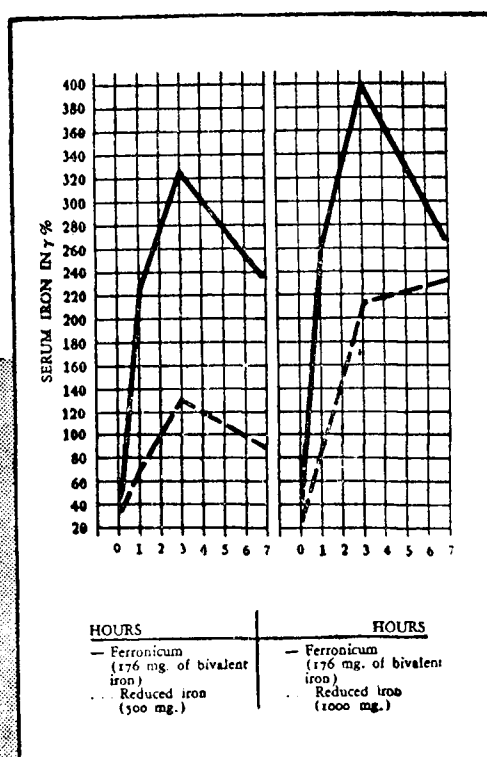


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Anaemia . . .*

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better absorbed
and much better
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any other oral
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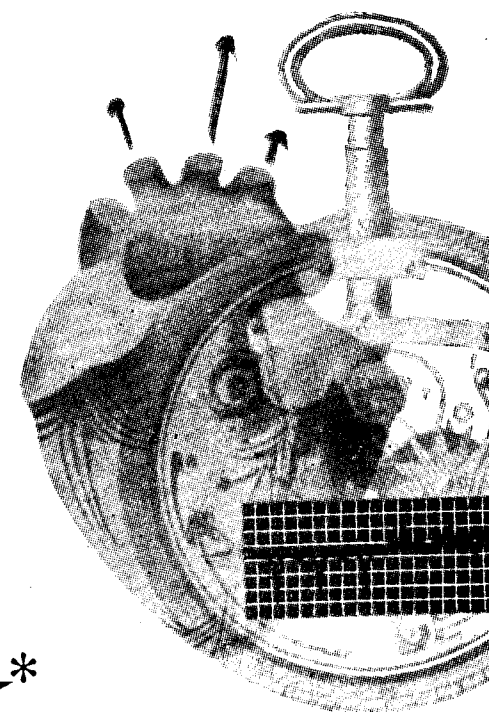
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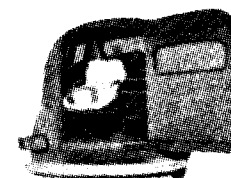
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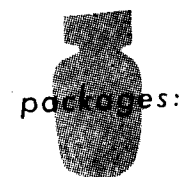
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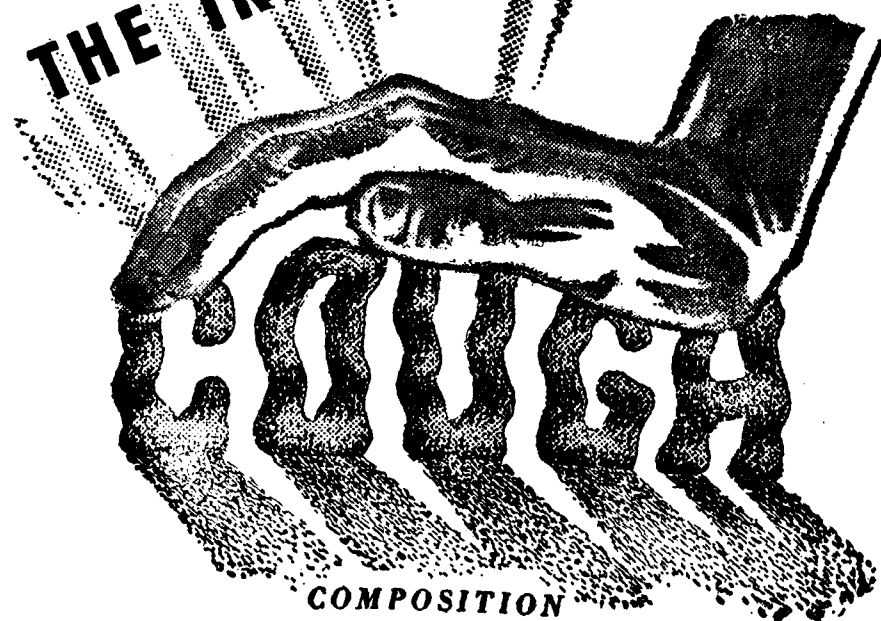
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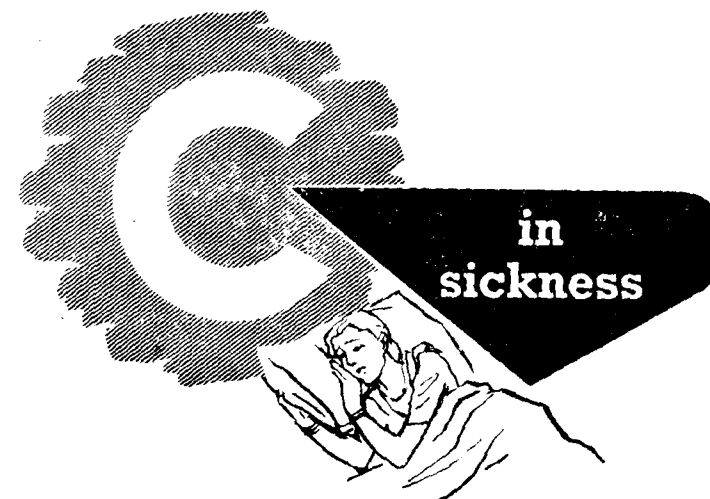
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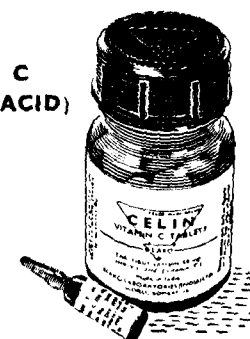


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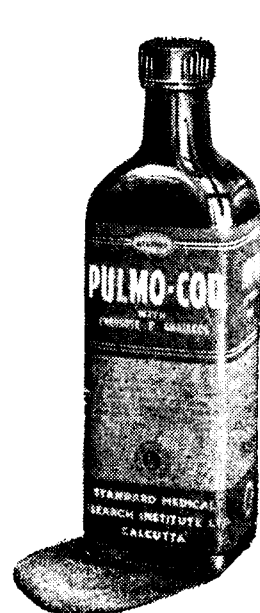
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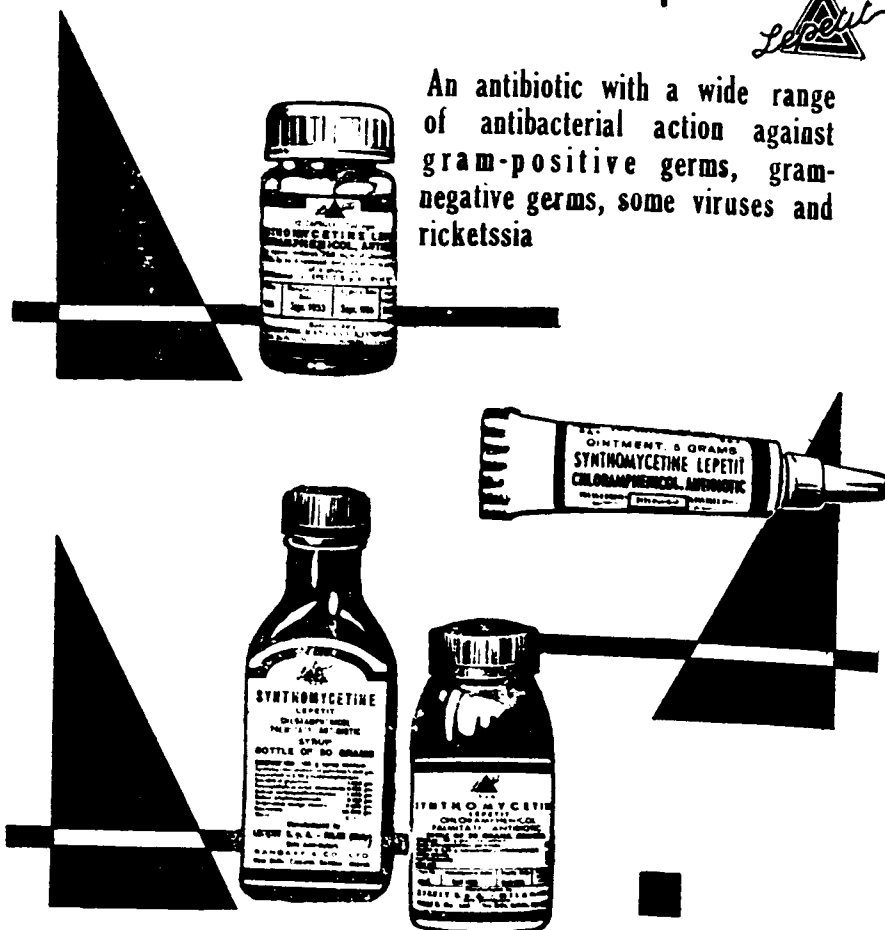
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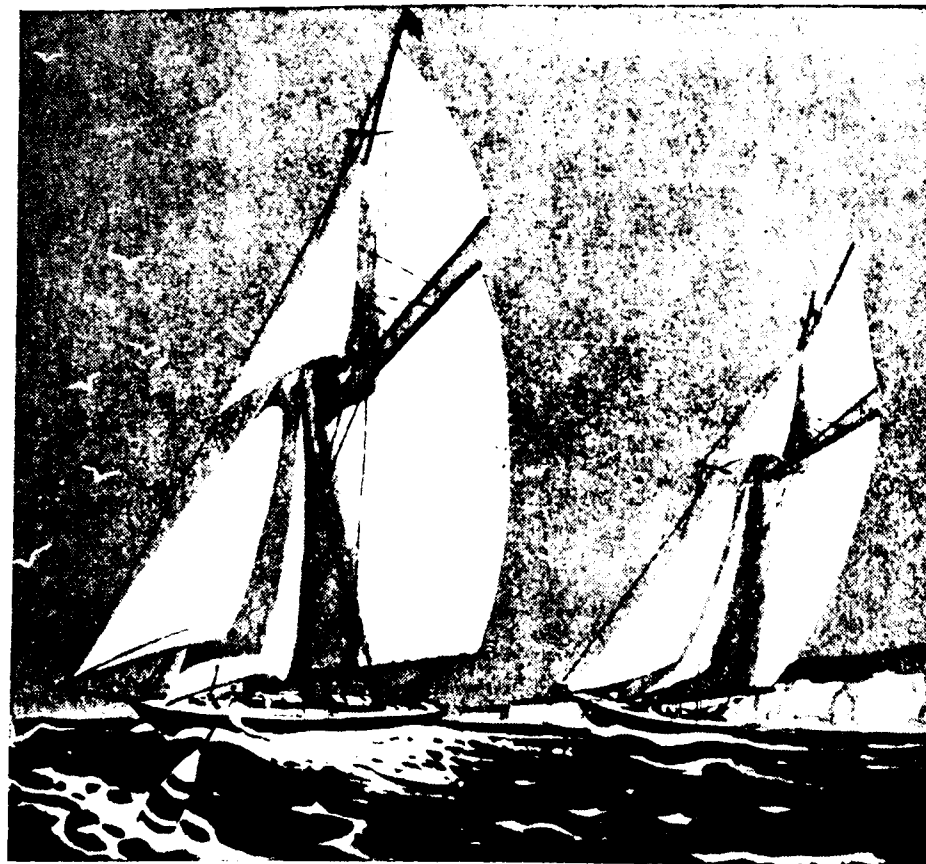
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Editor: U. KRISHNA RAU, M.B., B.S., M.D.A.

Associate Editor: U. VASUDEVA RAU, M.B., B.S.

Editorial & Publishing Office: 323-24, Thambu Chetty St., Madras-1

Annual Subscription: Rs. 7-8-0. Foreign—Rs. 10 Post Paid

Vol. 52

FEBRUARY, 1955

No. 2

Original Articles

A STUDY OF PYREXIA AND SOME FEBRILE AND OTHER INFLAMMATORY COMPLICATIONS OF CHOLERA*

HEMENDRA NATH CHATTERJEE, LT. COL. KARUNA KUMAR CHATTERJI,
 BABINDRA KUMAR SAHA, RANEN BANERJEE, DEB KUMAR BASU,
 JOYTISH CHANDRA GUPTA AND HIMANSU GHOSH,

Cholera Ward, Chittaranjan Hospital, Medical Research Department,
 Calcutta Chemical Works, Calcutta

PYREXIA as noted by a high rectal temperature is a very constant accompaniment of the 'Cholera Syndrome' and may be present even in the early stage. This looks an apparent paradox, as owing to the great collapse and shock, the axillary temperature is usually subnormal. The taking of the mouth temperature is not always feasible owing to nausea and vomiting.

Fever may be present even before administration of saline transfusion. Rogers (1913, 1921) recorded high temperature in cholera patients without any saline transfusion both amongst the native population of Calcutta as well as amongst the Europeans. In his latter group 16 out of 22 febrile patients had no saline transfusions.

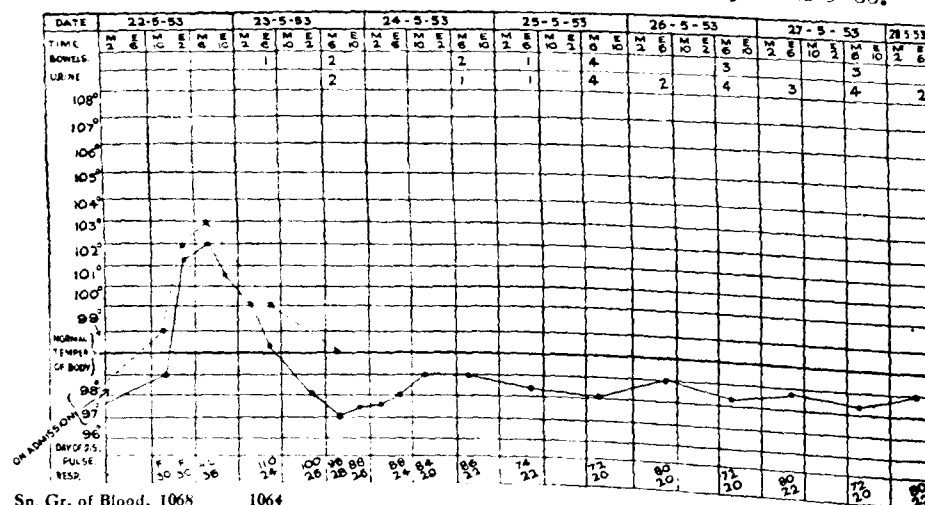
After the administration of intravenous saline, however, every case of cholera gets a rise of temperature usually accompanied by chill and rigor. In the average case of cholera of mild and moderate severity the peak-temperature recorded rectally, is in the region of 103°F. and usually does not rise higher. The fall of temperature may be quick but generally occurs gradually and the normal is reached in 24 to 48 hours.

* Specially contributed to the ANTISEPTIC

The charts show the temperature variations in otherwise usual as well as culture-positive and uncomplicated cases of cholera with clinical recovery.

CHART 1

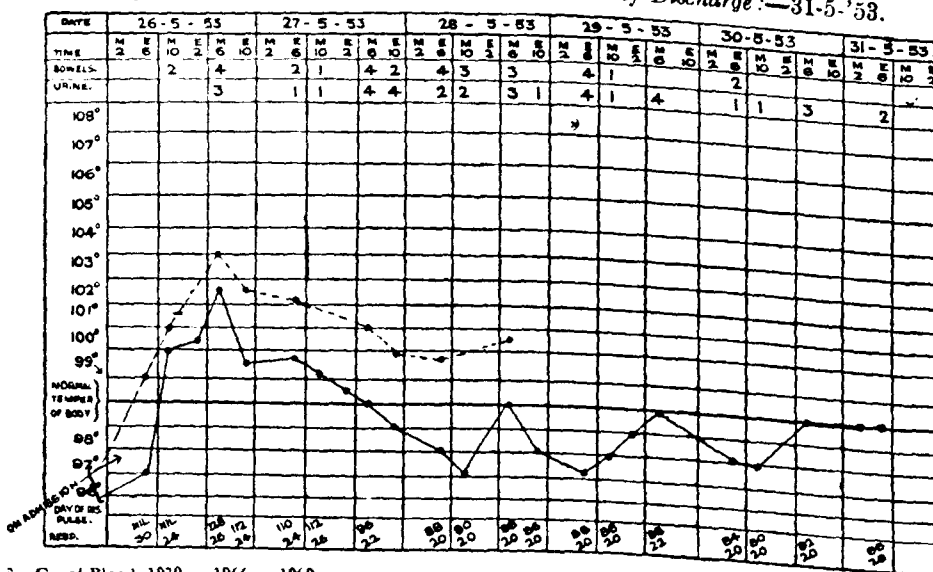
Disease:—Cholera. Name:—J., Mohammedan female. Age:—40.
Date of Admission:—22-5-53 at 9-5 a.m. Date of Discharge:—28-5-'55.



Dotted line indicates rectal temperature.
Continuous line indicates axillary temperature.

CHART II

Disease:—Cholera. Name:—I. M., Mohammedan male. Age:—55.
Date of Admission:—26-5-53 at 6 a.m. Date of Discharge:—31-5-'53.



Dotted line indicates rectal temperature.
Continuous line indicates axillary temperature.

Pyrexia is thus a constant phenomenon of cholera, particularly after saline transfusions, but the great importance of watching the same lies in the fact that if the initially high temperature is not properly controlled, there is the grave risk of a hyper-pyrexial reaction developing which might be fatal. According to Rogers (1921), 23% of the total number of deaths took place during the febrile reactions. Consequently if the rectal temperature is found to be initially high, it must be controlled early, because transfusions cannot be deferred long in the usually severe cases of cholera.

The present study comprises two series of cases: Series A. consisting of 719 cases of clinical cholera and series B. consisting of 357 cases included in the above series but in whom the cholera vibrios were obtained by the three-plate-culture method.

Treatment of pyrexia.—The management and the treatment of fever in cholera mainly depends upon this initial temperature seen before transfusions. We have divided our patients into the following four groups:—

(1) Cases whose initial rectal temperature was 101°F or less. These comprised 439 or nearly 61% of our clinical cholera cases of 1953, numbering 719 (series A) and 207 or 58% in series B of the 357 culture-positive cases. Intravenous transfusion of the fluid was started in these patients without delay.

(2) Cases with an initial rectal temperature between 101.2°F. to 103°F. who routinely had (a) bowel wash with plain tap water at room temperature; (b) sponging the whole body with tap water; (c) washing the head with tap water; and (d) an ice bag over the head. These procedures have been usually sufficient to bring the rectal temperature down to 100°F in 179 (or 25%) of our cases in series A and in 92 (or 26%) of cases in series B. The urgently needed intravenous transfusions were started as soon as the rectal temperature came down to 101°F., a careful watch being however, kept to prevent its going up again.

(3) Cases with an initial rectal temperature of 103.2°F. to 105°F. We had 70 such cases (nearly 10%) in our series-A, and 32 (or 9%) in series-B. (a) Practically all the procedures described under (2) above were carried out with the difference that the rectal washing was done by ice cold water, until the temperature came down to 100°F., when it was stopped. The intravenous transfusions were however, started as soon as the rectal temperature came down to 101°F. (b) besides the above procedures Cryogenine (Meta-Benzamine semicarbazide C₆H₅CONH₂, NHNH CONH₂, 19406) in one or two doses of 5 grs. each was given. This useful drug usually brought the temperature down by one to three degrees F. To combat collapse in these cases, Coramine for subcutaneous or intravenous injection was kept ready and repeated as necessary.

(4) Cases with an initial rectal temperature of above 105°F. which is definitely a very dangerous condition. We had 31 such

cases in series-A of which 9 or 30% ended fatally. Twenty-five of these were culture-positive including 7 fatal cases.

In one case the rectal temperature shot up to 109° F., which rapidly brought on the fatal end. The procedure adopted by us for controlling the hyperpyrexia in such cases consisted of:—(a) sponging with ice-cold water, (b) rectal wash with cold water, (c) washing the head with ice-cold water, and (d) Coramine injections as necessary. While treating these cases of extremely high temperature, the physician is often faced with the aggravation of the hyperpyrexia by intravenous salines on the one hand and the onset of irreversible shock on the other, if the transfusions are delayed. Therefore, a median course was adopted by us. We started a slow intravenous drip (not more than 30 drops a minute) after the rectal temperature came down to 102° F. At the same time the rectal wash was continued with ice-cold water, with an ice-bag maintained over the head. Cryogenine was very useful in bringing down the temperature by one to two or three degrees in an hour or so.

Chill and rigor.—Rigor with chill occurred in every case of cholera which received an intravenous transfusion, no matter what the composition of the transfused fluid was, *etc.*, human plasma, or its new substitutes like Pyrrolidin and Dextran, gelatin solution, or the usual solutions of saline and glucose. Usually rigor occurred only once in a way and this again sometime after the start of transfusions. It does not usually recur at any other time during the intravenous drip which is the method used in our ward. After the lowering of the specific gravity of the blood the intravenous needle or the canula is taken out. Some of the cases however, might require resumption of transfusion, when rigor started again. We had 57 such cases in our A series of 1953. Rigors may be observed in some cases even after the rectal administration of saline (11 cases).

Our usual practice in controlling the distress and duration of the rigor comprised of adrenalin chloride $\frac{1}{4}$ cc. subcutaneously along with hot water bag to the feet and blankets. The transfusion was kept on, the rate of the drip being however, greatly slowed down owing to the muscular contractions of rigor. In spite of the possible role of adrenalin in the pathogenesis of pulmonary oedema, we have found that it cannot be replaced by any other drug for controlling the distress of rigor in cholera.

Regarding the pathogenesis of this very constant phenomenon of rigor, it must be said that more work requires to be done. That the presence of pyrogens is not the only factor is shown by the fact that as already recorded *supra*, it occurs in every case where intravenous transfusion was started, regardless of the composition of the fluid including Pyrrolidin solutions, gelatin solutions, plasma and saline prepared with pyrogen-free double-distilled water.

Hence the mechanism of production of chill and rigor in cholera seems to be quite different from that which occurs after exposure of the body to cold when there is a direct cooling of the blood or when it occurs after the injection of pyrogens. There is a great slowing and retardation of the circulatory mechanism occurring after the loss of fluid, electrolytes and the consequent shock. As soon as the circulatory mechanism is revived by transfusion, it is possible that some of the metabolic products might find their way into the circulation and cause chill and rigor. In this connection the work of Perera (1941) suggests that there exists a centre in the posterior region of the hypothalamus, the stimulation of which produces rigor. Perera has also suggested that the afferent pathway for the chill-mechanism occurring in diseases is different, from that due to cold, and that it is separate from the pyramidal tract. The occurrence of rigor after administration of transfusions, no matter what the nature or the purity of the fluid, suggests that a common denominator, perhaps of a chemical nature stimulates the production of rigor in cholera.

Cholera with simultaneous or superimposed lung infection.—Sometimes a case with choleraic symptoms would be admitted with simultaneous broncho-pneumonia. We had 5 such cases. Sometimes the acute choleraic symptoms might be followed by the development of broncho-pneumonia (3 cases) or even lobar-pneumonia (2 cases). We considered it very hazardous to push intravenous transfusions in such cases, for fear of aggravating the symptoms or the development of acute pulmonary oedema, and so preferred the rectal route. In one case (out of 10 cases of lung infection), we ventured to give saline by intravenous drip, very slowly with ultimate recovery through a stormy clinical course.

In all the above cases we tried one capsule of Terramycin orally every two hours, with definite improvement in the lung and clinical condition. Out of a total of 10 cases amongst the 719 (series A) 8 patients recovered with the above procedures. One of the fatal cases and four of the cured ones showed the presence of *Inaba vibrios* on stool culture.

Pulmonary oedema.—The great bug-bear of intravenous saline therapy in cholera is the development of acute oedema of the lungs, although the exact mechanism of the pathological process in cholera is obscure. This difficult complication is however fairly common during cholera epidemics. Pulmonary oedema was clinically observed in some degree or other in 51 or nearly 7% of our 719 cases of 1953 with a mortality of 17 or nearly 34% of cases developing this complication. Of the fatal cases 12 showed cholera vibrios on stool culture. Of the remaining 34 cases, 20 were culture-positive.

The patient usually comes in an advanced stage of shock and dehydration; intravenous transfusion is started in order to

save life. Soon the patient becomes dyspnoëic and restless; fine crepitations are heard, first at the bases of the lungs, then throughout both the organs. We have found that if the intravenous administration of saline is pushed on at this stage, it will cause an acute pulmonary œdema to flare up throughout the entire lungs. If however, the process comes on more gradually, invasion of the lungs by secondary pathogenic organisms further aggravates the picture. The other clinical signs of acute left heart-failure are either absent or difficult to find either in the acute stage or during convalescence and could be discerned early in only 2 of the 51 cases. The administration of morphine and/or atropine is often worse than useless owing to the action of these alkaloids upon the kidney and urinary secretion. Treatment is started with postural half-reclined position by back-rest and oxygen inhalation. To combat dehydration and shock the only thing that helped some of our cases in this stage was human plasma given very slowly in small doses of 250 cc. along with 10% glucose solution not more than 100 cc. being given at a time, intravenously. As a precaution against superimposed lung infection, which commonly occurs at this stage and which greatly aggravates the condition, Terramycin was given, one 250 mg. capsule every 2 hours. Along with these, we have administered Priscol (2-benzyl-imidazoline hydrochloride) intravenously or intramuscularly twice daily, (10 mg. in 1 cc. to adults). The drug is credited with having a specific action for the prevention of lung œdema by acting on the lung capillaries (Wheatley 1952). The combination of the above procedures (*viz.*, back-rest, oxygen, human plasma and glucose in small doses, *plus* Terramycin and Priscol) has saved at least six of our cases, which would otherwise have succumbed.

Case report.—A Hindu girl, aged 10 and her brother aged 8 were admitted at 9 a.m. on 4-4-'53 with a history of rice water stools (8 times) vomiting and anuria. The eyes were sunken and the tongue very dry. The pulse was barely perceptible and the sp. gr. of the blood was 1065. The examination of the stools 15 minutes after admission showed an alkaline reaction, vibrios and pus cells under the microscope and later the Inaba vibrios on culture. Transfusion was started, at first with hypertonic saline (1 pint) and later with 5% glucose in normal saline. The patient vomited out a living round worm. The vomiting was allayed by a tablet of Avomine. After 4 pints of fluid had been administered by slow intravenous drip, the sp. gr. of the blood came down to 1060 when the transfusion was stopped at about 3 p.m. About this time, the patient exhibited restlessness and dyspnoëa. The rate of respiration was 45 and the heart rate about 140 per minute, fine crepitations were heard at the bases of the lungs, and back-rest with oxygen was started. At 4 p.m. $\frac{1}{2}$ amp. of Priscol (5 mg.) was given intramuscularly, and a Terramycin capsule 250 mg. was repeated 2 hourly. During the night the

patient's condition became worse and crepitations and bubbling rales extending practically all over both lungs. At 9 p.m. another $\frac{1}{2}$ amp. (5 mg.) of Priscol was given intramuscularly, and Phenergen 25 mg. (Chatterjee 1952) in the muscles of the kidney region at 9 p.m. and 2 p.m. Stools during day and night 5 times, urine—2 oz. at 6 a.m. on 5-4-'53. At 8 a.m. glucose 25 cc. I.M. At 9 a.m. the patient's condition was found to have surprisingly improved. The heart-rate was about 125 per minute, respiration 30 per minute and dyspnoëa appreciably less. Priscol (5 mg.) I.M. was repeated morning and evening in the same dose. On 6-4-'53, the patient's general condition appeared more normal; the pulse had greatly improved and the rate was 120 per minute, respiration 24 per minute. Henceforward the patient's convalescence was uneventful. She was discharged clinically cured on 18-4-'53. The important question of pulmonary embolism and infarct in cholera will be dealt with in a subsequent paper.

Cholera superimposed on chronic malaria.—During the epidemic season, cholera might attack any person including one suffering from chronic malaria. We had 7 such cases in 1953 all of whom had an enlarged spleen and three showed malarial parasites in blood smears, *plasmodium falciparum* in 2 cases and *plasmodium vivax* in only one. Of the 7 cases of clinical malaria 3 showed the cholera vibrios on stool culture. The usual procedures of lowering the high febrile temperature by means of rectal wash, sponging, ice bag and Cryogenine were not able to maintain the lowered temperature for long and the fever shot up again during the convalescent stage with or without chill and rigor. Administration of Chloroquin (dose 300 mg. tablet, one thrice daily in 3 cases) Paludrine (0.3 g. tablet thrice daily in 2 cases) controlled the temperature.

Algid malaria.—A patient suffering from a malignant tertian malarial infection might occasionally be brought into the Cholera Ward in a stage of collapse, often with vomiting and hæmorrhagic stools, a high rectal temperature and *plasmodium falciparum* in the blood. We had one such case during the 1952 epidemic; he was aged 30 and had profuse hæmorrhagic stools, with vomiting but without complete anuria. The spleen was palpable one finger below the costal margin, anterior axillary line and *plasmodium falciparum* was found in the peripheral blood. Stool culture was negative for the cholera vibrio. The patient had a fatal termination within 24 hours of admission, inspite of intravenous quinine.

Parotitis.—Occurred unilaterally in 4 cases and bilaterally in 2 cases. Terramycin (250 mg. every 2 hours) was given on the first appearance of this symptom. Improvement occurred in all except one, a female aged 30 who developed encephalitis and died. Cholera vibrio was isolated from the stools in this as well as from the two other cases.

Herpes:—Herpes labialis is a common and troublesome infection and was seen in 54 (about 5%) out of 1093 cases of 1953. Except 3 cases seen on the first day of the disease the great majority (51 cases) were seen after their transfer into the convalescent ward. In most of these cases these eruptions were seen along the line of the angle of the mouth or the upper lip unilaterally or bilaterally. One case of Herpes zoster was seen, the eruptions appearing on the right side of the chest. In another case there was an involvement of all the three branches of the right trigeminal nerve, the papules and the vesicles appearing on the forehead, the lips, the chin and even behind the ear. In all the cases, treatment was started within 24 hours of appearance of symptoms. Terramycin was given in 20 cases (250 mg. two hourly). Although Terramycin did not abort or prevent the appearance of the eruptions, they healed up comparatively rapidly within 4 to 7 days, leaving no scars behind. The same was true of Pitressin ($\frac{1}{2}$ cc. twice daily—10 cases); but to a less extent with vitamin B complex (10 cases) all given parenterally. The last preparation, checked the progress of herpes, but it took about 8 to 12 days for the lesion to heal.

Other inflammatory complications:—The question of sepsis of the transfusion wound is very important. In many cases, a skin incision is done and a leg vein opened up for the purpose of introducing Roger's canula. Direct puncture of the veins of the elbow or hand by means of a 10 cc. syringe needle is convenient in cases which do not show much restlessness and in whom the specific gravity does not go beyond 1064. The repeated soiling of the rubber sheets, and the great restlessness of some of the patients who often throw out the transfusion needle and dislocate the dressing are indeed difficult problems for the nursing and house staff to deal with, during the peak of a cholera epidemic.

Consequently the infection of the transfusion wounds and phlebitis, suppurative lesions like cellulitis and abscesses were not uncommon. The usual treatment consisted of sulpha dusting, intramuscular penicillin with or without streptomycin, antiphlogistine compress, vitamin C and incision in cases of suppuration.

Anterior tibial syndrome:—We came across 3 cases during the last two years which exhibited symptoms simulating "Anterior Tibial Syndrome" described by Carter *et al* (1949). In two patients it was a sequela of transfusion into the veins of the legs. Our patients came to the out-patients' department two to three months after their discharge from the Cholera Ward. The front part of the leg was somewhat shiny and glistening. The muscles of the anterior fascial chamber of the legs were tender and painful and the skin showed hyperaesthesia. There was also difficulty in walking. Conservative treatment was advised consisting of combined penicillin and streptomycin and local hot compress. We could follow

up the result only in one case which was apparently cured within 3 weeks.

Discussion.—Some of the febrile sequelæ and complications of cholera might lead to fatal results although the patients had survived the severe initial stages. The pioneer work of Rogers (1913) gave to the world a more or less complete treatment of cholera including the major symptoms and their sequelæ as well as many minor symptoms although his therapeutic armamentarium was naturally more limited than at present. Some of the drugs with the possible exception of Cryogenine introduced later on for the treatment of various other conditions, appeared to yield very helpful results in our hands in the treatment of some of the febrile and inflammatory complications of cholera. (*cide statement below*).

	ASSOCIATED CONDITION	DRUGS USED
For febrile and inflammatory complications.	1. Hyperpyrexia	... Cryogenine
	2. Pulmonary Oedema	... Priscol
	3. Bronchopneumonia	...
	and Lobar pneumonia	... Terramycin
	4. Malaria	... Modern anti-malarials and quinine
	5. Parotitis	... Terramycin.
	6. Herpes labialis	... Terramycin, Pitressin, Ergometrine tartarate
For more serious complications	7. Other inflammatory infections	... Penicillin and Streptomycin
	1. Diarrhoea	... Coleus aromaticus (Chatterjee 1953 ^a)
	2. Vomiting	...
	3. Kidney failure and Uræmia	... Avomine. (Chatterjee 1953 ^b) Vitamin C intravenously with antihistaminics intramuscularly in the kidney region, (Chatterjee 1952).

Summary.—The management of pyrexia of different degrees that occur during the early stages as well as during the stage of reaction in cholera cases, varies with the height of the temperature. Our experience with the use of different procedures is set forth in detail. The therapy of some of the other common febrile complications and sequelæ with the help of drugs available at present, is also given.

Our best thanks are due to the authorities of the Chittaranjan Hospital for the facilities afforded to us for the research investigation.

References:

1. Carter, B.A., Richards, R. L., Zachary, R.B., (1949)—*Lancet*, 2: 928.
2. Chatterjee, H. N., (1952)—*Lancet*, 2: 90.
3. Chatterjee, H. N., (1953a)—*Lancet*, 2: 1045.
4. Chatterjee, H. N., (1953b)—*Lancet*, 2: 1063.
5. Perera, G.A., (1941)—*Arch. Int. Med.*, 68: 259.
6. Rogers, Sir Leonard, (1913)—*Cholera and its Treatment*, London.
7. Rogers, Sir Leonard, (1921)—*Bowel Diseases in the Tropics*, Oxford Med. Publications.
8. Whentley, D., (1952)—*Brit. Med. Jour.*, 1: 1174.

HANDLING THE PATIENT WHO THINKS HE HAS HEART TROUBLE

Few diseases frighten a man so much as heart disease. Just let a man get a pain in what he thinks is his heart, or be turned down for life insurance, or hear the doctor describe an abnormality in the electrocardiogram, and he may become a badly frightened and panicky individual. Then, unless some wise doctor quickly reassures him, he may keep worrying. If he is hypochondriac by nature, he may spend his life going from one physician to another. In the worst of these cases of cardiac neurosis, the patient is slightly psychotic.

Cardiologists tell us that a high percentage of cardiac neuroses are produced by unwise statements of physicians. For instance, ten years ago, a man of 40 received some very disturbing news and became much upset. He was rushed to a hospital where electrocardiograms were made and a cardiologist was called in consultation. Nothing wrong could be found with the man's heart. However, the family physician was so sure that his patient must have had a "Heart-attack" and he was so anxious to play safe that he ordered drastic restrictions of all the man's activities. The impact of this diagnosis and advice brought years of suffering. That the advice was wrong is evident from the fact that through the years the man has never shown any symptoms or signs of cardiac weakness.

No physician will ever cure cardiac neuroses so long as he hedges or keeps a line of retreat open for himself. If he can't find anything wrong with a man's heart, and if the fellow can walk rapidly along the street without distress, the doctor should say "Your heart is normal. Go ahead with your life as usual."

Often, the man one sees with great fear of heart disease got it the day when a friend or brother or uncle dropped dead. Having this information can help a physician greatly in making a diagnosis of neurosis.

Many of the men one sees who have recovered from a coronary attack are suffering only from fright and medically imposed restrictions, not from the little scar produced by the occlusion. Before they can be got back to work, they have to be convinced that their hearts are not seriously injured and that they are likely to live another ten years or more.

One type of man greatly needs intelligent help. He is the one who has been having attacks of typical angina pectoris due only to narrowing of a coronary artery. He has a normal electrocardiogram. What keeps him upset is that some physicians tell him that his electrocardiogram is perfectly normal and that he has no heart trouble; others tell him that he has had a thrombosis. Whom can he believe?

Usually a Master 2-step test will show the typical signs of a narrowed artery; then the man will know where he stands. The mechanism of his angina and the reasons for previous disagreements among doctors should be simply explained to the patient. Then he should be told to slow up the moment he feels the pain. Often a cardiologist will encourage such a man by telling him that the longer he lives with the narrowed artery, the less his chance of dying if the artery eventually plugs up. Why? Because by then a good collateral circulation should be established, which can greatly cushion the force of complete thrombosis if it comes.—(Dr. W. C. Alvarez, Editor-in-chief in *Mod. Med.*, 1-10-1954).

THE SPLEEN AND SPLEEN EXTRACTS IN MALIGNANCY*

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A concept which Woglom (1947) has declared to be "immortal but mistaken" is that the spleen is seldom the site of spontaneous or metastatic tumours. Partly because of this belief and partly because the reticulo-endothelial system is known to be concerned with immunity, the spleen has received more attention than all the other organs put together, in the search for the understanding of neoplastic change. As a matter of fact, van Hanseman (1912) found that the spleen is frequently the site of secondary tumours, and similar reports have appeared from time to time indicating that gross lesions could be detected in 2.5% of the cases studied. Further, this figure is about doubled when microscopic findings are included. Poche (1950) studied biopsy material from human patients over a four-year period and found metastases to the spleen amounting to 4.9% of all tumours studied, mostly in the form of localized nodes. On the other hand, Woglom (1919) believed that in mice, at least, transplanted tumours did not metastasize to the spleen since he could not produce tumours by transferring the spleens of transplanted tumour hosts to a new series of mice. From these and other reports, it is evident that although the spleen is not a favourite site for metastases, it can nevertheless support neoplastic growth, and, in fact, it has been shown by Frankl (1911), Goldmann (1911), Levin (1913) and Oshima (1923) that transplanted tumours can grow quite easily in this organ.

The relationship of the spleen and immunity to transplanted tumours was considered by Woglom (1929) in an extensive review. His analysis of the experiments reported up to that time showed that there was no definite proof that the organ plays an important part in immunity against transplanted tumours. The latest review of Hoepke (1952) cites a number of papers bearing on this problem, including that of Druckery (1938) who considered the spleen, and in fact the entire reticulo-endothelial system, as totally meaningless in this connection. However, other authors whose work will be reviewed below, on the basis of microscopic examinations, have shown that the spleen undergoes extensive changes, including the production of many types of defence cell, following tumour implantation.

One of the ways of testing the possible immune property of the spleen in carcinogenesis is to pre-treat the tumour host with splenic extracts or spleen brei, prior to implantation of a tumour or the

*Specially contributed to the ANTISEPTIC.

application of known carcinogens. Beck (1932) injected mouse carcinoma brei directly into the spleen of laparotomized rabbits. Fourteen days later, these spleens were removed, dissociated in saline solution and injected into white mice which were then implanted with tumour tissue subcutaneously. A certain percentage of the spleen-treated animals survived the controls. The author ascribes this to a secondary effect through heightening of a non-specific immunity. Furthermore, Yun (1950, *a, b, and c*) reported that pre-mice painted with methylcholanthrene and also that extirpation of the spleen from "A" strain mice furthered the development of methylcholanthrene tumours.

Another approach to this problem is to combine spleen tissue with tumour tissue before implantation. Sugiura (1938) found that aqueous extracts of several organs of the rat had a depressant action on growth of mouse sarcoma 180 and on Flexner-Jobling rat carcinoma when, prior to implantation, the tumour fragments were stored in the extracts at 4° to 5°C, the greatest inhibition resulting from storage in macerated spleen. MacFarlane *et al* (1948) obtained similar results by storing fragments of dBrB adenocarcinoma in aqueous extract of beef spleen at 5°C. before implantation into mice. She reports also cessation of mitosis *in vitro* with degenerative nuclear changes under the same experimental conditions. Earlier investigators who made similar observations are Frankel (1915), Beck (1932) and Waterman (1931); Mottram and Russ (1917 and 1918); Donati (1914); and D'Agata (1917) working with rat sarcomas and carcinomas. Oshima (1923) appears to be the only investigator who has not seen inhibitory action when spleen tissue was mixed with tumour before inoculation.

In addition, a very considerable amount of work has been done on the inhibitory effect of spleen extract against established tumours—for example, the experiments of Lewisohn (1938 and 1940) on Sarcoma 180 and mammary carcinoma of the mouse whereby 60% of implanted tumours regressed after injection of alcoholic extract of beef spleen. No inhibition of spontaneous tumours of the mouse could be obtained by this method, but when Lewisohn extracted the spleens of mice whose tumours had been sloughed, he was able to obtain regression of 30% of spontaneous mammary carcinomas following daily intravenous injection of the mouse spleen extract. Similar results were obtained in carcinomas of the rabbit by Nutini (1951). Tinozzi (1932) carried out a long series of experiments in which heteroplastic and homoplastic transplantations of spleen were made into sarcoma- and carcinoma-bearing mice. The first reaction appeared to be an increase in growth of the tumours followed by a period of arrest and finally a sloughing off of the transplanted neoplasm. In only two cases out of a large series of animals tested was there failure to heal completely. When Braunstein (1913)

implanted both mice and rats with suitable tumours and extirpated their spleens he was able to cause the sloughing of transplanted tumours of the mouse and rat by injecting a brei made from these organs.

Other investigators have observed the proliferation of tumour tissue and spleen tissue *in vitro*. Fischer (1925) found that Rous sarcoma could be grown very well in the presence of spleen tissue. However, Pollard and his collaborators (1953) have recently demonstrated to their own satisfaction that spleen tissue exerts a controlling effect on rodent tumour tissue *in vitro*. While spleen tissue from the host from which the tumour was taken, exerted no destructive effect on the tumour *in vitro*, similar tissue from the spleen of a rat that had sloughed a tumour had a rapid destructive effect. Spleen tissue from a genetically unrelated rodent likewise had a destructive effect on the tumour tissue after a latent period of four to five days. Their interpretation is "that the tumour or its provocative agent may be only slightly exogenous to the host and that a genetically-linked immunological defect on the part of the host thus permits progressive growth of the tumour."

Splenic hypertrophy has often been described in tumour-bearing animals (see Woglom's review of 1929). Woglom himself (1919) attempted to settle the question by measuring the spleen of a large number of mice through laparotomy wounds, immunizing the animals, inoculating them with tumour to test their immunity, and measuring the spleen again when the mice were killed after suitable intervals. Not the slightest relationship could be discovered between splenic enlargement and resistance to tumour implantation. Also, Walther (1943) made a study of human material and in 2,842 cancer patients found that the spleen weight was always normal. However, as Woglom himself states, this does not prove that the spleen is not concerned with the development of resistance, but only that its enlargement could not be invoked as proof.

Roffo and Janovsky (1938) saw in 27% of their rats an increase in reticuloendothelial cells of the spleen shortly after implantation of a tumour. According to Hæpke (1952), Fischer and Wachsals (original reference not given) observed a cellular reaction in and around tumours including the appearance of leucocytes, lymphocytes, plasmocytes and eosinophiles. This reaction subsided with the regression of the tumour. In Syrian hamsters Kelsall (1949) observed extra-medullary haemopoiesis in the spleen 16 days after implantation of a mixed cell sarcoma. Walther's microscopic studies (1943) led him to state that the histological picture of the spleen following bacterial infection and following tumour implantation is "absolutely identical" and is only a question of degree. A similar observation had been made by Kuczynski (1921) who compared the changes found in the spleen of cancer mice to those occurring in mice infected with streptococci of low virulence.

In an attempt to ascertain whether the spleen actually has any effect on the growth of tumours, still other investigators have turned to splenectomy. One of the first to do this was Braunstein (1933) who prepared a general review of the subject. His experiments indicated that the development of active resistance of the spleen against implanted tumour cells was hindered by splenectomy or at least that regression of tumours was impeded, and Lewin and Meidner (1912) showed that tumours grow more rapidly in splenectomized rats than in controls. Essentially the same findings were reported by Brancati and Killing (1912-1913) who observed that transplanted chondroma of the pigeon grew more rapidly if the spleen was removed before implantation and that benign tumours became metastatic after splenectomy. Bruda (1928) succeeded in transplanting sarcomas and carcinomas from mice to rats provided the rats were first splenectomized. This could be done two or three weeks after implantation but was unsuccessful if the spleen had been removed four to six weeks previously. The author assumes that in such a case the other parts of the reticulo-endothelial system have taken over the function of the spleen in resistance to introduction of tumour tissue from foreign species.

Meanwhile, throughout the years, the efficacy of splenic extracts in clinical application has been both affirmed and denied. Braunstein reviewed the work up to 1933 and adds data from his own observations of improvement of 24 human cancer patients (previously operated on or irradiated) when treated with splenic preparations. Some fifty references bearing on the subject are included in his bibliography. However, in a recent review, Gellhorn (1953) states, without giving supporting references, that tissue extracts have been "uniformly useless" in clinical handling of neoplastic disease. The most recent studies have been by Watson (1951, 1952, *et al.*, 1949) who reports that intravenous injection of beef spleen extract into patients with moderately advanced malignancy has caused subjective and objective improvements, with regression of the tumour that had in several cases persisted for more than a decade. Regression of 20 out of 21 human basal cell epitheliomas, 14 of them complete, in patients who had received no treatment other than injections of human spleen and liver extracts was reported by Amersbach, Walter and Sperti in 1946.

In our own laboratory, the effect of injections of beef spleen extract on the cells of mouse tumours was studied in the solid form of sarcoma 37 and in small methylcholanthrene induced tumours (Diller and Watson, 1949). Complete regression of such tumours followed daily injections of beef spleen extract. Degenerative changes resulting in shrunken bean-shaped nuclei and vacuolate cytoplasm were observed though no damage could be detected in normal tissues of the treated mice. MacFarlane and collaborators (1948) reported similar degenerative changes when cells of certain

spontaneous tumours were stored in concentrated aqueous spleen extract for varying lengths of time at 5°C., which led them to believe that spleen extract could have a direct cytolytic action. More recently, Katzberg (1952) stored fragments of sarcoma 180, of spleen, kidney and liver of normal and tumour-bearing Rockland and *dba* mice, and of twelve-day chick embryo liver at 37°C., in media containing Rockland mouse spleen extract and Rockland spleen pulp. The splenic preparations caused cytolysis in all tissues over a period of 48 hours. The most sensitive tissue was that of sarcoma 180 and the most resistant was normal Rockland mouse tissue.

Diller (1953) studied the effect of beef spleen extract on the ascites form of sarcoma 37. Inhibition of mitosis, which persisted for 48 hours, followed a single 1 cc. injection of beef spleen extract directly into the peritoneal cavity in contact with the ascites tumour cells. That the inhibition of mitotic processes is not confined to neoplastic tissue in contact with splenic extract was indicated by Fardon (1948) who reported partial inhibition of mitosis *in vivo* in the crypts of Lieberkuhn of mice injected with beef spleen extract; and Hoffman (1940) found that extract of kidney, spleen, liver and lung definitely inhibited growth of fibroblast colonies *in vitro*.

Rohdenburg and Nagy (1937) showed that *both* inhibitory and stimulatory materials are present in rabbit and human spleen. The inhibitory agent was found in the initial acetone-soluble fraction. That the aqueous extract could be both stimulatory and inhibitory was also observed by us in the case of solid tumours (Diller and Watson, 1949) where it was found that too small a dose sometimes resulted in increased mitotic activity, together with an increase in the number of polypoid cells in sarcoma 37. Furthermore, in our experience, some of the normal tissues of the treated mice were stimulated to mitotic activity by doses that were capable of causing regression of solid tumours. This led us at that time to postulate that the suppressive effect on tumours was probably due, not to direct cytolysis, but to stimulation of the haemopoietic organs and the adrenal cortex.

White blood cell counts of non-tumour bearing mice and mice bearing solid sarcoma 37, injected with spleen extracts showed that daily injections of 1 cc. of 50 mg./per cc. concentration had no significant effect on the blood picture of normal mice but that the white cell count rose 100% (from 15,000 to 30,000) in the first three days of treatment of tumour-bearing mice. Large numbers of lymphocytes were found at the site of the tumour three days after initiation of treatment at the time the tumour began to regress (Diller and Watson, 1949). Cook and collaborators (1951) attempted to determine the mechanism by which tissue extracts operate in growth processes and reported that spleen extract has an inhibiting effect on certain enzyme systems known to function in cellular respiration. Aqueous homologous cell-free preparations were

the most effective in stimulating oxygen-uptake. Water-soluble spleen extract caused depression in various concentrations except those from 25-10 mg. per cc, which produced stimulation. In general, neoplastic tissues showed greater changes than normal tissues. The most serious drawback to an understanding of the action of the spleen lies in the fact that its chemical study presents a very complex and formidable task. The work of Jacobson (1949) on the protection afforded by spleen-shielding during irradiation has given a new impetus to such studies—particularly on the part of radiation biologists working in atomic laboratories. In this connection, the recent work of Lorenz (1953) indicates that spleen-shielding and bone marrow injections effectively protect mice against X-ray inductions of lymphoid tumours. When C57 black mice were given four doses of 225r without spleen protection, 70% of the mice developed lymphoid tumours but after the same amount of irradiation in a spleen-shielded group, only 3% of the mice developed tumours.

The experiments reviewed in this article would appear to indicate that there are substances present in splenic extract, which are capable of suppressing mitosis for varying periods of time, of producing cytolysis in tumours, and at the same time stimulating the haemopoietic system of the host.

Summary.—The voluminous literature on the possible role of the spleen in tumour immunity is reviewed, together with indications of the effect of splenectomy, implantation of additional spleen tissue, and reciprocal transplantation of homologous and heterologous spleens on animal tumours. Splenic extracts have been found to inhibit the growth of certain types of experimental tumours, even to the point of complete regression. Reference is made also to the results of clinical study of spleen therapy in human malignancy. The effect of such extracts on mouse tumours has been studied at the cellular level in the author's laboratory and it has been found that there are substances present in beef spleen extract capable of suppressing mitosis for various periods of time, of producing cytolysis in tumours, and at the same time stimulating the haemopoietic system of the host.

References:

1. Amersbach, J. C., E. M. Walter and G. S. Sperti, (1946)—Arch. Dermat. and Syph., 54: pp. 119-132.
2. Beck, Hertha, (1932)—Zeit. f. Krebsf., 36: pp. 617-625.
3. Brancati, R. and Killing, (1912-13)—Tumori, 2: p. 74.
4. Braunstein, A., (1913)—Zeit. f. Immunitätsfor. u. exper. Therap., 18 (Part I): p. 330.
5. Braunstein, A., (1933)—Zeit. f. Krebsf., 39: pp. 322-357.
6. Bruda, B. E., (1928)—Klin. Woch., 7: p. 27.
7. Cook, Elton S., J. C. Fardon and Sister Jeanne de Lorraine, (1951)—Acta Unio Int. Contra Cancerum, 7: p. 552.
8. D'Agata, G., (1917)—Tumori, 5: p. 200.
9. Diller, I. C., (1953)—Abs. Marine, Biol. Lab. Annual Meeting, Biol. Bull., Oct. 1953 (in press).
10. Diller, I. C. and G. F. Watson, (1949)—Growth, 13: pp. 27-44.
11. Donati, A., (1914)—Arch. per le Sci. Med., 38: p. 497.
12. Druckrey, Hermann, (1938)—Zeit. f. Krebsf., 47: pp. 112-125.

References—(Contd.)

13. Fardon, J. C., J. E. Prince and N. Berning, (1948)—Cancer Research, 8: pp. 531-533.
14. Fischer, A., (1925)—Arch. f. exper. Zellforsch. 1: p. 355 and p. 361.
15. Frankel, S. and E. Furer, (1915)—Wien klin. Woch., 25: p. 1438.
16. Frankl, O., (1911)—Gynak. Rundschau, 5: p. 531.
17. Geilhorn, Alfred, (1953)—Cancer Research, 13: 3, pp. 205-215.
18. Goldmann, E. E., (1911)—Beitr. z. Klin. Chir., 72: p. 1.
19. Hoepke, Hermann, (1952)—Zeit. f. Krebsf., 55: pp. 378-424.
20. Hoffman, R. S., (1940)—Growth, 4: pp. 361-376.
21. Jacobson, Leon O., E. K. Marks, E. O. Gaston, M. Robson and R. E. Zirkle, (1949)—Proc. Soc. Exp. Biol. Med., 70: 4, pp. 740-742.
22. Katzberg, Allan A., (1952)—Growth, 16: pp. 15-25.
23. Kelsall, Margaret A., (1949)—Anat. Rec., 105: 2, pp. 273-280.
24. Kuczynski, M. H., (1921)—Virchow's Arch. f. Pathol. Anat., 232: p. 300.
25. Levin, I., (1913)—Jour. Exp. Med., 18: p. 397.
26. Lewin, C. and S. Meidner, (1912)—Zeits. f. Krebsf., 11: p. 364.
27. Lewisohn, R., (1938)—Surg. Gynec. Obst., 66: pp. 563-575.
28. Lewisohn, R., R. Leuchtenberger and D. Laszlo, (1940)—Surgery, Gynecology and Obstetrics, 71: pp. 274-285.
29. Lorenz, Egon, Charles C. Congdon and Delta Uphoff, (1953)—Abs. Proc. Am. Assoc. Cancer Res., April, 1: 1.
30. MacFarlane, E. W., N. G. Schmuck and L. V. Nadeau, (1948)—Cancer Research, 8: pp. 438-448.
31. Mottram, J. C. and S. Russ, (1917-18)—Proc. Roy. Soc. London, Ser. B., 90: 1.
32. Nutini, Leo G., Dorothy Letang and Frank X. Blondo, (1951)—Acta Unio Int. Contra Cancerum, 7: 794.
33. Oshima, F., (1923)—Gann, 17: 8.
34. Poche, Richard, (1950)—Zeit. f. Krebsf., 57: pp. 95-104.
35. Pollard, Morris and Robert Russell, (1953)—Texas Rep. and Biol. Med., 11: pp. 48-58.
36. Rosso, A. H. and M. Janovsky, (1938-39)—Pol. Inst. Med. exper. Canc. Buenos Aires 15, 107-119, Abs. Zeit. f. Krebsf., 49: p. 355.
37. Rohdenburg, G. L. and S. M. Nagy, (1937)—Am. J. Cancer, 30: pp. 512-516.
38. Sugimura, K., (1938)—Am. J. Cancer, 32: p. 126.
39. Tinozzi, F. P., (1932)—Zeit. f. Krebsf., 36: p. 372.
40. v. Hansemann, D., (1912)—Anat. Teil. Berl. Klin. Woch., 49: 8.
41. Walter, H. E., (1943)—Schweizer medizinische Woch., 73: p. 907.
42. Waterman, N., (1931)—Zeit. f. Krebsf., 34: pp. 337-347.
43. Watson, George F., (1951)—Cancer Research, 11: p. 288.
44. Watson, George F., (1952)—Abs. Cancer Research, 12: 4, p. 301.
45. Watson, G. F., I. C. Diller and N. V. Luewick, (1947)—Science, 106: p. 348.
46. Woglom, W. H., (1919)—J. Cancer Res., 4: p. 281.
47. Woglom, W. H., (1919)—Cancer Review, 4: 3 and 4, pp. 129-214.
48. Woglom, William H., (1947)—General Review of Cancer Therapy. Approach to Tumour Chemotherapy, pp. 1-10.
49. Yun, H. Sun, (1950)—Three Abstracts in Proc. Fifth Int'l Cancer Congress. Paris.

PAINLESS INJECTIONS

'A new rapid-acting and efficient surface anaesthetic' has been developed by P. A. Trotter of King's College Hospital Dental School (British Dental Journal, August 17, 1954, 97: 94), which is claimed to abolish the pain of intra-oral injection in dentistry. This takes the form of an ointment, the formula of which is:—'Xylocaine' 5% w/w, Hyaluronidase 0.0-15%, Water-miscible base to 100.

Applied to the mucous membrane the action of the ointment is almost instantaneous. It has been used on 500 patients before they received an injection, 'and it eliminated the prick of the needle.' It is also reported that 'using the xylocaine/hyaluronidase ointment deciduous teeth have been extracted, abscesses have been incised and an eruption cyst in a child aged 9 months operated upon—all without any pain.' In addition, it has been used with success 'to reduce or eliminate pain in cavity preparation.'—(Practitioner, Oct. '54).

The man who does not do more work than he is paid for, isn't worth what he gets.—(ABRAHAM LINCOLN).

THE CURABILITY OF STOMACH CANCER

The curability of cancer is of major importance to mankind, as cancer of the stomach remains one of the commonest causes of death, if not the chief one.

The greatest improvement in the past 70 years has come about through the extension of surgical aid to ever-increasing numbers of patients. There has also been a significant improvement in the operative mortality-rate, which has been reflected in improvement of the five-year survival rate. All past effort to attain early diagnosis and extend surgical treatment still leaves us with a five-year survival rate of about 12 to 17 per cent (recorded by the Mayo Clinic).

The majority of patients who come to operation for cancer of the stomach have overt symptoms. It is not known what percentage of lymph nodes is involved or how much of the blood stream has been invaded by gastric cancer during the months, following the appearance of the first few malignant cells; in resected specimens, 52 per cent of the lesions show evidence of invasion of the tumour into blood vessels. Tumour cells appearing in blood vessels do not necessarily mean metastasis to the blood stream but the correlation may be high. Lymph-node spread is present in over 60 per cent of specimens resected with intent to cure. If only a few nodes are involved, cure may be obtained.

Early diagnosis remains as a completely untried solution to the problem. The problem is two-fold. First, an actual decrease in the overall lag in time between the onset of disease and the operation, must be accomplished; second unequivocal evidence as to the effect of early diagnosis on the cure rate must be obtained. The control series of early cases should actually be a series of cases collected by screening symptomatic and unselected members of the general population. With such a group of surgically treated patients, one would expect 100 per cent operability and a considerable improvement over the current 40 per cent of hospitalised patients who undergo resection for cure. Such patients are being found through cancer detection centre studies and photofluorographic surveys.

A survey of this kind was recently conducted by the Minnesota Cancer Detection Centre at the University of Minnesota. Here, for each gastric carcinoma discovered, 3 adenomas were observed. Patients with pernicious anaemia have shown a 6 per cent incidence of gastric polyps, and achlorhydric patients have shown a 3 per cent incidence. Cancer of the stomach has rarely been observed when these polyps are smaller than 2 cm. in diameter. When the polyps are over 2.5 cm. in diameter, malignant change has been demonstrated in over 50 per cent of cases.

Over the age of 65, gastric cancer is present in 1 out of every 500 men in the general population. It is three times as common in the male as in the female. No patient over the age of 30 or 40, however, male or female should be overlooked from this point of view, if vague symptoms of high abdominal discomfort are present. This was the initial symptom in over 50 per cent of patients later proved to have gastric cancer.

Cancer of the stomach may develop in a chronic gastric ulcer or may assume the appearance of one. Patients with this type of cancer, when studied as a group, seem to have a better prognosis than the larger group of unselected patients with gastric cancer. This may well be due to the fact that "ulcer-cancer patients" have symptoms earlier during the growth of the cancer and reach the operating table earlier in the sequence of their disease.

Those who would treat gastric ulcers medically should review the results of a recent 5-year follow-up of 414 cases by Cain. Only 20 per cent of these medically treated patients were permanently relieved of their symptoms. 34 per cent finally came to operation, and over 10 per cent either had cancer of the stomach or acquired it during the five years.

For many patients with gastric cancer, months or even years may be saved in instituting treatment, if physicians maintain a high index of suspicion of vague upper abdominal symptoms, and if gastric ulcer is considered primarily a surgical disease.—(*J. Internat. Coll. Surg.*, Oct. 1954 and *J. Iowa Med.*, 64: '64).

PROGRESS IN THE STUDY OF MODERN THERAPY THROUGH HALF A CENTURY*

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Fore-runners of modern therapy.—How long man has existed is a matter of speculation; but relics of manlike creatures that lived half a million years ago have been found in various places. Therapy of some kind for the cure of ill-health is as old as mankind. About fifty thousand years ago Neanderthal man flourished and we have many indications of their artistic and medical skill.

Diseases again are as old as mankind. Evidences of such diseases as we see in modern times have been found in pre historic fossil bones and soft tissues and recorded in the Palaeolithic pathology of Egypt by Ruffer. At a very early age, man discovered by trial and error some drugs which had some effect in diseases particularly drugs which prevented pain and those that caused death. Those who administered these drugs developed a special profession, the so-called medicine-men, who used not only herbs, but also practised some surgery, incantations and propitiated God for the alleviation of the sufferings.

The earliest systematic records of western medicine that we know of, were perhaps from Egypt. The papyrus Ebers was mainly medical and magical in its outlook; and the Papyrus of Edwin Smith which dealt with surgery is perhaps the oldest systematic medicine recorded 1500 years before Christ. It is believed that the Papyrus was copied from an original work which had been written about 5000 years previously by Imhotep who was a great physician and a magician as well during the period of Zoser the Pharaoh of the Third Dynasty. He introduced psychotherapy as a means of cure. How divine persons, such as Christ and Goutama Budha cured many incurable and crippling diseases is a matter of faith or speculation. Was it by herbs, by psychotherapy, by magic or by divine power, it is difficult to say.

Such religio-magical and herbal treatment was borrowed by the Greeks from the Egyptians and the temples of Asklepios—the Greek God of healing became the centre of the healing art. From the earliest period Greek medicine laid emphasis on the religious or spiritual element in its therapeutics.

Then came the great renaissance in the history of medicine with the appearance of Hippocrates (460—350 B.C.) the father of

* Specially contributed to the ANTISEPTIC.

rational medicine. He considered diseases as natural phenomena due to disordered processes in the body itself which his method of treatment attempted to remedy. Faith-healing and magic as therapeutic measures still continued in Greek temples; but Hippocrates had very little to do with them. He also did not show much enthusiasm for drugs. But even then he had an extensive pharmacopœia at his disposal and many of the drugs that he used are still in use. This period is particularly interesting as healing was by the use of drugs, and by physical means, while religious and magical procedures existed side by side.

It was recognised even by Plato in 380 B.C. that mind was very important in the process of healing. "The cure of a part should not be attempted without the treatment of the whole. No attempt should be made to cure the body without the soul, and if the head and the body are to be healthy, you must begin by curing the mind" was the opinion expressed by one of his physicians. When Hippocrates died, medicine lapsed into philosophical discussions, dogmatism and empiricism.

Next came the Roman period. Indigenous medicine in Rome was never of a high order. But the therapeutics introduced by Greek physicians had its stimulating effect. Medical scientists like Celsus (in medicine) and Dioscorides (in *Materia Medica*) exerted a profound influence on Roman medicine. Then appeared Galen whose views and influence dominated the whole of Europe for centuries. He was proficient in the use of drugs and had a rational therapeutic codex. But he was also fully aware of mind on the body; "We have proof that many serious illnesses can be cured solely by a shock administered to the mind" said he.

With Galen disappeared rational medicine from Europe for several centuries. "A period of quacks, charlatans, poisoners and magicians" followed. It is interesting to note in this connection that in 360 A.D., Basil, Bishop of Cæsarea, said that diseases were manifestations of divine purpose and action and are effected by demons and so he insisted, that the church should look with disfavour upon any kind of treatment other than prayer. This period and the one that followed are the darkest periods in the history of medicine. The teachings of Hippocrates and Galen were completely forgotten or tabooed. It is interesting to note that for a thousand years when the authorities of the churches in Europe, particularly amongst the Anglo-Saxon races, were most powerful, medicine and science in general, sank low to barbarian methods. Teutonic people were not so obsessed with visitations by spirits and demons as the cause of disease.

Then followed the great Renaissance in Europe during the fifteenth century—when Greek medicine and the teachings of Hippocrates and Galen were gradually revived. But these did not come to Europe direct from Greece. It is said that the Nestorians who

were driven from Constantinople and expelled from Church and State devoted themselves to Greek scientific writings. The Persians got these from the Nestorians and then translated into Syriac and retranslated into Arabic. It was from the Arabic books that the scientific teachings of the Greeks were translated back again into Latin and found their way into Europe after the dark ages. Light thus dawned in Europe in the 15th century and has continued uninterrupted to the present day. During these centuries of exile the Greek scientific books were greatly enriched from sources in India.

At the beginning of the Renaissance the practice was still in vogue of treating patients by suggestion and divine intervention. In the year 1511 due to the personal influence of physician Thomas Linacre with Henry VIII in England, the medical profession was organized on a sound basis; and in 1518 the king founded the College of Physicians in England by issuing a Letters Patent. Other parts in Europe had already made great advances in the study of medicine in its new setting. At this time medical teaching was based on the doctrines of Galen; and any departures therefrom were regarded as professional heresy. The theory of humours governed the practice of medicine up to almost the eighteenth century; and this had a great bearing on the therapy which followed. The therapy most in vogue consisted of purging, blood letting and drugs. In India at the beginning of the last century the doctors of the East India Company treated fevers with heroic doses of calomel; and in 1816 Dr. Halliday published some of these cases in which from 800 to 900 grains of calomel had been administered during a single attack of fever. It is a marvel that some of them survived! He quoted a monthly consumption of 13,337 grains of calomel in the General Hospital, Calcutta. Bleeding was freely resorted to. Polypharmacy was the rule in treatment, and many of the drugs and preparations were unpleasant. The College of Physicians had the power to destroy any defective drugs in apothecaries' shops. Scientific therapeutics were introduced during the reign of Elizabeth and the idea of publishing an uniform Pharmacopœia was mooted in 1586. But the first British Pharmacopœia appeared in 1618. Many medical men became eminent botanists and successful herbalists. This is how medical botany was studied by early physicians and drugs derived from plants were the normal therapeutic agents to the end of the 19th century. The apothecaries belonged to the Grocers' Company and received their technical training as apprentices; they then helped physicians in the administration of drugs and certain other forms of treatment.

A new therapy was in vogue at this time in England and many other European countries—the cure of patients by 'Royal Touch.' The gift of healing by touching with the hands was supposed to be conferred on the king at his coronation. Such diseases as

tuberculous cervical adenitis—scrofula—blindness etc. were supposed to be cured by Royal touch. It is said that King Charles II touched over 90,000 persons in 19 years; but there is no record of how many were actually cured thereby!

Medicine and therapeutics were in this state until the beginning of the 19th century. This century may be called the age of great advancement in medical science. Advances in clinical medicine and clinical methods have been many and great; and developments in the study of physical diagnosis were phenomenal. But unfortunately therapy did not progress on a par with physical diagnosis; and so this age is said to be the age of therapeutic nihilism.

Development of modern therapy:—Chemotherapy.—The last fifty years have witnessed rapid strides in modern therapy and the progress has been phenomenal indeed. Prior to 1900 very few purely synthetic compounds had been introduced in medicine as therapeutic agents; and most of the drugs were, derived from vegetable and animal sources. To Paul Ehrlich goes the credit of conceiving the possibility of a synthetic compound, lethal to the invading organism, but tolerated by the tissues of the host and of actually discovering such a drug. Chemotherapy has since paid huge dividends in the discovery of other and yet more effective chemotherapeutic agents. The problems were very tough and difficult; searches have been relentless; and research workers have been numerous and enthusiastic; and the successes achieved have been phenomenal indeed.

It was in 1910 that the famous "606" or the Ehrlich-Hata remedy was introduced to the public; which revolutionised the treatment of syphilis. The subsequent history of the development of various arsenical preparations, both the trivalent and pentavalent groups are too well known to the profession to need special mention. The introduction of the sulphonamides in 1935 by Domagk dwarfed all previous discoveries in the field of chemotherapy.

The new azo dyestuff, sulphonamidodiaminoazo-benzene (prontosil rubrum) introduced by Domagk proved to be highly protective against experimental streptococcal infections in mice. Trefoel *et al* in Paris soon showed that sulphanilamide itself was even more effective than the parent substance, i.e. prontosil the action of which was proved to be due to its partial break down in the body to sulphanilamide. The subsequent history of this wonder-drug of the fourth decade of this century relates the preparation of many derivatives of sulphonamide, based on the idea that compounds would be more active than the parent substance; and practically all consisted in the substitution of the hydrogen atoms of the sulphonamide group which alone could enhance its activity.

Thus a large number of its derivatives have been discovered, which are active against a large number of pathogenic organisms.

The most important of these are sulphapyridine, sulphathiazole, sulphadiazine, sulphamerazine, sulphaguanidine, sulphathalidine and promine. The subsequent discovery of penicillin and other antibiotics has reduced the relative usefulness of the sulphonamides which are now largely prescribed only in addition to other antibiotic drugs. Sulphadiazine and sulphamerazine now appear to be the drugs of choice in meningococcal and shigella infections; and promine promises to be of great value in leprosy. The sulphonamides, judiciously prescribed, still occupy however, an important place in modern therapy.

The first of these sulphapyridine (2-(p-aminobenzene sulphonamide)-pyridine)—a synthetic compound also known as M & B 693 has a wide range of usefulness. Its value in the treatment of lobar pneumonia is well established. Mortality and morbidity rates have been greatly reduced by its use and the incidence of complications such as post-pneumonic empyema has been lowered. When, however, empyema has actually occurred it is advisable to stop its administration as it masks the temperature, exerts a toxic effect on the patient and does not deal with the pus confined in a pocket which has to be drained. It has been observed by us that although the initial response to sulphonamide therapy in lobar pneumonia has been favourable in the sense that temperature falls rapidly to normal the pulse and the respiration rates often remain high and resolution is delayed and even death may then occur. This has been the experience of others also. I think that the incidence of unresolved pneumonic consolidation has increased recently; and how far it is due to indiscriminate sulphonamide therapy is difficult to assess. Sulphapyridine has also been very useful in pneumococcal and types of meningitis other than the tuberculous ones. It is given by mouth crushed and suspended in water or milk. A soluble sodium solution is available for intramuscular injection, 3 cc. of which contains one gramme. This can also be given intravenously every four hours by diluting 3 cc. to 10 cc. with normal saline. Intramuscular administration has the risk of causing muscle necrosis and so is better avoided. Plenty of fluids must be given, aiming at least 5 pints in 24 hours, to prevent urinary concentration and suppression of urine from crystallisation. An alkaline mixture in addition is advocated. As regard dosage, 4 tablets as an initial dose for an adult followed by 2 tablets every 4 hours for 2 to 3 days and then reduced to 1 tablet of 0.5 g. every 6 to 8 hours for a few days more are usually recommended. There is, however, a wide range of choice left to individual discretion. Children need 1 to 1½ grains for each pound of body weight per 24 hours. It is decidedly more toxic than any other drug of the group. Apart from crystalluria, drug rashes are liable to occur if the treatment is prolonged. Methæmoglobinæmia may occur and last so long as the treatment is continued; and in a hot country like ours, hæmaturia may occur particularly when the water intake is poor. This may result in

anuria and death. It has also been quite effective in gonorrhœal arthritis give in dose of 1 g. three times a day for five days. Gonorrhœa, actinomycosis, anthrax, plague and bacillary dysentery are also amenable to treatment with this drug.

Sulphathiazole.—(2-(p-aminobenzene sulphonamide)-thiazole) M and B 760. It is rapidly absorbed and quickly excreted; and has been used in streptococcal, pneumococcal, gonococcal, meningococcal and staphylococcal infections and is considered to be more effective than sulphapyridine and less toxic. Nausea and vomiting are less common. Drug rashes, conjunctivitis and drug fever are however, the most common reactions. Hæmaturia, renal failure, hæmolytic anæmia and agranulocytosis are less occasionally seen. It is put up in 0.5 g. tablets and the dosage is as for sulphapyridine. Four-two-one (4:2:1) is a useful dosage formula for the sulphonamide group of drugs; which means that the first dose may be either 4 tablets or even 4 g.; the second 2 tablets or 2 g.; and the third and the subsequent doses are 1 tablet or 1 g. every 4 hours according to the severity of the infection. Sulphathiazole may also be given in 5 per cent sodium solution intravenously in doses of 20 cc. to 40 cc. for an adult and 10 cc. for a child. Sulphathiazole, is reported to have also a definite bacteriostatic effect on streptococcus *faecalis* and staphylococcus *aureus* infections of the urinary tract, while sulphanilamide and sulphapyridine have no action on these organisms. Nasal insufflation of sulphathiazole powder has been used for diphtheria carriers with good results.

Sulphadiazine.—(2-(p-aminobenzenesulphonamido)-pyrimidine). It is more slowly absorbed and slowly excreted, and so an initial big dose can be administered and the necessary concentration can be maintained by giving the drug at longer intervals. Crystallization is less likely to occur and the danger of anuria is reduced. It is effective against meningococcus, pneumococcus, hæmolytic streptococcus, staphylococcus, Friedlander's bacillus, *B. coli* and *cl. welchii* infections. Whatever may be the experimental value of this drug, its main use has been in pneumonia, where a large initial dose of 0.1 g. per kg. of body weight is given followed by 1 g. every 4 hours by mouth until temperature has been normal for seventy-two hours. Adequate blood concentration should be maintained in severe streptococcal and meningococcal infections at 15 mg. per 100 cc. of blood; and to achieve this the initial dose should be given intravenously as sodium salt in a 5% solution in sterile distilled water. The toxic effects are the same as for other sulphonamides but are less common.

Sulphamethazine.—Its toxic effects are very much less. It has been found very effective in lobar pneumonia, meningococcal meningitis and gonorrhœa. The dose is the same—the initial one being a little more and given at six-hourly intervals. The sodium

salt 1 g. in 3 cc. diluted to 8 cc. with distilled water can be given intravenously.

Sulphamerazine.—Its action is practically the same as that of sulphadiazine and sulphamethazine; but it is more quickly absorbed than sulphadiazine and more slowly excreted than sulphamethazine, so that the concentration in the blood rises more quickly and is sustained longer. It is somewhat more toxic, dose for dose. Its therapeutic applications are the same as for sulphadiazine and sulphamethazine.

Sulphacetamide.—This drug is reported to be more efficacious in the treatment of *B. coli* infections of the urinary tract than sulphanilamide or the mandalates. The usual dose for an adult is 1 g. three times a day for three days, and then 0.5 g. three times a day for two days, and then 0.5 g. twice a day for 5 days. Soluble sodium sulphacetamide as a 2.5% solution has also been recommended for application to the eyes after gas-poisoning, as a prophylactic against bacterial infection. Tachycardia and palpitation may occur as toxic effects.

Succinyl sulphathiazole.—Also known as sulphasuxidine is poorly absorbed from the alimentary canal. It causes a reduction in the number of *B. coli*, *Cl. welchii* and Streptococci in the intestinal tract and in consequence has been recommended for administration pre- and post-operatively in operations on the large intestine. The daily dose is 0.25 g. per kg. of body-weight divided into six doses and given four hourly for about five days before and for a few days after the operation.

Sulphaguanidine.—Only about one-third of it is absorbed from the intestine, and this is an advantage in the treatment of bacillary dysentery, ulcerative colitis, and gastro-enteritis in children. For an adult 3 to 4 g. may be given by mouth every four hours reducing the dose gradually as the condition improves. Toxic effects are very slight. However, it is losing ground in favour of sulphasuccidine (Succinyl sulphathiazole) and sulphathalidine (Phthalylsulphathiazole).

Marfanil.—Also known as sulphabenzamine has a composition and properties somewhat different from other sulphonamides; it is freely soluble and is not inactivated by pus, blood, necrotic tissues and para-aminobenzoic acid, all of which act against sulphonamide. It is used chiefly for local application against Clostridia (gas gangrene) and tetanus as well as sulphonamide-resistant streptococci.

Promin, Promizole and Diasone are members of the sulphonamide group which are effective against Mycobacterium tuberculosis and Mycobacterium lepræ, particularly the latter. (*Vide Sulphones infra*).

All sulphonamides are poorly absorbed from the stomach, but quite readily from the small and large intestines and the maximum

blood concentration after a single oral dose is attained in from two hours in the case of sulphanilamide to eight hours in the case of sulphamerazine. The sodium salts are easily absorbed from the intramuscular and subcutaneous tissues.

After absorption the drug is rapidly distributed throughout the body and is excreted into the various body fluids, exudates, transudates, saliva, bile, gastro-intestinal secretions, pancreatic juice, milk, prostatic secretions, amniotic fluid and foetal blood. Sulphadiazine and sulphamerazine will find their way into the cerebro-spinal fluid in a concentration half that of plasma. Roughly about 50 per cent of sulphonamides in the blood remains bound to plasma protein and as such is inactive. Another 10 to 20 per cent is acetylated by the liver and is not therapeutically active.

The sulphonamides are practically excreted completely by the kidneys and the rate of excretion depends on the rate of urinary flow and not on the plasma concentration level; 70 to 80 per cent undergoes tubular reabsorption and so if the kidney-function is impaired the blood concentration may become very high. Of all the sulphonamides, sulphanilamide is excreted most rapidly; and sulphamerazine most slowly. Hence the latter should be given at longer intervals.

Sulphonamides and their acetyl derivatives are soluble more readily in alkaline than in acid urine; and hence alkalization and increase in urinary output by the administration of large quantities of fluid prevents precipitation of the drugs in the urinary tract. One very interesting point is that each sulphonamide is soluble in the urine independently and irrespective of the presence of another. As a result, the simultaneous administration of smaller doses of several sulphonamides lessens the likelihood of precipitation while still retaining an effective blood level of the combined drugs. It stands to reason therefore, that drugs like sulphatriad have a distinct advantage over others.

The mode of action of the sulphonamide drugs has been the subject of some controversy. One fact that has been accepted is that the action of sulphonamides upon susceptible micro-organisms is bacteriostatic rather than bactericidal; in other words, under their use the rate of multiplication of the invading organisms is reduced and the normal phagocytic defence is allowed a greater chance of overcoming the infection; and so leucocytosis is an important factor which contributes to the success of sulphonamide therapy. In the choice of a particular drug, the different rates of absorption and excretion are factors which have an important bearing in particular types of diseases. Thus, sulphonamide is suitable for local use; sulphadiazine, because of its slow excretion, establishes a high blood concentration rapidly and is therefore, good for all severe systemic infections; while the insoluble sulphaguanidine is best for infections of the lower alimentary tract.

As all sulphonamides with the exception of Marfanil are antagonised by the presence of even a small concentration of (PABA) para-aminobenzoic acid, this fact has been utilized to explain the mode of action of sulphonamides. Fildes-Wood's hypothesis is based on the consideration that the similarity between the molecules of *p*-amino-benzoic acid and the sulphonamides suggests that they both compete for an enzyme system associated with the reproductive phase of the organism; and this theory is supported by the fact that PABA is recognised as an essential metabolite for many bacteria. The sulphonamide molecule when in excess of PABA is substituted for the natural substrate of the enzyme system and thus renders the organism incapable of growth and multiplication. On the basis of this theory, the natural and acquired resistance of some bacteria to sulphonamides has been explained as due to the fact that these organisms are able to synthesize PABA or may acquire resistance when allowed to exist in a low concentration of sulphonamides. Now, PABA is a fraction of vitamin B complex; and as according to this theory, it competes with the sulphonamides in the enzyme activity of the bacteria and so interferes with the antibacterial effects of the sulphonamides, large doses of crude B complex or liver extract should not be given to patients under sulphonamide therapy.

The theory is attractive, but has been challenged on the fact that the antagonistic effect displayed by urethane, methionine, peptone etc. which do not at all resemble the growth factor cannot be explained by this theory; nor does it account for the immunity of Marfanil. The alternative theory of Henry that the sulphonamides exert their effect by suppressing a respiratory enzyme system is totally without proof.

Sulphonamides are particularly detoxicated in the liver by the acetylation of the free amino-group. Many of these acetyl derivatives have even lower solubility than the parent compound and tend to crystallise in the renal tubules.

In treatment with sulphonamides, an important consideration is that when organisms are exposed to concentrations of sulphonamides which are inadequate to inhibit all reproduction, the production of resistant strains which retain their resistance through many generations is likely to occur. Such resistant organisms should be treated with penicillin. The risk of producing such resistant strains is avoided by a loading dose administered either intravenously or orally. High blood concentration by an initial big dose and the maintenance of that level by repeated oral doses should be our aim. Danger of crystallization can be avoided by giving large quantity of fluids by mouth, and by maintaining the pH of the urine on the alkaline side with sodium bicarbonate or sodium citrate.

Once crystallization has taken place, large quantities of fluid should be pushed in; and normal saline should be given intravenously by the drip method. An efficient diuretic, the best one being an isotonic solution of sodium sulphate (42.85 grammes of Glauber's salt dissolved in one litre of water) should be administered intravenously by the drip method. This should not be persisted in if there is no response, as it involves a risk of embarrassing the heart and producing pulmonary oedema. Other measures that may be required are a hot high colonic douche and an electric heating pad over the loins. If these measures fail the ureters may have to be catheterized, and the renal pelvis washed out with warm water at 107°F. every two hours.

The other most dangerous complication that may arise is agranulocytosis which is best treated with Pyridoxin (Vitamin B₆), the dosage being 125–200 mg. daily given intravenously. Symptoms may subside in 48 hours, but the treatment should be continued for 5 or 6 days. Recovery starts with a leukæmic reaction. Pentose nucleotide is not much favoured now. Other drugs that may be used are folic acid, adamine sulphate, glutathione, liver extract, yellow bone-marrow extract and blood transfusion.

Other side-effects of less importance are not serious contraindications to its therapy. Intestinal sulphonamides may be followed by ariboflavinosis, deficiency in P.P. factor, thiamin and vitamin K; a sprue-like syndrome has also been described. Pyrexia, drug rashes, cyanosis, mild hæmolytic anæmia, nausea, vomiting and other gastro-intestinal disturbances may occasionally be produced.

Antibiotics.—Most of the antibiotics are derived from molds and some from bacteria. The utilization of molds in medicine,—a kind of empiric mycotherapy,—has been known from ancient times. Medical books of old Greece and Rome, Arabic medical text-books, Ayurvedic texts, and mediæval missionaries-cum-medicos of the monasteries frequently mentioned the use of mosses and molds as curative poultices. A hot poultice of yeast and moldy bread, for example, was a favourite application to wounds sustained by the feudal lords in their hunting trips. In more recent times (1640) John Parkinson, a London apothecary and herbologist to the king, in his book "*Theatrum Botanicum*" mentioned a group of "water, sea and swab plants, such as mosses and fungi"; and described other various types of mosses including the *muscus excrementi humano*, which grows on the skulls of the dead. He said it was possible to use those mosses,—antibiotics in wild culture!—as the principal ingredient in the preparation of an *unguentum sympatheticum* which, when applied to wounds, prevented their becoming infected and also helped to heal them!

The word 'antibiotic' is however, about twelve years old having been first introduced by Dr. Waksman in 1941 to distinguish those chemical agents isolated from cultures of various micro-organisms

which have the effect of destroying other microbes. Although the molds were used several years ago, empirically as stated above, the scientific concept that one disease-producing entity destroys the life of another in order to sustain its own, is credited to Pasteur and Joubert who conceived the idea in 1877. It is interesting to note that in the discovery of anthrax bacilli first by Koch and then by Pasteur, chance favoured them to observe and prove for the first time that certain germs killed others showing that the struggle for existence and the survival of the fittest were true even for the microbial world.

Pasteur had already observed in 1860 that *penicillium glaucum*, twin-brother of the fungus that, almost seventy years later, Fleming was to isolate, attacked certain dextro-rotatory forms of tartaric acid, without touching the lævo-rotatory forms. This confirmed his theory that for each type of fermentation it was necessary to have a specific ferment. This was just an idea; but he did not follow it up in any other direction.

The second great experiment of Pasteur was the result of a happy accident, (most great discoveries have been accidents; but can be grasped only by great minds), which anticipated by more than half a century the same accident by which Fleming discovered penicillin. One day, as Pasteur was pouring from one bottle to another a broth consisting mainly of boiled urine containing anthrax bacilli, the culture was contaminated with various aerobic germs. Upon examining it some days later, Pasteur observed to his surprise that the anthrax bacilli had disappeared. He deduced therefrom that they had been destroyed by contaminating microbes. Following up this idea and the result of this chance-finding he could definitely demonstrate by experiment on guinea-pigs that the products of certain bacteria could effectively destroy other bacteria.

The seed sown by Pasteur and Joubert, and confirmed later by Tyndal, Emmerich, Lœw and others culminated in the greatest therapeutic discovery of the present century.

Penicillin is the product of a green mold, *Penicillium notatum*. This was first discovered by Sir Alexander Fleming in 1929. But it did not immediately prove a success as the early attempts at its purification failed. Its importance lies in the fact that while showing great toxicity against the disease-producing organisms, it exercised little or no harmful effect upon their human hosts.

Between 1929 and 1939 intense research was carried on and a great many antibacterial compounds were obtained from molds and bacteria. Many of these compounds displayed potency of a very high order when tested in a test tube or in culture media, but relatively few of them were sufficiently free from toxic effects on human beings to permit their use for curing diseases.

It was not until eleven years after Fleming's first observations in 1929, on the behaviour of the mold that Florey and Chain overcame the difficulties due to the instability of the natural product and were able to extract from the cultures, material which was suitable initially for experimental and later, for clinical study. The properties revealed were so astonishing that mighty efforts were concentrated during the latter part of the second world-war on its production and well-organized coordinated team work was devoted to its production in the purest form possible, in order to provide enough for the treatment of war casualties. Adequate supplies were assured for this purpose in 1944; and for civilian use and a free market in 1946. The main credit goes to the British Scientists for achieving this result.

Penicillin as an organic acid of unique structure has not yet been synthesized. The source of this first antibiotic is still a culture product of *Penicillium notatum*. The commercial product is the calcium or sodium salt of the naturally formed acid. In the pure state it is a white crystalline powder; impure products which are cheaper and almost equally serviceable for many purposes have a yellow colour. The dry powder stored in a sealed ampoule is stable; solutions deteriorate and should therefore, be freshly made and stored in the refrigerator, if it has to be kept for more than a day or two. Formerly it was unstable to heat but though the heat stability of the purer modern products has been improved, it will not stand the heat needed for sterilizing solutions. Aseptic dispensing is therefore, necessary.

Penicillin has a wide range of usefulness; and it is most active against gram-positive organisms, and in particular against cocci rather than bacilli. It is also effective in some spirochaetal infections but has practically no effect on viruses, molds, trypanosomes and helminthic infections. It has been successfully used parenterally in septicemia. Although it is usually given intramuscularly in a dose of between 100,000 to 200,000 units initially, it may also be given intravenously depending on the seriousness of the condition. But it may sometimes produce thrombophlebitis. In such cases 50,000 units may be given intramuscularly every four hours.

Pneumonia generally responds to penicillin administered either intramuscularly or by inhalation. But it is wise to give sulphonamide as well. Primary atypical pneumonia does not respond to penicillin so well as it does to the other broad-spectrum antibiotics.

In empyema, intrapleural instillation of penicillin is the method of choice. The pus should be aspirated first and then penicillin injected in a strength of 1000 units per cc.; the total amount depends on the size of the cavity. A rough guide is: a cavity of 10-20 ozs. capacity should require 60,000 units; this dose is doubled in total empyema and halved for small pockets. There is no very hard and

fast rule and one may err on the side of slight excess instead of inefficient small doses. Three to four aspirations and instillations usually suffice. Penicillin should also be given at the same time by the intramuscular route in a dose of 100,000 units every 6 to 8 hours.

Infected bronchiectatic cavities may be treated by intratracheal injections after postural drainage. Aerosol penicillin inhalation every two hours holds out greater promise.

Penicillin strengthened by sulphonamides is the drug of choice in meningitis, either of pneumococcal, streptococcal or meningococcal origin. 50,000 units may be given intrathecally after the removal of a quantity of cerebro-spinal fluid. Infants should have smaller doses. This should be in pyrogen-free saline solution in a concentration of 20,000 units per cc. supplemented by the intramuscular route. The intrathecal injection should be repeated in 12 hours' time and after another 12 hours another puncture should be made to note if the cerebro-spinal fluid is thick, or if there is even a slight ventricular block, in which case intraventricular injections of penicillin may have to be given. The intrathecal injections should be continued for five days and so also the intramuscular ones. The tendency nowadays is to give bigger doses by the intrathecal route, which is neither necessary nor desirable as the occurrence of chemical meningitis is a possibility; and for this reason non-irritating preparations like the sodium salt of penicillin should be used for intrathecal injections in preference to the calcium salt, which is irritating. In case of any block in the passage of cerebro-spinal fluid which occurs usually in the aqueduct, it may be necessary to inject penicillin into the lateral ventricles through burr-holes in the parietal bones. The pus is drained and penicillin injected through a retaining catheter.

Among the antibiotics penicillin alone holds out reasonable promise in the treatment of sub-acute bacterial endocarditis. One to two million units of crystalline penicillin daily in divided doses for a minimum period of 28 to 30 days offer better results than bigger daily doses for a shorter period. One million units daily may alternatively be given intravenously if the condition warrants it. It has been reported from U.S.A. that still better results were obtained by giving 50,000 units intramuscularly every six hours for two months. But a review of 442 cases from 1945 to 1948 showed that the best results were obtained with two million units daily for 4 to 6 weeks. Still larger doses are also recommended.

Continuous intravenous administration, or continuous intramuscular administration is probably superior to intermittent intramuscular administration when, a high constant blood level is desired due to the severity of the infection. But it needs constant watch as thrombophlebitis may occur. This can be prevented by adding 10 to 20 mg. of heparin per litre of penicillin solution and by

active and passive movements of the limbs. For continuous intramuscular drip, the daily dose of penicillin should be dissolved in 600 cc. of sterile saline and the location of the needle changed every 48 hours. Twelve to fifteen drops a minute should be the rate of injection. If the condition is very severe and massive doses of penicillin are needed or when the concentration of penicillin in the blood is required to be raised considerably higher than usual, it can be done by using PAH (Sodium para-aminohippurate), or Caronamide (4-carboxy-phenylmethane-sulpholanilide) which interferes with the renal excretion of penicillin. Most of the penicillin is excreted by the kidneys—20 per cent by the glomeruli and 80 per cent by the renal tubules. Both penicillin and PAH are eliminated by the renal tubules by the same enzyme system so that when PAH is being excreted the penicillin is retained. Sufficient PAH should be given intravenously in a 2.5 per cent solution, along with the penicillin to raise the plasma hippurate level over 10 mg. per cent. This can raise the blood penicillin level three to six times. There is no danger in PAH as it is non-toxic.

Caronamide works on a similar principle. But it is given by mouth in doses of 2 to 4 gm. using 0.5 gm. tablets, every four hours which raises the penicillin blood level four times. If toxic effects like nausea, vomiting and rashes appear the drug should be stopped.

Gonorrhœa, responds most dramatically to penicillin therapy. Five injections of 20,000 units at two hourly intervals is considered adequate. But a single bigger dose may prove effective. Relapse is a possibility: and chronic cases may not respond promptly.

In syphilis, particularly in the primary and secondary stages, penicillin has been found very satisfactory and its results are comparable to those obtained with intensive arsenical treatment. It will be necessary to maintain a constant high concentration of penicillin in the blood. This can be attained by intravenous or intramuscular injections of effective doses.

Gas-gangrene also responds satisfactorily to penicillin treatment. Other clinical conditions where penicillin gives satisfactory results are Vincent's angina, tonsillitis, carbuncles, furuncles and cellulitis, acute peritonitis, sinusitis and mastoiditis; also acute osteo-myelitis just to mention a few.

Penicillin is rapidly destroyed by heat. Different preparations have different stability. Solutions for injection should be used within 48 hours and must be kept at a temperature below 40°F. during this period. Creams should be kept in a refrigerator at 50°F. They remain effective for a week even if kept outside in a cool place. As cream contains more water than ointment, it deteriorates quicker than the latter. Penicillin powder, lozenge and ointments can be kept for a year in a cool, dry place.

The calcium salt is recommended for oily preparations. As the calcium salt is more irritant than the sodium one, it should not be

used in watery solution for injection. The powder, as it is mixed with sulphonamide is less hygroscopic and so more stable than the sodium salt. As aerosols the calcium salt is more favoured in solution and vaporised for inhalation as it has less odour and less tendency to produce cough than sodium penicillin. The sodium salt is more commonly used for intramuscular and intrathecal injections. The oily solution is not much favoured as its absorption is uncertain in maintaining a therapeutic level in the blood.

Oral penicillin has a fair chance of success in patients with achlorhydria and in infants under six months, as they have no gastric acidity. But the dose must be relatively high. However, the bogey of penicillin being inactivated by acid gastric juice is no longer tenable as, although a certain percentage may be so destroyed, it is mostly absorbed from the gastro-intestinal tract. Now it is held that penicillin is highly effective when given by mouth. Apart from this, from the point of view of therapeutic efficiency it should be stressed that penicillin by mouth causes few or no disagreeable side reactions and the incidence of hypersensitivity is less than when it is exhibited intramuscularly. Although it is exceedingly effective by the oral route it is advised to give penicillin by mouth in mild and moderately severe infection due to gram-positive organisms, the dose being 200,000–400,000 units three times a day.

Aerosol penicillin may produce good effects, and three or four inhalations a day can replace the tiresome three-hourly injections. Acute pulmonary infections respond readily to this therapy.

It is doubtful if penicillin can enter the cerebro-spinal fluid when given by the ordinary route; and hence intrathecal administration in meningitis is definitely advocated.

Penicillin as an antibiotic has now been seriously challenged by other new antibiotics, like Aureomycin, Terramycin, Streptomycin and Chloramphenicol and others.

Streptomycin.—Streptomycin is a base and its crystalline salts are available; it acts on gram-negative bacilli. It is significant that whereas penicillin which is acid affects the gram-positive organisms, streptomycin which is a base affects the opposite group of organisms, i.e., gram-negative ones. It is used by weight and is particularly good in *hæmophilus influenza meningitis*, in *proteus* and *pseudomonas* infections of the urinary tract and blood. It can be used in typhoid fever and in brucellosis. In the treatment of infections with gram-negative organisms streptomycin may be combined with sulphonamide to obtain better results. It has been found effective in whooping-cough and in chronic bronchitis.

But its most important use is in tuberculosis, particularly in tuberculous meningitis, miliary tuberculosis and in surgical tuberculosis. Not in all cases of pulmonary tuberculosis may it be used. It is useful in the recent, active and apparently exudative

type of lesions. Patients with large open cavities and those suffering from the chronic fibroid type, do not generally respond to this drug.

An interesting fact in the streptomycin treatment of pulmonary tuberculosis has been the disproportion between the clinical symptoms and the pulmonary lesions as visualized in X-ray pictures. Pathological and clinical signs do not run parallel with each other. Whatever improvement there may be in the lung lesions, skiagraphic improvement is shown only several months after the start of streptomycin therapy.

As regards the dosage of streptomycin particularly for tuberculosis, the tendency now has been to use a reduced dose and it has been found that one gramme daily in divided doses has no better effect than the same dose given once or twice a day only. Reduction in the number of repeated doses reduces the toxicity and other side-effects also. Short courses of thirty to forty days or a little longer give better results than long courses spread over several months as in the past. The importance of the treatment with streptomycin lies in the prevention or reduction of progression of the lesion rather than in the actual acceleration of the healing.

One or two gramme doses a day is generally advised. But a single injection of 0.5 g. daily for the average sized individual may be generally recommended as being free from toxic effects, relatively inexpensive, and almost equal in therapeutic effect to the larger doses; at the same time, it provides a margin of safety. In the treatment of pulmonary tuberculosis, a minimum of six weeks' treatment with this drug may be recommended. Treatment of local tuberculous lesions may be discontinued as soon as they have been brought under control.

Intermittent administration of streptomycin in 1 or 2 g. doses once every third day has been favourably reported upon as producing not only the same degree of clinical improvement as more frequently administered larger doses but also less toxicity and less chance of producing streptomycin-fast organisms.

The toxic effects of streptomycin therapy are: skin-eruptions, fever and neurological disturbances such as vertigo, tinnitus, deafness and paræsthesia. Another drawback may be the production of streptomycin-fast organisms. These can be minimised by administering para-aminosalicylic acid, (PAS) in sufficiently large doses at the same time. Isonicotinic acid hydrazide has also been given in combined therapy. The manufacturers claim that by combining equal quantities of streptomycin with dihydrostreptomycin many of these unpleasant reactions, particularly deafness can be avoided. But streptomycin affects the vestibular branch apparatus, whereas dihydrostreptomycin principally damages the auditory so that the neurotoxicity is limited to the eighth nerve

lesions. (A. S. Walker in *Proceedings of the Royal Society of Medicine*, 1952).

The claim made by some manufacturers that the combination of the two obviates its toxic side-effects, is therefore, untenable or at all events somewhat extravagant.

Dihydrostreptomycin is derived from streptomycin and has the same range of antimicrobial activity, and the same variety of toxic reactions as streptomycin; but it is perhaps a little less neurotoxic. Bigger doses may therefore, be given and for a longer period particularly to patients who are intolerant to streptomycin. Its range of applicability therefore, in tuberculosis is to patients hypersensitive to streptomycin and those who may need higher doses for a longer period. It is, however, more irritant locally than streptomycin and is therefore, unsuitable for intrathecal administration.

Other conditions in which streptomycin may prove effective are bacillary dysentery including the resistant *Shigella* forms, and in infections with some *Salmonella* types and *Klebsiella pneumoniae*.

Aureomycin.—Since its isolation from the mold streptomyces aureofaciens by Rao and Duggar in 1948, this antibiotic has been very useful in a variety of conditions. The earlier products could not be used so freely owing to the distressing nausea, vomiting abdominal cramps and diarrhoea caused by it. The later supplies have been greatly refined and toxic symptoms are rarely encountered now.

Aureomycin has a very wide range of activity in infectious diseases being bacteriostatic to both gram-positive and gram-negative organisms, rickettsiae and even to some viruses. Its only disadvantage is that oral administration causes troublesome nausea; otherwise it is relatively non-toxic. But patients may become allergic to it in the same way as to other antibiotics. A yellow crystalline powder, it can be used against infections that have become resistant to penicillin, streptomycin, or sulphonamides and in patients who exhibit severe sensitivity to these drugs. The diseases in which aureomycin is now preferred include primary atypical pneumonia, psittacosis, leptospirosis and urinary tract infection by streptococcus faecalis. But infection by pseudomonas pyocyaneus and proteus vulgaris are resistant to it. Its value is perhaps, unsurpassed in staphylococcal infections and brucellosis. It is also very effective in rickettsiosis. Lymphogranuloma venereum responds promptly to it. Besides, wherever penicillin fails aureomycin may help. Aureomycin has earned a great reputation in tropical countries by its prompt action in amœbiasis. It may be directly amœbicidal. But Spingarn and Edelman adduced evidence that there are two factors involved in the effectiveness of aureomycin as an amœbicide. One is its direct amœbicidal action; and the other is the cessation of the proliferation of amœbæ with the

inhibition of accompanying bacterial growths. Their capacity to proliferate was restored with bacterial inocula. Our experience confirms the latter view as it does not cause a permanent cure. Relapse is much too common and occurs as soon as treatment is stopped.

Aureomycin is effective in the treatment of yaws. Two grammes a day for five days have been quite successful in all stages of the disease. Actinomycosis has also been reported to have responded to aureomycin therapy. The other diseases susceptible to aureomycin are the salmonella group of infections, spirochætal infections like relapsing fever and leptospirosis icterohæmorrhagica and infections caused by the coli-ærogenes group of bacteria. While the oral administration is the route of choice it can also be given intravenously in cases of gastro intestinal upsets or when the gravity of the situation demands it. But phlebitis is a possibility. In severe infections the usual dosage should be 50 to 100 mg. per kg. of body weight per day given by mouth. Even larger doses may be given. But the present tendency is to give smaller doses, say, one gram a day for an adult.

Terramycin.—Terramycin which was isolated by Finlay and others in 1950 from the greyish soil streptomyces rimosus is one of the most versatile of the broad-spectrum antibiotic drugs and is a potential rival to aureomycin in its activity which ranges from the gram-positive to gram-negative organisms and others against which it has proved very effective. It is bactericidal and is effective in the amphoteric form as well as in the form of a water soluble salt administered by mouth. The list of pathogenic organisms susceptible to its action is a formidable one including amongst others *Corynebacterium diphtheria*, *Clostridium welchii*, *Hæmophilus influenzae*, *Brucella*, *Pasteurella pestis*, *Pasteurella tularensis*, *Vibrio comma*, *Escherichia coli*, *Salmonella* group, *Spirochæta*, *Rickettsia*, some viruses and *Entamoeba histolytica*. It is also effective in infections with all organisms which are susceptible to aureomycin. The one advantage of terramycin is its lower toxicity. It is much less susceptible than aureomycin to inactivation by serum.

In amœbiasis one or two grammes a day of terramycin for ten days clears the system of *Entamoeba histolytica*. It is preferable to administer 2 g. a day to an adult and 1 g. a day to a child, as clinical trials have shown a higher relapse rate when a lower dosage is used.

We have found it effective in Herpes zoster as well as in infective hepatitis. Infantile biliary cirrhosis has responded to it (Foy Chowdhury). Excellent response has been recorded in leptospirosis (Weil's disease). Yaws responds marvellously in its primary and secondary stages; its restorative influence in the later crippling stages of the disease has surpassed that of any previously used therapeutic agent.

It is rather difficult to assess the relative values of aureomycin and terramycin both of which are useful in a wide range of infections by both gram-positive and gram-negative bacteria, aerobic and anaerobic; the rickettsiæ and some viruses. Recently, however Colbert Jr. of Yale University together with others of the U.S. army assessed the relative merits of chloramphenicol, aureomycin and terramycin in viral hepatitis and found terramycin to be the best of the three. Terramycin is virtually non-toxic. Slight gastro-intestinal disturbances such as looseness of the bowels may occur as also nausea and vomiting, if given on an empty stomach. It has therefore, been suggested that terramycin should be administered just before a light meal. These symptoms may occur for the first one or two days and then disappear. Glossitis may occur. Terramycin does not lose its potency if stored at room temperature even for a whole year.

Chloramphenicol.—This was originally prepared from *Streptomyces venezuelæ* but is now produced synthetically. Since its isolation by Burkholder and his associates in 1947, chloramphenicol has been extensively used and is highly favoured in gram-negative bacillary salmonella, brucella, rickettsial, psittacotic, viral lymphogranulomatous and viral primary atypical pneumonic infections. But perhaps the most outstanding result is obtained in the control of typhoid fever. It is the most effective antimicrobial agent against the enteric group of infections unsurpassed by any other known antibiotic. Under its treatment a prompt remission of symptoms occurs within 72 hours; and in this respect the synthetic form is as effective as the fermentation forms derived from Venezuelan soil. But unfortunately relapses are common. This is so because the drug is bacteriostatic and not bactericidal; and if exhibited early before there is any chance of the development of immunity reaction and stopped as soon as the temperature subsides there is the possibility of relapse. But if chloramphenicol is given for a sufficiently long period even after the temperature has been controlled, the chances of relapses are fewer. It has been suggested that if the drug is given for eight days or less, relapses might be anticipated about ten days after its discontinuance. However, fourteen days' treatment is deemed to be adequate to prevent relapses. It must be remembered, however, that the drug is costly and the expense may not be within the means of all. In our experience giving chloramphenicol and small doses of T.A.B. vaccine at the same time serves the double purpose of producing an immunity and at the same time a bacteriostatic effect. Chloramphenicol need not then be given for a longer time than is absolutely necessary. We continue it for three days after the remissions of the symptoms. This cuts down the cost of the longer treatment when this expensive drug is used alone.

As regards dosage, a priming or loading dose of 3 to 4 g. is recommended to be followed by 1 to 3 g. daily in divided doses for

at least 8 days, if not more. But with this big initial dose vasomotor collapse was frequently encountered and the tendency now is to give smaller doses from the very beginning every 3 to 4 hours for the required period. It is interesting to note that in an experiment carried out fever with a combined therapy of cortisone and chloramphenicol in the treatment of typhoid. Cortisone given in a dose of 300 mg. initially along with chloramphenicol the patient made afebrile in 15½ hours. Cortisone alone could not disinfect the bowel. This suggests an important field of research in immunochemistry.

Its effect on other salmonella groups of infections is not so dramatic, as in typhoid fever. Its effect on whooping cough is encouraging. The doses recommended are 0.25 g. orally as an initial dose. Children under six months are given a maintenance dose of 0.125 g. three or four times a day; children of six months to four years are given 0.25 g. three times a day; and children over 5 years of age are given 0.25 g. four times a day. It can be given intravenously too in severer infections in an initial dose of 0.30 g. and a maintenance dose of 0.30 g. every three to five hours. It has been observed that with this therapy fever, if present, usually disappears during the second day of treatment, and the paroxysms of cough decrease on the third day, disappearing completely between the third and the sixth day. A slight cough may, however, persist for several days. After a week of treatment the patients become free of infection. It has also been suggested that this drug may also be given as rectal suppositories in the same dosage particularly for younger children and infants. But with the introduction of chloromycetin palmitate this route is no longer necessary.

Chloramphenicol has been effectively used in brucellosis as well as in meningococcal meningitis, gonorrhœa and syphilis.

Chloramphenicol may occasionally cause leucopenia-affecting the granular cells more than the lymphocytes. This is caused by its action on the bone marrow producing a decrease in marrow granulocytes due to a maturation arrest without significant alteration in monocytes or lymphocytes. Severe anæmia may also result with an erythroid maturation arrest in the marrow. Both marrow and blood changes are, however, reversible and an immediate rise in white cell count follows discontinuance of chloramphenicol therapy. A number of cases of aplastic anæmia has been reported recently which proved fatal. Great caution is therefore, necessary in its administration.

Polymyxin (Aerosporin).—There are various strains of this antibiotic such as polymyxin A, B, C, D and E; and are derived from bacillus polymyxa. It is stable and is readily absorbed after intramuscular injection of an aqueous solution. Infection of the urinary tract by pyocyanous organisms which are resistant to all

other antibiotics can be controlled by the intramuscular injection of polymyxin. This is of special value in consideration of the fact that spontaneous recoveries are rare in pyocyanic sepsis which generally runs a protracted course; and that no other antibiotic has any effect on it. However, its nephrotoxic effect prevents its general use. Polymyxin B may produce drug fever which is uncommon in polymyxin D. Polymyxin B and E have been found effective against shigella infection.

Neomycin.—This antibiotic, one of the most recent, is readily soluble in water and is most active in an alkaline medium. It is relatively thermostable and is effective against numerous gram-positive and gram-negative organisms. It is active also against streptomycin-resistant organisms. This drug is reported to have been effective in certain infections where all other antibiotics had failed. Cases treated with this drug appear to have had no relapse so far. Serious renal irritation and eighth nerve involvement attended the therapeutic trial of neomycin in tuberculosis. Another antibiotic called *Viomycin* which was tried in tuberculosis was found to differ from streptomycin *in vitro* in its sharp specificity for acid-fast bacilli, to the virtual exclusion of gram-negative bacteria, against which streptomycin is so effective. It also acts against infection with *Proteus vulgaris*. But it has a toxic effect on the kidneys.

Bacitracin derived from bacillus subtilis and *Tyrothricin* from bacillus brevis are other recently discovered antibiotics of some proved value; but their toxic action particularly on the kidneys prevents their wide and general use. In 1949 a new antibiotic was isolated from an aspergillus culture. Its activity against bacteria and fungi was small and it had no effect on viruses. It was named *Fumagillin* which has the attributes of the ideal amoebicide as it kills the amoebæ in the cystic and trophozoite stages in the lumen of the gut and has a low toxicity. It is given by mouth and the dosage recommended tentatively is 20 mg. three times daily for ten days.

Another very recent antibiotic called Erythromycin (Erythrocin Abbot; or Ilotycin Eli Lilly) promises to be very effective against both gram-positive and gram-negative organisms and a host of other bacteria and to have a very low toxicity.

Combined therapy.—It may be mentioned that various combinations of antibiotics and sulphonamides have been tried and in certain circumstances such combined therapy with streptomycin, penicillin and sulphonamides has a definite advantage over the single drug therapy. It aims at a rapid control of infection, the prevention of failure due to drug-fastness, prevention of development of an acute into a chronic infection, reduction of drug toxicity and prevention of added infection. It has been conclusively demonstrated that a combination of the three drugs *viz.*, penicillin,

streptomycin and sulphonamides exerts the maximum effect on staphylococcus. Other combinations have also been tried and the results point to a general principle not to combine a bacteriostatic with a bacteri-cidal agent of the penicillin type. Penicillin, streptomycin and perhaps bacitracin, appear to be in one group while chloramphenicol, aureomycin and terramycin are in another. Drugs of the second group may all interfere with the action of the drugs belonging to the first. This is an important and disturbing clinical problem. But on the other hand excellent experimental and clinical results have been obtained in brucellosis with a combination of aureomycin and streptomycin; while an antagonistic clinical effect was recorded with penicillin and aureomycin given together. The results of further clinical trials are awaited.

The use of the broad spectrum antibiotics is not always an unmixed blessing. Toxic effects have been noticed and detailed under the respective headings. It has been recently noticed by us and also reported from New York that peri-anal itching associated with pain, burning sensation and bleeding on defæcation followed the oral ingestion of aureomycin, terramycin or chloramphenicol in about two weeks' time, and some had severe diarrhoea. Proctological examination usually revealed perianal erythema with thickening and excoriation of the perianal skin with or without multiple superficial fissures at the margins of the anal aperture. There may be ulcerative proctitis, ulcerative colitis and perianal abscess. Aureomycin was the commonest offending drug in the New York series. There was no relation of severity of symptoms to the quantity of the drug and the period of time during which it was given. The condition was extremely resistant to treatment. These drugs should not therefore, be given without very specific indications.

No description of chemotherapeutic and antibiotic drugs will be complete if the role of PAS and Isonicotinic acid hydrazide is not considered. Isoniazid (INH) is a very effective drug in pulmonary tuberculosis, "but given alone it is not more effective than streptomycin and PAS" says the report of the Tuberculosis Chemotherapy Trials Committee presided over by Sir Geoffrey Marshall. The grave disadvantage of isoniazid is the rapid appearance of drug-fast bacilli. A combination of the tuberculostatic drugs may be more useful; and PAS alone is also of doubtful value unless combined with streptomycin.

Sulphones have been found useful in tuberculosis and more particularly in leprosy. The optimum dosage, toxicity and other pharmacological actions have been studied intensively; they are the best drugs known for the treatment of leprosy; but their wider use is greatly limited by their toxicity.

Of the three drugs of this group, *viz.* Sulphetrone, Diasone and Diaminodiphenylsulphone (DADPS) the last is the drug of choice being the cheapest and pharmacologically the most suitable of the

sulphones, owing to its quick absorption, slow excretion and the comparatively small dosage needed to establish and maintain therapeutic blood levels. It is, however, not free from toxic effects. DADPS, along with other sulphones may produce a syndrome consisting of glandular enlargement, splenomegaly, pyrexia and a blood picture similar to that of infectious mononucleosis, particularly when administered rapidly. The treatment should begin with 80 mg. a day orally, increased to 200 mg. a day in the fifth week, with rest periods of one day in the week and one week every two months. For intramuscular injection the dosage is 200 mg. daily 400 mg. every two days, or 600 mg. every three days with the same rest periods as for oral administration. With this therapy definite improvement is noticeable in the third month, sometimes earlier. Administration of DADPS by mouth is relatively safe, simple and very cheap—a matter of particular importance for a poor country like ours. If its toxicity can be further reduced it will prove a real boon to the suffering millions and its cheapness will bring this rational therapy within the reach of even the poorest of sufferers from leprosy.

Favourable results with thiosemicarbazone (TB-1) in tuberculosis were reported from Germany. It was found to be quite effective in cases of leprosy and is likely to be particularly useful in cases which do not yield to other drugs.

The last word on antibiotics has not yet been said. Intensive researches are still going on to find still better and more suitable ones. Nature may reveal something in the future which may further revolutionize the treatment of diseases.

(To be continued).

EARLY DIAGNOSIS OF THE ACUTE ABDOMEN

The mental acumen, diagnostic skill and equanimity with which a physician faces an emergency are put to a practical test in the diagnosis of the acute abdomen.

An acute abdomen is a pathologic state resulting from sudden alteration in the normal anatomic and physiologic pattern as the result of causes either originating within the abdominal cavity or initiating reference to it from outside the abdomen proper. Pain is the one outstanding symptom. The factor of time alone may considerably alter diagnosis, therapy and prognosis.

A recently published review of 200 consecutive emergency laparotomies, performed for severe abdominal pain, revealed wrong diagnosis in 17 per cent. The majority of mistakes were made in small bowel obstruction. In 35 per cent of the patients with a wrong diagnosis, abdominal pain originated outside the abdomen. In 50 per cent of those who died, death was preventable.

Of 124 cases operated upon by 14 surgeons, the pre-operative diagnosis and pathologic diagnosis corresponded in only 91—a diagnostic error of 26.6 per cent.

There are two groups of patients with abdominal pain who should, if possible, be spared the surgeon's knife. The first group comprises those with physiologic disturbances producing abdominal pain. An outstanding example is that of ovulation with spillage of blood or serous fluid. Differential diagnosis is difficult at times

but a careful menstrual history and observation can give one assurance in withholding surgery. A second, larger and more deceptive group is composed of the patients with anxiety neurosis or conversion symptoms of deep-lying functional disorder.

PRINCIPLES OF DIAGNOSIS:—1. *Serious and thorough attempt at diagnosis:*—First of these is the mental attitude with which one approaches these urgent problems. Most problems in acute abdominal disease require consistent and repeated routine digging out of history and careful, thorough examination.

2. *Necessity for an early diagnosis:*—The time factor is most important in the acute abdomen not only in prognosis but because the clinical course changes from hour to hour and early diagnostic signs and symptoms may be lost. The later the patient comes for diagnosis, the more urgent is the need for prompt diagnosis so that specific therapeutic measures may be started.

3. *Interpretation of clinical picture in terms of anatomic and physiologic patterns:*—It need not be surprising that diaphragmatic irritation produces shoulder pain and that renal disease may manifest itself by pain in the testicle if we but remember embryologic origins. Irritation of a structure by adjacent inflammatory process will result in pain when motion or function is initiated as we see in the iliopsoas test for acute appendicitis or the obturator test for pelvic abscess.

We should always bear in mind that disease outside the abdomen may cause reference to the abdomen or *vice versa*. Therefore, intermittent, cramping colicky pain is usually associated with hollow visceral disease while steady pain is more apt to be associated with edema and inflammation in a solid organ or in a hollow organ which is completely obstructed. Finally, the bilateral character of the nervous system is helpful in showing unilateral involvement.

4. *Exclusion of non-surgical disease:*—The final and fourth principle in early diagnosis of the acute abdomen is the separation of those diseases which require immediate therapy from those which do not. For this reason routine history and physical examination by the broadly oriented physician will ensure proper diagnosis of those conditions which simulate abdominal pathology.

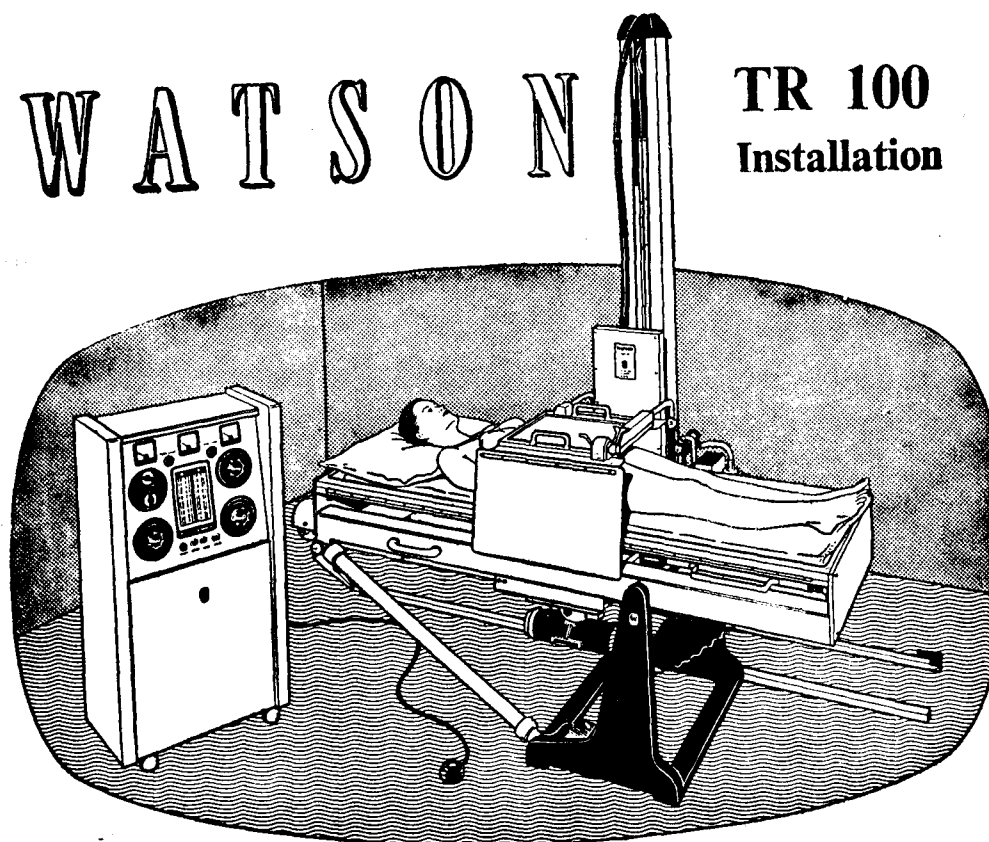
METHODS:—Rapid but careful run down of past history with regard to similar attacks is worth while.

Pain is the outstanding symptom. Its onset, duration and relation to natural functions such as digestion, bowel habit, micturition and menstruation are significant. Pain should be studied from the standpoint of location, shift in position with time and character of its radiation. The type and character of pain are sometimes pathognomonic of the disease or at least limit its origin to certain tissues—*e.g.* colics of the biliary or urinary tracts, or the severe back pain and thigh radiation of dissecting abdominal aneurysm. Physical examination must be routine but should concentrate on the part which appears to be most acutely involved. The stethoscope should be employed on the heart and lungs but it can also be of considerable help if used routinely by the surgeon in listening to the abdomen. Presence or absence of auscultatory signs are significant in both diagnosis and prognosis.

The third method of diagnosis is the most recent, *viz.*, laboratory tests. Routine examination of blood and urine is as much a part of the evaluation of the patient as is taking the blood pressure. A laboratory test should fit the clinical impression. If it doesn't do so, it should be done again. If repeated and found to be the same, the clinician should re-examine the patient in the light of this finding.

The last ancillary procedure in rounding out the diagnosis of the acute abdomen is the use of X-ray. When indicated, usually four views, are of most value, *viz.*, supine abdomen, upright abdomen, left lateral decubitus and chest. When coordinated with each other and the clinical findings they can make the diagnosis easier.

On the basis of these principles, careful history and routine physical examination supplemented by specifically required and properly interpreted laboratory findings will help to ensure accuracy of diagnosis.—(*Northwest Med.*, Sep. 1954).



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Cases and Comments

A CASE OF MALIGNANT TERTIAN MALARIA

(Simulating Epileptiform Convulsion)

SUBODH CH. BISWAS, L.M.F.,

M.O., Birjhora T.E., P.O. Bongaigaon, Assam

History of the case.—On 30-11-'54 at about 7-15 p.m. a child aged 2, had an accidental fall from a cot about 3 ft. high on to a cemented floor; he cried for a while and then talked normally with his sisters, who put him to bed. They then found that the boy's eyes were fixed and the look was vacant. At 8 p.m., when we were called in to see the case we found the boy having epileptiform convulsions.

On examination the child was lying on his right side, quite unconscious. He could not be roused by shouting or by pricking with a needle. Eye-reflexes were absent. There were no marks of external injury on the head, face or any part of the body. The eyes were open and almost fixed; both the pupils were dilated; but equal and not congested. There was lock-jaw, and also spasmodic tonic contractions of both the upper and lower extremities.

The child's abdomen was distended. The heart beat very rapidly; pulse was soft, thready and very rapid and could not be counted. There was nothing abnormal in the other systems. The temperature of the patient was subnormal from the beginning.

TREATMENT:—(1) Adrenaline solution 4 minims in 2 oz. of water was given. (2) Injection atropine sulph. (gr. $\frac{1}{100}$ in 1 cc.) $\frac{1}{2}$ cc. was given I.M. at 8 p.m. (3) Inj. Quinine bi-hydrochlor gr. 5 in 1 cc. I.M. at 8-10 p.m. (4) Hot water bag to the extremity and ice bag to the head. The temperature was subnormal.

At 10 p.m. Dr. Chatterjee, M.B. of Abhyapur was called in to see the case with my concurrence and he diagnosed the case as an M.T. infection.

(5) He applied smelling salts to inhale at intervals.

At 11 p.m. the axillary temperature rose to 98.8°F. and the patient could swallow a little water. Dr. Chatterjee prescribed the following mixture and also anti-malarial drugs by injections.

R Sodi Bicarb	... 3p.
Sodi Citras	... 3p.
Sodi Bromide	... gr. viii
Spt. Ammon Arom	... m xv
Spt. Cinnamon	... m x
Tr. Cardom Co	... m x
Aqua ad	... 3 i

such (2) doses to be taken $\frac{1}{2}$ to 1 teaspoonful at short intervals.

The child was given the above mixture and the spasms in the extremities gradually diminished.

At 1-30 A.M. on 1-12-'54, the child was more or less quiet and responded to calls.

At 4 A.M. Repeat injection Q.B.H. gr. v, in 1 cc. I.M.; temperature (axillary) was 98.4°F.

At 7 A.M. the temperature was 98.2°F.; and then ranged from 96.6°F. to 98.2°F.

At 12 noon on the next day, I repeated an injection of Q.B.H. gr. v, I.M. and the temperature was 98.2°F. The mixture was repeated. The diet consisted of barley water, Glucose (D), Glaxo etc. I prescribed Nivaquine (M & B) $\frac{1}{2}$ tablet to be taken on that and the following day. The child was quite all right.

On 3-12-'54 Quinine (grains 2) thrice a day was prescribed to be taken for 5 days. The child made an uneventful recovery.

Points of interest.—Symptoms following a fall from the cot were misleading, and simulated epileptiform convulsions. There was no family history of epilepsy. The case was one of cerebral malaria with an M.T. infection.

Recovery was rapid following the prompt injection of quinine within a few hours of the onset of symptoms.

My grateful thanks are due to Dr. A. C. Chatterjee, M.B. (C.M.O.) of Abhyapuri who helped me with the diagnosis and line of treatment for the case.

MALARIA

There is now general agreement that Paludrine and Daraprim act too slowly as schizonticides to be used for treatment of overt malaria, though they remain among the most effective prophylactics known.

In cerebral malaria, in those gravely ill and in those, who, because of vomiting cannot retain drugs given orally, Chloroquine sulphate can be given intravenously in doses of 200 mg. base and repeated after 8 hours if necessary. Chloroquine hydrochloride can be given intramuscularly in doses of 200 to 300 mg. base, dissolved in sterile distilled water and repeated after 6 hours. It can be injected intravenously too, but because of its tendency to cause sudden lowering of B.P. this is best done by intravenous drip 200 to 300 mg. base being dissolved in 500 cc. normal saline. Scott (*Am. J. Trop. Med.*, 1950, 40: 503) using it in this way reported excellent results. When rapid action is required it is well known, that mepacrine hydrochloride and mepacrine methane sulphonate can be given by intramuscular injections. Quinine can also be given both intravenously and intramuscularly but as was emphasized in a protracted correspondence in the *British Medical Journal* in 1951-1952, intramuscular injections of quinine are liable to be complicated by abscess formation and so this route is seldom justifiable.—(*Practitioner*, Oct. 1954).

Use three physicians still; first Doctor Quiet
Next Doctor Merryman, and Doctor Dyet.—Salerno.

AN INTERESTING CASE OF LEUKAEMIA

K. C. MEHTA, M.B., B.S.,

"Krishna Kunj," Malabar Hill, 212, Walkeshwar Road, Bombay-6

Mrs. S., aged 24, a well-to-do married Hindu lady was operated on 17th July '53 for deviated nasal septum. After operation there was severe continuous nasal bleeding which was not controlled by intravenous injections of 10 cc. of 10 percent Calcium gluconate and Vitamin K, (10 mg. Synkavit).

Previous history of illness of the patient.—She suffered from diarrhoea mixed with blood and later from severe menstrual bleeding in 1947 both of which were easily controlled. In June 1952, she had pain behind the sternum and left midaxillary line with low temperature, while she was in South India where she was treated for pleurisy with injections of Dihydrostreptomycin and general tonics orally. She returned to Bombay in Feb. '53, and in June '53 complained of breathlessness, dyspnoea, chronic cold and small palpable and painful glands on both sides of the neck, as also pain under the sternum. In view of her previous pleurisy attack, I treated her with general tonics, and injections of Ostelin Forte once a week. She improved in her general health but the glands in the neck did not subside.

Present illness.—She sought advice from a surgeon who decided to operate her for deviated nasal septum. Accordingly she was operated on 17th July '53, and the bleeding could not be controlled as stated before. Plugging did not help. Blood transfusion was next considered and blood counts and blood grouping were done. R.B.Cs—2,228,000 per cmm; Hb-34%; colour index-0.78; average size of R.B.Cs. 7.0 μ ; white cells-164,000 per cmm. The differential count showed:—Neutrophils 49%; Eosinophils 3%; Lymphocytes 9%; Myeloblasts 2%; Premyelocytes 7%; Myelocytes 19%; and Metamyelocytes 11%.

Abnormalities observed in R.B.Cs. were: Hypochromia, Anisocytosis and Poikilocytosis.

Abnormalities noted in white cells were: Marked leucocytosis, with premature leucocytes suggestive of a leukæmic condition. No parasites were found in thin or thick smears.

Blood grouping and other tests.—Her blood was of A group and the compatibility test revealed blood donors Mr. X and Mr. B. to be suitable and compatible with her blood. The skin bleeding time and clotting time were within normal limits. The blood platelets were low; 120,000 per cmm. the normal level being between 200,000 to 500,000 per cmm.

The patient was given 300 cc. of blood at midnight but the bleeding continued; on the next morning she was given Calcium gluconate and Synkavit intravenously but to no purpose. Plugging failed to stop it. I was called in to see her on the afternoon of the 18th with the concurrence of the surgeon-in-charge. I gave her 2 injections of Venemostat subcutaneously and Clauden intramuscularly; but with no result. The surgeon cauterised the wound and still the bleeding did not stop; another transfusion of 350 cc. blood was given at 11-30 p.m., but again without effect. The bleeding was still continuous and in spurts even on the morning of the 3rd day after operation. I gave her one injection of Venemostat, subcutaneously and one injection of the protein-free Neohaemoplastin (P.D. & Co.) intramuscularly and one injection of Combistrep intramuscularly; 50 cc. of 25% glucose with 10 cc. of 10 per cent Calcium gluconate, *plus* Synkavit and Redoxon 500 mg. *plus* 2 ampoules of congo-red—all mixed together were given intravenously. In addition Streptobion tablets (Merck) were given one thrice a day. The bleeding was controlled at 1-30 p.m. and there was only slight bleeding at intervals. The injections were repeated at night excepting Venemostat and Neohaemoplastin and the bleeding was thereby well controlled. Suitable treatment on the above lines was continued till the 26th July and the patient was feeling much better. But on 27th July she began to bleed again profusely through the nose as before. I gave her Coagulen (Ciba) 5 cc, Neohaemoplastin, Synkavit and Cebion 500 mg. intramuscularly. The bleeding was arrested and the patient felt better but very weak. The injections were repeated, in reduced doses, for 4 days and from the 18th of August, B₁₂ was also given, 100 micrograms on alternate days for 10 days and then once in 4 days till 6th September '53.

The blood of the patient was examined on the 11th August and again on the 27th August with the following results:—

	11-8-'53.	27-8-'53.
RBCs	... 2,480,000	2,56,000
Hb.	... 45%	42%
Colour Index	... 0.83	0.84
Size of RBC	... 7 μ	7 μ
WBC	... 1,20,000	1,28,000

Differential count in per cent:

Neutrophils	... 51-0	49-0
Eosinophils	... 3-0	4-0
Basophils	... nil	nil
Lymphocytes	... 13-0	10-0
Monocytes	... nil	nil
Myeloblasts	... 1-0	2-0
Premyelocytes	... 6-0	8-0
Myelocytes	... 17-0	17-0
Metamyelocytes	... 9-0	10-1

Abnormal RBCs.	{ Hypochromia, anisocytosis and poikilocytosis and 3 normoblasts in 200 RBCs.	{ Same as on 11-8-'53
Abnormal WBCs.	{ Marked leucocytosis, with premature leucocytes suggestive of leukæmia.	{ Same as on 11-8-'53
Parasites.	none.	none.

Nitrogen mustard was considered but not used. Instead Urethane Elixir (Boots) in doses of one teaspoon, twice or three times a day *plus* 2 Ferroncum tablets (Sandoz) twice a day and one injection of Vit. B₁₂ (100 micrograms) every fourth day were given as a routine treatment from 10th Sept. '53 for 3 weeks. The results of blood examination before and after treatment are given below.

Details of Exam.	Before Treatment. 9-9-'53	After Treatment. 25-9-'53
RBCs.	... 2,270,000	3,080,000
Hb.	... 46%	44%
Colour index	... 0.73	0.73
WBCs.	... 1,240,000/cmm.	89,600/cmm.

The differential count on 25-9-'53 showed:—

Neutrophils 55%; Eosinophils 3%; Basophils 1%; Lymphocytes 9%; Myeloblasts 1%; Premyelocytes 6%; Myelocytes 11% and Metamyelocytes 14%. The picture was one of leucocytosis with premature leucocytes of the myeloid series.

Urethane Elixir was stopped and vitamin B₁₂ injections twice a week with Ferroncum tablets twice a day were continued. The patient felt much better and was ambulant within the house and occasionally went out also for a motor ride. Blood examination on 8th Oct. '53, revealed a slight improvement over the previous fortnight and the leucocytosis with premature leucocytes of the myeloid series was on the decrease. The patient's appetite had improved and she had gained in weight. A blood examination at the end of October revealed further improvement, though the myeloid leucocytes were still present. Vitamin B₁₂ and Iron tablets were continued. The patient left for South India on 6-12-'53 with her husband, in a very cheerful spirit. She was advised to have her blood examined every month and the result of the examination on 4th December were much the same as in the October examination, but there was a tendency for the myeloid leucocytes to show an increase. A blood examination made while she was in South India (on 7th Jan. '54) showed a slight increase in the total WBCs. I advised them by post to take Urethane Elixir again and Iron tablets *plus* vitamin B₁₂ injections twice a week.

At the end of Feb. 1954 she took ill again with occasional bouts of pain in the splenic and sternal regions. So she returned to Bombay in March '54. The blood examination showed that her

condition had deteriorated and the WBCs, had greatly increased inspite of Urethane Elixir therapy. The spleen was palpable and tender, and small isolated glands had developed on both sides of the neck. I had her treated at the Tata Memorial Hospital, Bombay, by deep X-ray therapy to the splenic region. Seven exposures were given in 16 days. The spleen was not palpable after treatment but the patient was feeling weak.

The blood-picture in the 3 examinations, on 8-3-'54 before deep X-ray, on 22-3-'54 during X-ray treatment and on 2nd April after X-ray therapy revealed the following features.

Details.	8-3-'54	22-3-'54	2-4-'54
R.BCs./cmm. ...	3,920,000	3,200,000	3,400,000
WBCs/cmm. ...	1,40,000	1,16,000	46,000
Hb. ...	64.0%	62.0%	34.0%

The WBC count showed a decrease but the general condition of the patient had deteriorated. With vitamin B₁₂ injections and iron orally she again improved, but occasionally complained of sternal pain and rise of temperature.

On the 5th June '54 the 4th day of her menstrual cycle, she had severe vaginal bleeding with passing of clots. Coagulen (Ciba) was given without relief; 50 cc. of 25 per cent glucose *plus* Cal. gluconate 10 cc. (10 per cent) *plus* Redoxon forte *plus* Synkavit, *plus* Congo-red one ampoule, all together were administered intravenously; in addition to these, she received intramuscularly Neo-hæmoplastin and Testosterone propionate 25 mg. The bleeding was completely controlled by the next day when the injections were repeated except Testosterone. Vitamin B₁₂ was given on two days 7th and 8th June.

(She had received already 5300 microgrammes of Vitamin B₁₂ by the parenteral route till the middle of December '53).

She began to complain of sternal pain, breathlessness, evening rise of temperature with rigors. The left lobe of the liver and spleen were palpable and tender. The patient went again to the Tata Memorial Hospital for a check-up on 15th June '54 and the blood examination revealed RBCs. 3,700,000/cmm; Hb-80 per cent: WBC. 52000. She was advised to have an injection of Coagulen (Ciba) before her next period. She grew weaker and took to bed with pain in all the extremities and sternum and with small enlarged glands in the neck and groins. The temperature ranged from 97°F. to 103°F with night sweats. The spleen showed enlargement to 3 fingers' breadth and was also painful and tender as also the left lobe of the liver. The pulse showed an increased rate and a decrease in volume. She had palpitation and systolic murmurs were heard at the apex. The lungs were clear. An ECG was taken and except for S.T. depression, no evidence of myocardial damage or coronary disease was noted. The blood examined on 12th July 1954 revealed

a relapse and an acute exacerbation of the disease in the subacute stage. On referring her again to the Tata Memorial Hospital she was advised to take Cortisone for 3 days and then report. The patient's relatives did not wish to pursue this course and consulted a homœopath, who treated her for 4 days without any relief. Her condition had become worse. Leukæmic spots were seen on the upper portion of the left tonsils and she felt difficulty in opening her mouth. The jugular veins showed enlargement. The urine showed traces of albumin and uric-acid crystals in large numbers.

The specimens of blood examined on the 21st July and 5th Aug. 1954 showed considerable increase in WBCs. and an increase in myeloblasts and in the leucocytosis with premature myeloid leucocytes.

I gave her 2500 microgrammes of vitamin B₁₂ in the course of seven days from 7th to 14th Aug. which enabled the patient to feel better and talk for a few minutes. She was continuing a homeopathic oral drug all the time which had some effect on the glands in the neck and groin.

The patient at this stage had an enlarged right lobe of the liver, an enlarged spleen and looked like a case of right sided heart failure with engorged veins in the neck and œdema of both legs; systolic murmurs were heard all over the area. The lungs were however, clear. The urine was full of uric acid crystals.

Blood examination showed an apparent improvement in total WBCs count but the abnormal white blood cells were nearly equal to the normals. She complained of abdominal distention and constipation alternating with diarrhœa. The temperature ranged from 98°F to 101°F with an increase in respiration and pulse rate. There was a reduction in the size of the glands in the neck and groin which had also become soft and less painful. The leukaemic deposit on the upper part of the left tonsil however, persisted. At this stage the patient left for Calcutta to take expert homœopathic treatment.

The reason for reporting this case lies in the fact that the leukæmia was not diagnosed, till intractable bleeding occurred following an operation, that despite various drugs—in fact every conceivable hæmostatic was tried—and lines of treatment the patient had recurrences and that vitamin B₁₂ in large doses alone helped at every stage to produce some amelioration in her condition. From the history it will be observed that the onset was gradual, starting with a reduction in Hb. and RBCs., together with a pronounced and later an enormous increase in the WBCs. During the later stages there was loss of weight, pallor, dyspnœa, cough, palpitation, œdema of the lower extremities, night sweats, irregular temperature, enlargement of liver and spleen.

Leukæmic deposits on the tonsils and uric acid crystals in abundance in the urine, were also guiding factors.

This case also stresses a very important fact *viz.*, the need for active and concerted cooperation between surgeon and physician especially in difficult cases like this, and for a team spirit and team work generally between the physician, and the specialists.

(NOTE:—I have since heard with regret that this very patient lady died on 23rd October 1954 of heart failure with extreme general debility).

RECENT TRENDS IN THE TREATMENT OF LEUKÆMIA

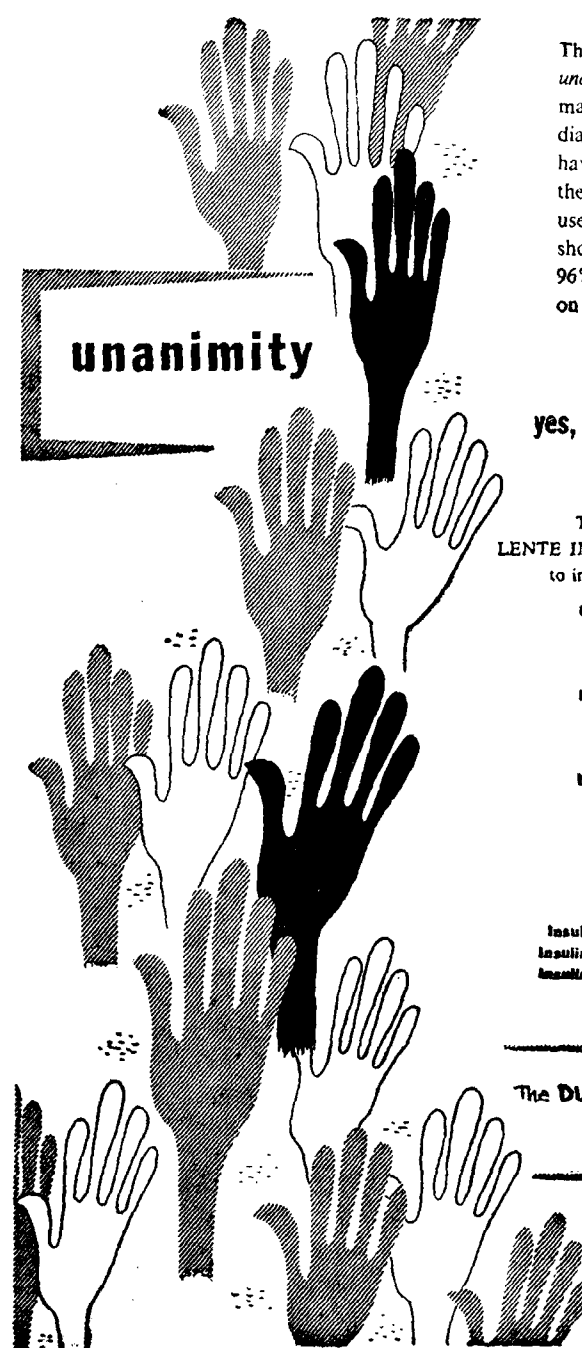
I. "Experimentation in the chemotherapy of leukæmia continues to be vigorous. Life may be protracted and development of resistance postponed to some extent by the use of combined therapy on the same principles as PAS and streptomycin in tuberculosis" says Dr. Ian G. W. Hill of the University of St. Andrews a specialist in cardiology, writing in the *Practitioner* for Oct. 1954. He groups the chemotherapeutic agents useful in Leukæmia as follows:—(1) Folic-acid antagonists, like aminopterin and amethopterin—used in acute leukæmia and particularly effective in acute lymphatic leukæmia. (2) Purine antagonists such as 6-mercaptopurine, having a wider spectrum than the Folic-acid antagonists. (3) Nitrogen-mustard, R. 48, T.E.M., which are used in chronic lymphatic leukæmia and Hodgkin's disease. (4) 'Myleran' a specific for chronic myeloid leukæmia. (5) Cortisone and ACTH are most useful in acute leukæmia of childhood. All the above except No. 5, are very toxic and cannot be recommended for general use. The standard treatment for leukæmia remains, transfusion and penicillin for acute leukæmia supplemented by ACTH or cortisone when available, and X-ray therapy for chronic leukæmia.

II. Dr. Joseph H. Burchenal of New York writing in the *Bulletin of the N.Y. Academy of Medicine* for June 1954, summarises the position as follows:—(1) In acute leukæmia, the sequential use of the anti-metabolites, Amenopterin, Amethopterin and 6-mercaptopurine (purinethol) and the hormones ACTH and cortisone may produce beneficial effects in a high percentage of children. In adults, mercaptopurine has given definite but less frequent beneficial effects. (2) Irradiation either by local or total body X-ray or radio-active phosphorus therapy offers a wider range of applicability and technique than any chemotherapeutic agent in chronic forms of leukæmia. (3) In chronic myelocytic leukæmia, Myleran TEM, urethane, arsenic and HN₂ in order of preference are useful chemotherapeutic agents. 6-Mercaptopurine is still under evaluation. (4) In chronic lymphocytic leukæmia, the only agents of value are the mustard derivatives TEM, HN₂ and the hormones and possibly urethane.

[NOTE: There is thus great conformity of opinion and procedure in English and American practices.—Ed. ANTISEPTIC].

CHLORPROMAZINE FOR HICCUP

Moyer *et al* treated 10 patients with intractable hiccups who had failed to respond to nearly all the "usual commonly available remedies for hiccups." In six of these, the hiccups were arrested within 20 minutes of administering 25 mg. chlorpromazine intramuscularly. Two other patients required a second dose after 4 hours before the hiccups stopped.—(*Am. J. Med. Sc.*, 228: 174, Aug. 1954).



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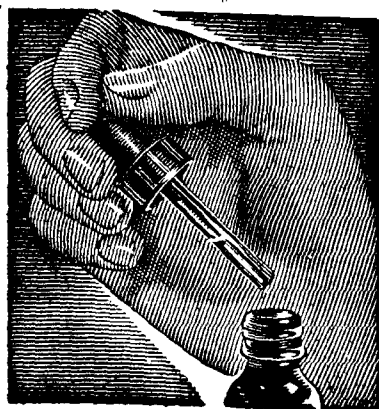


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Editor: U. KRISHNA RAU, M.B., B.S., M.L.A.

Associate Editor: U. VASUDEVA RAU, M.B., B.S.

Editorial & Publishing Office: 323-24, Thambu Chetty St., Madras-1

Annual Subscription: Rs. 7-8-0. Foreign—Rs. 10—Post Paid

Vol. 52

FEBRUARY, 1955

No. 2

THE USE OF INSULINS IN THE TREATMENT OF DIABETES MELLITUS

(A Review of the State of Our Present Knowledge)

It is 34 years now, since Banting made insulin available for the treatment of diabetes mellitus and it might be really useful to review briefly the history of its use during these long years with special reference to the various methods since evolved for retarding the quick absorption of insulin, slowing its speed of action and prolonging the duration of its effect on diabetes.

Insulin is a protein (mol. wt. 41,000) containing many amino-acids. Its pharmacodynamic action is due to the configuration of the protein molecule as a whole and not to any single or particular amino-acid. Being a protein, it is readily destroyed by proteolytic enzymes; so in the extraction of insulin from the pancreas it was necessary to preclude the action of these proteolytic digestive enzymes and the chemists succeeded in doing so. The precise mechanism of action of insulin is still in the realm of conjecture. The main effect of insulin on carbohydrate metabolism is in increasing glucose utilization. The accumulated evidence indicated that the effect of insulin must be at the initial step of phosphorylation or at the point of entry into the cell. Previous work indicating the effect of insulin as an inhibitor of the pituitary, allowing the hexokinase system to phosphorylate glucose, was shown to be unacceptable. The proposition that insulin aided the entry of glucose into the cell came to the fore. Using galactose, an isomer of glucose, in eviscerated-nephrectomized dogs, Dr. Levine of Chicago found a substance which was not utilized but nevertheless would enter the cell. In an insulin-free preparation, the galactose distributed itself in a volume equal to 40 per cent of the body weight. In the presence of insulin, this area of distribution increased to 70 per cent of the body weight, i.e., total body water. Thus insulin

[135]

enabled galactose to enter cells to which it had no access in the absence of the hormone. Phosphorylation could not be a factor since there is no known mechanism for the phosphorylation of galactose. Since insulin acts by aiding the entry of galactose into the cell, it is a reasonable assumption that its effect should be similar for glucose, rather than affecting some intracellular enzyme system. This hypothesis has been confirmed by Drury and Wick (1951) using isotopic galactose and glucose. Other substances including five carbon sugars were studied in a fashion similar to galactose. It was found that in addition to the six-carbon sugars, *d*-glucose and *d*-galactose, two five-carbon sugars i.e., *d*-xylose and *l*-arabinose were aided into the cell by insulin. The chemical configurations of these sugars indicated that insulin had an effect upon only those sugars possessing a structure similar to glucose at carbon atoms one, two and three.

Therefore, insulin increased the carbohydrate oxidation, utilization and transformation by increasing the intracellular supply of glucose, as well as other sugars having a similar configuration around carbon atoms one, two and three. This is accomplished by promoting the entry of the sugar into the cell, past the cytostructural barrier. Once within the cell, the sugar enters the metabolic pool.

Insulin is undoubtedly one of the most dramatic therapeutic agents known to medicine in modern times. Its indiscriminate use is fraught with dangers. Diabetes is especially likely to develop in those people who are overweight or have a history of diabetes in the family or both. Nearly 50 per cent of all diabetics are past middle age and are obese. Diabetes due to obesity can be controlled to a large extent by restrictions in diet alone. Thus a reducing diet allowing 1200 to 1600 calories a day will greatly help. If the sugar clears from the urine on this diet and when the patient has reduced 10 per cent below the ideal weight, the calories should be increased to 2500 calories or more depending upon the arduousness of the work he has to do. If the urine still remains sugar-free and the weight stationary on this increased diet, the diabetic can be considered to be under control.

If however, sugar persists in the urine while either the reducing diet or the maintenance diet is being followed, insulin should be given. The type of insulin needed in individual cases must be chosen with care. A good acquaintance with the nature and characteristics of the different types of insulin and the proper indications for each is essential for good management of diabetes. Timing of the various insulins now in common use is the most important factor to be remembered.

The types of insulin in common use are:—(1) Ordinary, or soluble, unmodified insulin; (2) Protamine Zinc insulin; (3) Globin insulin; (4) N. P. H. Insulin and (5) the newer Danish Lente,

Ultralente and Semilente insulins, which are Insulin Zinc suspensions.

The first insulin, now known as unmodified ordinary soluble insulin, was produced in one strength and had a rather rapid action (within one hour); its duration was however short, and wore off in 6 to 8 hours. Multiple daily doses, usually two or four, were therefore necessary, for the control of the disease. This was in sole use till 1936 when protamine zinc insulin became available with which it was possible to control some cases of diabetes with a single daily dose of insulin. Protamine zinc insulin was found to have two disadvantages when used as a single dose treatment:—Its span of action is round about 26 hours, but the commencement of its action is so slow that hyperglycemia is apt to occur for from 2 to 4 hours after its injection, unless the first meal, usually the breakfast, is severely restricted as regards its carbohydrate content. The other drawback lies in the fact that its blood-sugar reducing action extends practically to the end of 24 hours and early morning hypoglycemic reactions are liable to occur unless a carbohydrate feed is taken at bedtime.

Globin insulin became generally available in the late thirties of this century. It is intermediate in action, (14 to 20 hours) and has some advantages over protamine zinc insulin. Its action is more prompt in appearing after injection and its blood-sugar reducing action wanes, after about 14 to 20 hours, thus obviating the risk of early morning reactions. It is useful in cases requiring small dosage and in very young patients. One disadvantage is the likelihood of hypoglycemic reactions occurring in the late afternoon. Another drawback is that globin zinc insulin injections are followed by local pain in 25 per cent of cases—a serious disadvantage in treating juvenile diabetics.

By 1940 various attempts had been made to combine protamine zinc insulin with booster doses of unmodified soluble insulin to be given in a single injection in the morning. Many cases responded well to a single dose of these mixtures in a ratio of one unit of protamine zinc insulin to 2 units of one of the other two insulins. Though it is somewhat tedious to mix the two in the syringe, many patients are able to do so without any difficulty.

The attempts to evolve an insulin with an effect approximating that of the 1:2 mixture, materialised in 1950 by the advent of NPH insulin which replaced to a great extent all the previous insulins in common use. This NPH is quite satisfactory in all cases of mild or moderately severe diabetes. It is a crystalline compound of insulin, protamine and zinc in a combination in which no extra protamine and zinc are free to combine with soluble insulin if mixed with it. Normoglycemia can be attained by using single doses of NPH insulin along with very minor restrictions in diet. It is advisable to allow 20 to 30 per cent of available

carbohydrate for breakfast and divide the remaining 70 to 80 per cent between the other two meals. The time interval between meals is important. Noon and evening meals may be usually separated by about six hours without hypoglycæmia developing. But time feedings are not usually necessary with this insulin also.

Three newer long-acting insulins (insulin zinc suspensions in an acetate buffer medium) have been elaborated by Hollas-Møller of the Novo Laboratories in Copenhagen; *The Lente*, *Ultralente* and *Semilente*.

The *Lente* (Insulin zinc suspension) is a mixture of *ultralente* 7 parts and *semilente* 3 parts and is available in 40 or 80 units dosage per cc. Its duration of effect lasts for about 24 hours and its action is similar to that of a mixture of soluble and protamine zinc insulins. It controls moderately severe diabetes throughout the day without causing hypoglycæmia at nights. It produces no local or general reactions and obviates the need for combining two insulins (soluble and prot. zinc). *The Ultralente* (Insulin zinc suspension—crystalline) has a duration effect of over 30 hours and is supplied in doses of 40 units per cc. It has a more prolonged action than protamine zinc insulin but has the disadvantage of being too very feeble in its action during the first few hours to effect control during the earlier part of the day; this disadvantage could be overcome by adding a small quantity of *semilente* which is an amorphous insulin suspension with a duration effect of only 12 to 16 hours.

The insulin zinc suspensions are long acting and contain no protein other than the hormone itself. They are safe therefore, to use on patients allergic to protamine or globin. They are unsuitable for diabetic ketosis and coma, for brittle diabetics and for the unstabilized cases.

Globin or protamine zinc insulin should *not* be given in a dose exceeding 40 units per day. In their text book on Diabetes Mellitus (1953) Dunlop *et al* outline the therapeutic procedure to be followed in diabetes mellitus:

"In all cases considered unsuitable for management with dietary restrictions alone and in which therefore, insulin therapy is essential, the treatment should start with soluble insulin, the average case requiring (if there is no imminent diabetic acidosis) 28 units of soluble insulin to be given in 2 divided doses of 14 units each, before the morning and evening meals. The need for increasing the dose is indicated by the presence of sugar in the urine which should be tested (i) on rising in the morning, (ii) before lunch, (iii) before supper and (iv) before retiring to bed. If specimens before lunch and before supper contain sugar the morning dose should be increased; but if the other two *viz.*, (i) and (iv) reveal sugar, the evening dose should be increased. Increases in dose should be gradual, 2 to 4 units per dose and adjusted to suit the

degree of persistent glycosuria. Once the glycosuria has been greatly reduced or abolished, soluble insulin may be replaced, by protamine zinc insulin. If the amount of soluble insulin which was previously necessary was not more than 40 units per day a single injection of protamine zinc insulin given before breakfast will be sufficient."

This then would be a satisfactory method of controlling the usual case of diabetes in the absence of concurrent diseases or complications of the disease itself which, as is well known, have all a marked effect on the blood sugar, *e.g.* acute respiratory infections, gastric upsets and diarrhoea. Treatment of these complications should of course be carried on concurrently. "In severe illness, postpartum or postoperative, the simplest treatment is to use one of the rapid acting insulins every four hours, the dose being regulated by the degree of glycosuria. This will be quite satisfactory in patients with normally functioning hearts and kidneys. If glucose is to be given intramuscularly or intravenously to such patients, a rapid acting insulin should be given in a dose of about one unit to 2 g. of glucose. Insulin reactions are a feature of unstable diabetes. "When reactions occur with undue frequency, an analysis of their reality is essential. Some patients, having been warned about the possibility of insulin reaction, may interpret certain symptoms, not of hypoglycæmic origin, as insulin reaction. When these occur frequently and are treated with carbohydrate in excess of dietary allotment, hyperglycæmia and excessive glycosuria usually result. The patient and his physician, then concerned about the diabetic control, decide that more, and usually needless, insulin is required. Symptoms likely to be confused with those of hypoglycæmic state usually are 'peculiar,' light-headedness, headache, transient weakness, mental confusion or visual disturbances. When these occur frequently especially in a person whose diabetes is difficult to control, he must be very closely watched and studied."

Maddock and Kral¹ classify insulin reactions into two types: (1) *adrenalin-like*:—nervousness, tremors, weakness, hunger, tachycardia, palpitation, sweating, and pallor; (2) *central nervous system type*:—headache, nausea, vision, and speech disturbances, slow reactions, mental confusion, personality changes, anxiety, depression, twitching, crying, masked facies, convulsions, and coma. These symptoms mistaken for those of insulin reaction, simulate those of the central nervous system type. Some of these are also seen in *petit mal* epilepsy.

Hypoglycæmic reactions due to a relative excess of insulin in the diabetic follow a fairly consistent pattern. As a rule, they are relieved, quickly, by ingested carbohydrate (soft drinks, syrup, candy, food, etc.). The time of occurrence of true insulin reaction is relatively constant for the type of insulin being used. Thus reactions from protamine zinc insulin tend to occur in the early

morning hours; those from globin and NPH in the late afternoon; those from a mixture of regular and PZI either before lunch or supper; and, those from lente insulin are reported to occur in the early evening. There is usually a history of a delayed, light or omitted meal, excessive exercise, or possibly accidental overdose of insulin. A relatively low blood-sugar is usually obtained at the time of the reaction. Thus, a careful history as to the time of occurrence and the events preceding the reaction is essential and often revealing. When a bizarre pattern is elicited, usually in an uncontrolled diabetic, one is justified to question the hypoglycæmic origin of the symptoms.

Greenblat, Murray, and Root (1946) state it is not known whether reported insulin reactions can produce abnormal cerebro-electroactivity. On the other hand, Himwich (1944) states that profound hypoglycæmia can depress brain activity to one-quarter its normal rate. Greenblat *et al* found 51 per cent of diabetics with the frequent insulin reaction to have abnormal electroencephalograms. Anticonvulsant therapy minimizes or eliminates the symptoms and assists in obtaining better control of the diabetes.

In conclusion it may be stated that about 30 to 50 per cent of diabetics can be controlled *without* the use of insulin, especially the elderly obese patients, whose diabetes is detected within a few weeks or months after the onset of symptoms. For those who do require insulin therapy, most cases can be well controlled by the single-shot-a-day therapy with NPH insulin or one or the newer long-acting Danish Lente insulins as they are devoid of local or general allergic reactions and represent a distinct advance over the previous types of insulins.

References:

1. Bornstein, J. and Lawrence, R. D., (1951)—Br. Med. Jour., 1: 732.
2. Chaudhuri, B. R., (1954)—Bull. Calc. Sch. Trop. Med. 2: 1, July '54.
3. Drury, D. R. and Wick, A. N., (1951)—Am. J. Physiol., 166: 159.
4. Dunlop *et al.* (1953)—Diabetes Mellitus, Textbook of Medical Treatment.
5. Eaton, C. D., (1953)—J. Mich. St. M. S., 52: 10.
6. Francke, D. E., (1954)—Univ. Mich. Med. Bull., Oct. 1954.
7. Greenblat, M. *et al.* (1946)—Quoted by No. 23 below.
8. Hallas-Moller, K., *et al.* (1952)—Science, 116: 391.
9. Hallas-Moller, *et al.* (1952)—Jour. Am. Med. Assoc., 150: 1667.
10. Hayes, D. W., (1954)—Jour. Louis. St. Med. Soc., 106: 10, Oct. 54.
11. Himsworth, P., (1949)—Lancet, 1: 465.
12. Himwich, H. (1944)—Quoted by No. 23 below.
13. Lawrence, R. D., (1951)—Br. Med. Jour., 1: 375.
14. Lawrence, R. D. and Oakley, W., (1953) Br. Med. Jour.
15. Levine, R. *et al.* (1949)—Am. J. Physiol., 163: 70.
16. Levine, R. D. *et al.* (1949)—J. Biol. Chem., 179: 985.
17. Maddock, R., and Krall, L., (1953)—Arch. Int. Med., 91: 6, 695-703.
18. Murray, I. and Wilson, R. B., (1953)—B.M.J., 2: 1043.
19. Nabarro, J.D.N. and Stavas, J.M. (1953)—B.M.J., 2: 1047.
20. Qly. Med. Rev. (1954)—4: 3.
21. Steine, L., (1954)—G. P., 45-47; July '53.
22. Stetten, D., (1952)—Jour. Am. Med. Assoc., 150: 971.
23. Thosteson, G. C., (1954)—J. Mich. St. Med. Soc., 53: 10, Oct. '54.

THE CENTRAL COUNCIL OF HEALTH

Third Annual Meeting—A Momentous Session

INAUGURATING the three-day session of the third annual general meeting of the Central Health Council, Sri PATTOM THANU PILLAI, Chief Minister of Travancore-Cochin State, said, "In India though we have been taking sustained action to prevent epidemics and afford better public health facilities, we still have a long way to go. The expectation of life in India still continues to be very low compared with that in Western countries. In a country inhabited by poor and illiterate people like ours, educating the common man in personal hygiene and civics is important."

He said both Ayurveda and Allopathy should continue to flourish side by side. Speaking of his own State, he said from humble beginnings in 1816 the present Medical Department had developed. The State had also organised a separate Ayurveda Department, besides running an Ayurveda College which now has 193 students. Besides normal public health work, there were special teams and units in charge of B.C.G. work, malaria and filariasis control, public health engineering and statistics. They had a Medical College, and a Nurses' Training School.

Sri P. K. KUNJU, State Health Minister referred to the innumerable problems in medicine and public health which could be solved only on an all-India basis.

RAJKUMARI AMRIT KAUR, Union Health Minister in her address said that the Committee which had been set up to draft a model Public Health Act was expected to complete its work by February. The programme for medical research under the second Five-Year-Plan would be discussed at a meeting of the Scientific Advisory Board in February 1955. A Conference would be held during the course of the year to evolve methods for the improvement of medical education in all its aspects.

Reviewing the progress of the health programme in Community Project areas, though an appreciable advance had been made in some States, she admitted that the progress, on the whole was *extremely slow*. "The lack of the requisite trained staff was an important difficulty, and to overcome this, the Union Government had already offered financial aid to State Governments to augment the training programmes for women health visitors, auxiliary nurses and mid-wives. Another difficulty was that the number of primary health centres was still inadequate. Some States had not been able to set up any centre at all. Many States experienced difficulty in recruiting medical officers for rural centres."

"The main reasons were that the remuneration was inadequate, there was a dearth of suitable residential accommodation, and the existing dispensaries and hospitals in rural areas were not properly equipped. Before qualified doctors can be attracted to them, these

centres should be expanded, and well equipped so that they can provide sufficient opportunities for medical officers to do their work."

Leaders in India are divided in their opinions as to the availability of trained personnel for services, especially for the rural areas. Dr. S. C. SEN, told the All-India Medical Conference held at Lucknow, on 26th December 1954 that he did not accept the excuse for the failure of the health programmes, that there was a dearth of medical practitioners. He called for the exploding of that oft-repeated "myth," and asserted "we have the means to start at least ten times the number of hospitals, as well as the urban and rural dispensaries proposed in the five-year plan." The first five-year-plan was not very ambitious, as it provided for an increase in the number of doctors by only eleven per cent, and of hospitals by only two and a half per cent. But in the matter of urban and rural dispensaries it aimed at considerably greater increase, as much as twenty five per cent in some cases. Dr. SEN charged that only forty per cent success had been achieved even in this limited increase, and for this poor result he blamed the authorities concerned and the low wages offered. We have time and again stressed this point in our columns. India's Prime Minister Sri JAWAHARLAL NEHRU recently expressed the view that it will take a century at the present rate to provide sufficient doctors, and nurses to cater to the needs of all the people. So all are practically now agreed, (including the Union Health Minister) that the progress made in rural medical welfare has been exceedingly slow, the reason being that remuneration was inadequate, there was a dearth of suitable accommodation, and existing hospitals and dispensaries were not properly equipped. These are failings which have existed for many years, and have been the subject of much comment from all quarters including ourselves; Governments have been told repeatedly that unless they provide sufficient amenities and opportunities for medical men to serve in rural areas *they will not go*. But little has been done to overcome the problems to get trained men into the villages.

We have it on the authority of Dr A D MUKHARJI, the West Bengal Health Minister who told us in Madras on 29th January, 1955 that his State was spending over 16 % of its total revenue on medical relief and that doctors serving in rural areas were paid a salary in the scale of Rs. 250 to 400 *plus* a rural service allowance of Rs. 200/- and were given free family quarters. This has naturally attracted a large number of medical men to rural areas and the Rural Health Centre Scheme has been a great success, thanks to the foresight and practical approach of the Chief-Minister Dr. B. C. Roy and the Health Minister Dr. A. D. MUKHARJI. If this has been possible in Bengal why should it not be possible in Madras and in the other States?

During the recent momentous Golden Jubilee Session of the Indian National Congress held at Avadi last month, there was a discussion which centred round the need for expansion of rural credit for the development of India's industries, as a means of solving the country's great problem of unemployment. But is it not a fact that rural development is intimately connected with rural health? Illness and epidemics have been sapping the vitality of our people particularly in the villages, and plenty of good material is being wasted. There must be close, willing and hearty co-operation between those who plan for industrial development and those responsible for the health of the people in rural areas. Otherwise the chances of success are not bright.. If the second five-year-plan which aims at a great expansion of cottage and small scale industries is to succeed, it must also make ample provision for improving the health of the people by speeding up the extension of training institutions, and by improving conditions in rural areas, with adequate inducements to get doctors, nurses, and others to settle in them.

Continuing her review of the progress made during 1954, the RAJKUMARI said that the B.C.G. vaccination programme had been quite satisfactory. Practically, the whole country was now being covered. A total of 150 doctors and 750 technicians were engaged in the programme and 42,000,000 persons had so far been tuberculin-tested, and out of them, 14,000,000 had been vaccinated with B.C.G.

Progress in the national malaria control programme had also been satisfactory.

"Very considerable" progress had been made in the course of the year in the formulation and execution of the national water-supply and sanitation programme.

The Union Government proposed to organise a post-graduate course in Virology at the Virus Research Centre in March this year and every year thereafter for the benefit of pathologists and bacteriologists.

The prevalence and social significance of protein malnutrition as a "public health hazard" were beginning to be realised widely as a result of the work carried out by the Indian Council of Medical Research in Coonoor and Madras. Country-wide surveys of protein malnutrition would be carried out during the next year in collaboration with the WHO.

It was also disclosed that the national filariasis control programme would be introduced shortly.

A proposal was also under the consideration of the Union Government to start a centre for post-graduate education in Ayurveda at Jamnagar.

The Council reviewed the progress on the health front detailed by the Union Health Minister as a result of the discussion that followed, in which the Health Ministers of the different States took part, the following recommendations were made for implementation.

1. The Council recommended to all State Governments to consider recruitment and employment of health personnel in the community-project areas and for B.C.G. and National Malaria Control programme on a permanent basis in their health services.

2. The Council accepted the proposal of the Pharmaceutical Enquiry Committee, to suitably amend the Drugs Act of 1940 in order to give control of production of drugs to a single authority—the Central Government.

3. It was decided to set up a Central Public Health Engineering Organisation in the Directorate-General of Health Services to attend to the drainage schemes in urban areas. The Council recommended that every State should set up a similar public health engineering organisation which should be under the control of the Ministry of Health of the States.

The Council was told that the Union Ministry of Health had allocated Rs. 12 crores sanctioned by the Planning Commission for urban water supply and sanitation schemes sent up by the States. There was also a provision of Rs. 6 crores for rural schemes out of which about Rs. 2.7 crores were allocated to States for the schemes they had formulated. State Governments who had not taken advantage of the Central provision for water supply and sanitation were asked to expedite their schemes.

4. The Council commended for the acceptance of the States, the recommendation of its committee for raising the standard of the nursing profession in India. The Committee, under the Chairmanship of Sri A. B. SHETTY, Madras Health Minister, suggested among other things, payment of stipends and allowances, provision for pension or provident fund, improvement in working conditions, appointment of a Superintendent of Nursing Services in each State and adoption of measures for increasing training facilities.

5. According to the interim report of the Leprosy Committee, appointed by the Government of India, on the recommendation of the Central Health Council, there were over 12 lakh lepers in the Country, but only 140 in-patient institutions, with a total accommodation for only 18,500. The Committee recommended that the anti-leprosy work in the States should be co-ordinated with the research and development activities of the Centre.

6. The Council viewed with concern the lack of adequate student health services in the country and recommended that all States should take immediate steps to establish student health services.

7. Other important recommendations of the Council included appointment of an expert committee by the Union Government to report within six months on the need for a uniform policy for the control of practice of unregistered quack doctors, and for a liberal policy by the State Governments in the matter of admission to medical colleges.

8. The Council also suggested the formation of an All-India cadre for teachers in the non-clinical departments of all medical colleges on the basis of the Indian Administrative Service. This, the Council felt should be the first step towards improving the standard of medical education in the country.

9. A recommendation for the establishment of an All-India Institute on the lines of the Royal Sanitary Institute, London was also made by the Council.

The Central Health Council meets once every year and we are treated to interesting reviews and discussions on nearly all the health problems which are of vital concern to the nation; but we feel that the actual implementation of these pious resolutions has been neither energetic nor quick; and the pressing needs of the vast rural population in the matter of medical relief and sanitary improvements remain unsolved. Rural medical relief, to our mind, is the most pressing problem on which the Union and State Governments should concentrate in the years to come, even more than industrial and agricultural developments which can be effected only with the aid of robust workers who are enabled to enjoy and maintain good health.

REJOICE WITH US DEAR READER!

(Further extracts from Reviews of our Golden Jubilee issue)

The *NAPT Bulletin*, for December 1954 in its review of the *ANTISEPTIC*, (Golden Jubilee number): Tuberculosis section writes:—

"In India where the problem of tuberculosis is grave, a great deal of responsibility falls, we are told, on the general practitioner, who has a very important role to play in the prevention of the disease, in the diagnosis and treatment of cases and in advising the individual as well as the community on tuberculosis problems. Other articles include a historical review entitled *The Long Crusade against Tuberculosis* and an article on *Tuberculosis in Industry* by Professor Heaf of Britain.

Contributions on specialised aspects of tuberculosis include an article '*Encephalomalacia in Children Resulting from Tuberculous Meningitis and Arteritis*' which breaks some new ground in the neurological field. An article on *Tuberculosis of the Skin* points out that lupus vulgaris in India often occurs on parts of the body other than the face."

The *University of Durham Medical Gazette* in its issue of November '54, writes:—

"By the vision and drive of its founders, as noted in public life in Southern India as in Medicine, and by the maintenance of a family tradition of editorship, this journal has risen to a leading position in the field of Indian medical journalism.

The completion of 50 years' service in the promotion of medical education and reform, medical relief and research, in the service of modern scientific medicine in a continent of some 400,000,000 people is an achievement of which to be proud.

For this issue the editor has received over 200 articles connected with medicine in all its branches and it has therefore, been necessary to withhold the bulk of these for publication in future monthly issues. This truly international edition includes 58 articles of absorbing interest by men and women eminent in the profession of medicine in India, America and England, and as befits a Jubilee issue, the majority of the contributors have undertaken the review of progress in the various specialities of medicine in the past 50 years with comment on modern aspects of treatment.

A consistently high standard is maintained and it would be invidious to select any single article for praise.

With so many excellent articles, there can be none so erudite who cannot learn something from this edition. In congratulating the editors of the *ANTISEPTIC* on this Jubilee issue, the *University of Durham Medical Gazette* extends cordial greetings and good wishes for the continuing success of this star of Indian medical journalism."

The *Bulletin of the Post-graduate Committee in Medicine*, writes:—

"The Golden Jubilee number of the *ANTISEPTIC*, a monthly journal of medicine and surgery founded by Dr. U. Rama Rau in

1904, contains reviews and articles covering the progress in the various fields of medicine, surgery and the ancillary sciences during the past fifty years. The issue contains over 500 pages, and includes photographs of many of the contributors."

The Indian Journal of Pharmacy, for September/October 1954 says:—

"The ANTISEPTIC has rendered valuable and outstanding services to the development of the medical profession in India. The special number consists of nearly 600 pages of reading matter, has been nicely printed and covers a very large variety of topics. The contributors include many from abroad who are outstanding authorities in their respective fields: the book should prove to be quite useful for practising physicians and every physician would find something of interest to him."

The Indian Medical Journal, Calcutta for December 1954, writes:—

"We have great pleasure in commending the Golden Jubilee number of the ANTISEPTIC to the medical profession of India. In a big volume of over 500 pages, this special number has given a wide variety of topics useful to the general practitioners."

The ANTISEPTIC started its life with high aims and ideals "to bring the medical profession in India to its legitimate place in the forefront of all learned professions. In this matter the work of the ANTISEPTIC is to be commended."

The McGill Medical Journal, says:—

"Last April, the ANTISEPTIC, which is one of the most distinguished medical journals of India, celebrated its fiftieth anniversary by publishing an issue of over 500 pages. It would be impossible for us to comment in a short space on over 50 articles contributed by authorities the world over, except to say that the ANTISEPTIC is always one of the more interesting journals which the *M.M.J.* has the privilege of exchange. We must content ourselves with offering our congratulations and best wishes for the future."

The Medical Officer, London, dated 12th November 1954, writes:—

"In celebration of its Golden Jubilee the ANTISEPTIC has published an issue which is about six times the normal length and includes reviews of programmes, and other special articles, which between them deal, in part or in whole, with most specialities in medicine and surgery. Occasion is taken to review the work done by the journal in the last half century and to "recall with pardonable pride" the notable success it has achieved in its efforts towards the advancement of medical practice and medical education amongst several other objectives."

We congratulate our Indian contemporary on completing so successfully the first half century of its existence. In doing so, we find, from a study of the September issue, that we are joining—somewhat belatedly, it is true—in a chorus of greetings which the ANTISEPTIC has been receiving from journals in all parts of the world."

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Gleanings From The Medical Press

MEDICINE AND THERAPEUTICS

Bactericides improve sterility of linen.—(*Med. Times*, March 1954).

It has been found that wet surgical linen permitted the passage of bacteria even though the dry linen prevented such passage. Linen which had become wet with sterile rinse water, perspiration, etc., therefore exposed the surgeon's hands, instruments, and suture material to contamination.

Propost reported in *Am. J. Surg.* (86: 30, 1953) that the impregnation of the lines with benzalkonium chloride (Roccal) during the last laundry rinse by immersion in a 1:2500 solution provided an effective means of preventing the transmission of bacteria. Hexachlorophene also inhibited the transmission of bacteria through wet linen.

Diagnosis of barbiturism.—(*Am. Pract. and Dig. Treat.*, p. 393, May 1954).

The most extensive experimental knowledge about barbituric intoxication is gathered in psychiatric hospitals where patients have been systematically subjected to prolonged barbitol sleep in the so-called hibernation cure. In private practice, supervision of symptoms is more difficult because patients who are addicted to barbiturates do not go to their physician to be cured but only to get a new prescription when the drug store refuses further requests. Only when there is a complicating symptom do they ask for treatment, often without mentioning their habit.

The diagnosis of barbiturism is simple when the patient gives an adequate history. However, he often denies habitual use of sedatives and refuses clinical investigation. In the hospital special chemical methods are available to show barbiturates in blood and other body fluids. When the patient is in coma this is the only dependable method of diagnosis. Twenty-five per cent of all acute poisonings are barbiturate poisoning.

Diarrhoea in infants and children.—is best treated with a combination of

aureomycin and triple sulphonamides. The combination is also valuable for combating dysenteries of undetermined causation and for preventing or controlling secondary infection. Aureomagma is a suspension, 4 cc. of which contains 125 mg. of aureomycin, 167 mg. each of sulphadiazine, sulphamerazine, and sulphamethazine, 0.08% of Methyl Paraben, and 0.02% of Propyl Paraben. The preparation is diluted 1:10 and given at six hour intervals in amounts calculated to supply 12.5 mg. of the antimicrobial and 50 mg. of the triple sulpha components per kilogram of body weight in twenty four hours.—(*J. Paediatr.*, 44: 407-413, in *Mod. Med.*, Sep. 1, 1954).

Chlorpromazine as an anti-emetic.—(*The Practitioner*, Oct. 1954).

On the basis of their experience in treating 305 cases, Moyer *et al* (*Am. Jour. Med. Sc.*, Aug. 1954, 228: 174) consider that 'chlorpromazine is an effective agent for blocking the mechanism of nausea and vomiting without prohibitive side-effects. Among the patients in the series were 78 with nausea and vomiting of pregnancy, of whom 55 obtained complete relief, and only four were complete failures. There were also 38 patients receiving nitrogen mustard therapy; in 24 chlorpromazine gave complete relief from nausea and vomiting, and there were only two in whom no relief was obtained. The incidence of reactions was: sedation in 47%, dizziness in 24%, dryness of the mouth in 19%, tachycardia in 14%, and hypotension in 12%. These reactions tended to occur more often after intramuscular administration than after oral administration. In this investigation the drug was given initially by the intramuscular route in cases in which the patient could not retain the tablets orally on account of the vomiting. The recommended dosage schedule is as follows: an initial dose of 10 mg. If this is not effective, and reactions are not marked the dose can be increased to 25 mg. which is the usual effective dose

when taken by mouth. 'This can be adjusted up or down as therapy continues, depending on the response of the patient.' 'The frequency of drug administration is usually every four hours.' When the drug is given in 25 mg. doses intramuscularly, or in 50 mg. doses orally or intramuscularly, it is recommended that the patient be kept at rest, 'because of the occasional development of orthostatic hypotension to the point of syncope.'

Preventing lesions from insulin injections—(*Metabolism*, 3:1-10, 1954, via *Modern Med.*, Oct. '54).

Fabrykant and Ashe of New York University, find that dermal lesions at the site of insulin injections are prevented or decreased by proper technique of administration and by daily shifting of the injection area. The recommended method consists of stretching the skin and injecting the insulin perpendicularly deep into the subcutaneous tissue. The skin should not be folded or the injection made at an angle or in any way to cause superficial deposition of insulin. Occasional temporary inflammatory lesions will still appear but persistent indurations and lipodystrophies are prevented.

Studies of 100 insulin-treated diabetic patients reveal that skin lesions at injection sites are nonspecific reactions to mechanical and chemical irritation and are not related to any specific type of insulin or to insulin allergy.

Cocoon water from immature fruit—(*Modern Med.*, 1-10-'54, from *Arch. Surg.*, 69:87-93, 1954).

May be safely infused intravenously but because of a diuretic action is useless for correcting dehydration. Although the potassium and magnesium content is high B. Eiseman, M.D., of the University of Colorado, Denver, R. E. Lozano, M.D., of Tela, Honduras, and T. Hager of Washington University, St. Louis, find that these cations are nontoxic. Slight transient reactions, including pyrexia, urticaria, and headache, occurred in 11 of 157 subjects receiving infusions. In emergencies when pyrogen-free fluids are unavailable, the naturally

sterile substance may be used as a source of potassium and calories or as a vehicle for added sodium salts in the treatment of hypovolemia.

Collagen diseases—(*Lancet*, 2nd October 1954).

The Third International Congress of Internal Medicine was held at Stockholm from Sep. 15 to 18, 1954. Nearly 1100 members from 33 countries, including the U.S.S.R., attended the meeting.

The symposium on collagen diseases was opened by Paul Klemperer (U.S.A.), who reviewed the history of the concept of collagen diseases. The term collagen diseases was chosen as an abbreviation for "etiologically obscure maladies characterised by widespread implication of the intercellular connective tissue with predominant fibrinoid tissue reaction." These include rheumatic fever, rheumatoid arthritis, periarteritis nodosa, dermatomyositis, generalised scleroderma, and systemic lupus erythematosus.

Recent histopathological and histochemical studies of systemic lupus erythematosus suggest that the fibrinoid connective-tissue damage in this disease is the result of precipitation of abnormal proteins (degraded nucleoproteins) within the amorphous ground-substance. These degradation products have been found within the lumen of blood-vessels and may reach the ground-substance by transudation. Probably the intermediate substances of the connective tissue are, under normal conditions, in genetic relationship with the plasma-proteins, and a disturbance of this relationship is one of the factors in the pathogenesis of diseases characterised by systemic implication of the intermediate substances of the connective tissue. The concept of collagen disease originated in observations of structural anomalies of these substances.

W. S. C. Copeman said that the changes in the plasma proteins are sufficiently striking and constant, particularly in the gamma-globin fractions—for Ehrlich to have referred to the collagen diseases as the dysgammaglobulinæmias. The increase of gamma-globulin fractions is correlated in rheumatic

fever with the rise in specific antibodies, and in disseminated lupus erythematosus with the rise in the L.E. factor.

Clinically the course of these diseases tends to be subacute or chronic with a tendency to remissions. Hypersensitivity has been linked with each disease, with varying success. The heart, serous membranes, joints, and blood-vessels may be the source of clinical signs; the lymph-glands and spleen tend to be enlarged. The incidence of these changes varies considerably between the diseases of the group; in rheumatoid arthritis the blood-vessels are rarely involved, whereas in periarteritis nodosa they are constantly affected. Serous changes are common in disseminated lupus erythematosus but unusual in rheumatoid arthritis. In disseminated lupus erythematosus the severity of the joint involvement often makes it impossible to disprove the co-existence of rheumatoid arthritis; in this instance the joint pathology and joint fluid may be identical.

Radiographic changes in the lungs have been described in rheumatoid arthritis, disseminated lupus erythematosus, scleroderma, and periarteritis nodosa. These changes do not fall into clearly defined patterns, and apart from the so-called "corona" around the mediastinum in periarteritis nodosa do not facilitate diagnosis. Joint pain and swelling are present in varying degrees at some stage in all the collagen diseases. The joints or surrounding tissues give rise to the presenting symptoms in the majority of these disorders, except possibly scleroderma where joint involvement is mainly due to contraction of surrounding structures. Apparently the only symptoms common to these disorders are those referable to the musculo-skeletal system.

Finally it is noteworthy that cortisone relieves the symptoms of these disorders. Claims of cures are difficult to substantiate from the small series so far reported, because of the recognised incidence of spontaneous remission.

P. S. Hench (U.S.A.) surveyed the use of the cortisones and corticotrophins in general and in collagen diseases in

particular. These hormones constitute the treatment of choice for different types of anterior-pituitary or adrenocortical insufficiency and various non-hormonal conditions, including acute acquired hæmolytic anaemia, temporal arteritis, severe bronchial asthma, acute inflammatory bursitis, severe atopic dermatitis, acute dermatitis medicamentosa, acute systemic lupus erythematosus, acute pemphigus vulgaris, early periarteritis nodosa, acute rheumatic fever, and acute pericarditis or early carditis, non-tropical sprue, acute non-suppurative thyroiditis, and about twenty types of acute allergic or inflammatory ocular conditions.

In a further group the cortisones or corticotrophins are often beneficial; satisfactory control can be provided in many but not necessarily in the majority of cases. Hence, the hormones are indicated in *selected cases*, generally *not* as the treatment of choice, but as the supplement of choice or remedy number 2. This group would include progressive or severe rheumatoid arthritis and its variants, juvenile nephrosis, acute allergic (or contact) dermatitis, dermatomyositis in the acute phase, hæmorrhagic or thrombocytopenic purpura, serum-sickness, severe delirium tremens, and about twenty other conditions.

J. Roskam and H. Van Cauwenberge (Belgium) said that salicylates increase the 17-hydroxycorticosteroid level in plasma and urine, and this is probably the reason for their influence on diseases in which corticotrophin and cortisone are effective. The beneficial action of salicylates in rheumatic fever is well known, and recently E. G. L. Bywaters reported that their effect seems to be equal to that of corticotrophin and cortisone in this disease. Administered in large doses and for a long period they are also useful in ankylosing spondylitis, rheumatoid arthritis, and similar diseases.

Sodium salicylate and aspirin are beneficial in acute disseminated lupus erythematosus, purpura, rheumatoids, periarteritis nodosa, and psoriasis with erythrodermic and articular manifestations. In these diseases the association

of cortisone or corticotrophin with salicylates might possibly cure the acute manifestations. The improvement may be continued by salicylates alone, though treatment must be long continued. Finally, salicylates are sometimes active in scleroderma, chronic gout, terminal ileitis, and ulcerative rectocolitis, as well as in the prevention of some allergic reactions (Shwartzman reaction, serum-sickness) and in asthma. All these beneficial results may be explained partly by the action of salicylates on the adrenal glands, but the possibility of a more direct pharmacological effect cannot be excluded.

Long term chemotherapy of chronic pulmonary tuberculosis.—(*Lancet*, 2-10-1954, pp. 663-666 and Editorial, pp 691-692).

Joiner and his colleagues at the Guy's Hospital, London record their experiences with the use of combined therapy (Isoniazid and PAS) in chronic pulmonary tuberculosis.

Previous trials by the Medical Research Council, the U.S. Public Health Service by Duggeli and Trendelenburgh, and by Breathnach in 1953-54, supported the view that the two drugs in combination were effective in the treatment of pulmonary tuberculosis. Thoren and Hinshaw in 1952 and Ford in 1953 obtained unfavourable results with this combination.

Joiner *et al* carried out carefully controlled trials on 30 patients with chronic fibrocaceous pulmonary tuberculosis dividing them into 2 comparable groups rotating (R) and isoniazid PAS (IP). Group R received isoniazid 250 mg. daily, PAS 10 g. daily by mouth and streptomycin sulphate 1 g. intramuscularly twice a week given in pairs as under:

1 to 4 weeks—Isoniazid and streptomycin;

5 to 8 weeks streptomycin and PAS;

9 to 12 weeks—PAS and isoniazid and from 13 to 14 weeks above cycle repeated.

Group IP received isoniazid 250 mg. daily and PAS 10 g. daily by mouth given continuously.

The patients were chemically and radiographically assessed at intervals.

Both groups showed the same rapid initial improvement and they could not be distinguished chemically at 12 weeks. From about the 18th week patients in Group IP were more troubled by cough and sputum-counts of patients in Group R continued to fall, and month by month more patients became negative by direct microscopy. On the other hand, patients in Group IP relapsed; a number of patients whose sputum had been negative by direct examination reverted and those patients whose sputum had never become negative showed a rise in the sputum count. Cultural examination at the 24th week showed a higher proportion of sputum-positive cases in Group IP than in Group R. Sensitivity tests performed at the same time showed that whereas only 3 of the patients in Group R were resistant to the drugs with which they had been treated, 7 of the patients in Group IP showed resistance to one or more of the drugs they had received. The mean sedimentation-rate of the patients in Group R continued to fall whereas that of the patients in Group IP rose slightly. Changes in weight and radiological appearances were inconclusive.

The results of this valuable small trial certainly do suggest that rotating pairs of drugs may have had a more lasting antibacterial effect; and Dr. Joiner and his colleagues wisely claim no more. It would be unwise, on the other hand, to condemn prolonged use of isoniazid and PAS on the present evidence. Further light will no doubt be thrown on the question by the Medical Research Council's report on the bacteriological findings in patients treated with this combination for six months.

While suspicion is being caused on isoniazid with PAS in England the use of isoniazid alone in certain circumstances has been recommended in the U.S.A. This is indeed heresy. Deuschle *et al*, treated 47 patients for a year with isoniazid; and from the form of their report, with its detailed arguments and advocacy, they clearly expect opposition. Their use of this drug alone was based on the assertions that no instance of meningitis has been reported during

isoniazid treatment of miliary tuberculosis; that there is no evidence from clinical trials that it loses its clinical efficacy in pulmonary tuberculosis sooner than streptomycin and PAS or streptomycin and isoniazid; and that resistant strains, unlike those resistant to streptomycin and PAS, differ biologically from sensitive strains in respects other than drug susceptibility. Their arguments are ingenious and stimulating. It is, therefore, particularly unfortunate that they have incorrectly cited the results of the Medical Research Council trials and drawn wrong conclusions from them. They declare that it has "not been possible to establish with absolute certainty that isoniazid with streptomycin is superior to isoniazid alone."

It is unlikely that the firmly established practice of using drugs in combination will be upset in Britain by this report; but there is much of value in it. It is for instance, well worth considering whether in certain circumstances, as in the home-care of patients in the less advanced countries, it may be reasonable to give isoniazid alone, accepting the risks of lowered efficiency and more frequent bacterial resistance, rather than give no drugs at all. In many patients PAS causes digestive disturbances, and the drug is not ideal for long-continued unsupervised consumption. Mackaydick and Rothnie state that they have stopped administering it to British Army patients because of its unpleasantness and toxicity. On the other hand, Dooneief and Hite, from experience with P.A.S. and other drugs given continuously for periods of up to thirty-eight months, conclude that "the patient's willingness to continue treatment for years is in proportion to the physician's conviction that it is necessary and to his transmission of his belief to the patient."

Pyrazinamide seems now a more promising partner to isoniazid than when the first clinical trials were reported. Schwartz and Moyer gave it in doses of 3 g. daily, along with PAS, streptomycin, and isoniazid, to 181 patients before a case of mild jaundice occurred. Seven patients with advanced

disease, all of whom had streptomycin-resistant strains in the sputum, received pyrazinamide and isoniazid continuously for a year. Cultures became negative in all, and remained so throughout the trial.

Is a completely horizontal position necessary after lumbar puncture?—(*J.A.M.A. Abst.*, 18-9-1954 from *Nederl. Tijds. Gen.*, 98: 29-5-54).

Most hospitals enforce a strictly horizontal dorsal posture for at least 24 hours after spinal (lumbar) puncture. This is done in the belief that it will avoid complaints. Many patients, however, do not like this prolonged horizontal position, and the rule stresses the widely accepted belief that lumbar puncture is a serious intervention. In order to be able to judge the advisability of this measure, Verjaal and Kraft kept alternate patients of a consecutive group of 200 patients who were undergoing lumbar puncture lying flat on their back for 24 hours after puncture. The other patients were permitted to move freely in their beds and use a pillow. The two groups of 100 each were otherwise comparable. The number of patients with complaints after puncture was the same in each group. As a result of this investigation, the authors were not convinced of the efficacy of making patients lie down flat for 24 hours after puncture.

Complications of mumps.—(*Lancet*, 25-9-1954, Annotation).

In many acute virus diseases, such as smallpox, poliomyelitis, measles, and mumps, the presence of myocarditis is now suspected. In Stockholm 564 cases of mumps were routinely investigated by electrocardiography on admission to hospital, and cases in which the findings were abnormal were followed up throughout convalescence. Evidence of acute myocardial damage was found in 6.6 per cent of the 127 adults and in 2.8 per cent of the 437 children; such changes were more than five times commoner in girls than in boys. The changes included S-T depression of more than 0.15 millivolts, flattened T waves, atrioventricular block, and extra-sys-

toles; they persisted, on an average, for four weeks. In several cases tachycardia, transient murmurs, and transient enlargement of the heart were also found.

The electrocardiographic changes were detected mostly in patients with complicating meningo-encephalitis (diagnosed by very broad criteria). Lumbar puncture was done not only when nuchal rigidity (relatively rare) was present but also where there was vomiting, dizziness, and headache. Pathological changes in the cerebrospinal fluid and/or appreciable electro-encephalographic changes, were found in 54 per cent of cases in the series, although only about half of these had even slight symptoms of meningo-encephalitis. Neuritis affecting the sixth or eighth cranial nerve was found in 3 cases.

Orchitis occurred in no less than 67.7 per cent of the males over 14 years of age in the Stockholm series. The treatment of 6 cases of mumps-orchitis with long-acting corticotrophin in a dosage of 100 international units intramuscularly is recorded in another investigation. In 5 of these 6 cases the acute inflammation subsided promptly and even dramatically. The inflammation tended to recur after thirty-six to forty-eight hours; but a second dose usually put an end to this complication. Biopsy of the inflamed testicles has shown that the profuse exudation causes a profound disturbance of spermatogenesis, which, it seems corticotrophin may prevent by blocking the exudative reaction.

Pulsus alternans—Its detection and significance.—(*J. Med. Soc. N. J.*, Jan. 1954).

Attention has recently been called to the clinical significance of a simple, yet often overlooked, physical finding, *pulsus alternans*. White points out that because of cardiologists' preoccupation with electrocardiography and other mechanical means of studying the heart, attention has been diverted from this easily detected sign of left ventricular weakness.

Alternation of the pulse is defined as a regular variation of the fullness and pressure of alternate strokes during the

regular beating of the heart. The difference in systolic blood pressure varies from 1 to 10 or 15 millimeters of mercury during such alternation. Pulsus alternans may last for hours or days, or exist for but a few minutes. It may also occur for only a few seconds after a premature beat.

A simple method for its detection consists of inflating the sphygmomanometer cuff to the systolic level while the patient holds his breath. The examiner listens carefully for a halving of the sounds of the pulse beat, or watches the mercury column for halving of the rate, or feels every other pulse beat drop out at the wrist. Other, less simple methods, including recording devices such as the ballistocardiogram may be used.

Pulsus alternans occurs particularly where there is considerable strain on the left ventricle, as in severe hypertension, aortic stenosis or regurgitation, or myocardial infarction, old or new. It is significant because it is one of the useful signs of left ventricular weakness and may appear earlier than other evidence, viz., diastolic gallop rhythm, increasing accentuation of the second pulmonic sound, or dyspnoea on effort or paroxysmally at night. When found, pulsus alternans calls for the same treatment as congestive failure of any origin—restriction of activity, digitalization and limitation of the dietary salt intake.

Alternation of the pulse occurring during an attack of paroxysmal tachycardia is a sign of temporary fatigue, and is not of importance prognostically. It is only when it occurs during ordinary heart rates of 60 to 100 that it becomes a significant finding.

Cerebral vascular accidents.—(*M. Clin. N. Am.*, 38: 765–779, 1954 via *Mod. Med.*, 1: 10-1954).

Spontaneous cerebral vascular accidents may be caused by hæmorrhage, arterial or venous occlusion, or hypertensive encephalopathy. A space-occupying lesion must also be considered in diagnosis. Occasionally, an extracranial factor such as myocardial infarction causes cerebral manifestations.

HÆMORRHAGE.—Sudden, severe headache and excruciating neck pain are the initial symptoms of *subarachnoid hæmorrhage*. The patient frequently loses consciousness and may have convulsions. Neurologic examination shows signs of meningeal irritation. Recent retinal hæmorrhages may be noted. Spinal fluid is grossly bloody. Blood pressure may be normal or elevated.

With a *subcortical hæmorrhage*, the patient is comatose, and focal signs reflect the site of the lesion. The spinal fluid is bloody if hæmorrhage occurs into the ventricular system. However bleeding may be into an encapsulated hæmatoma that acts as a space-occupying mass. Surgical evacuation of the hæmatoma often gives good results.

Hæmorrhage into the internal capsule produces sudden, complete contralateral hemiplegia with coma. As cerebral oedema develops, additional sensory and motor disturbances occur. The secondary manifestations are transient unless bleeding is extensive or the common carotid artery is thrombosed.

ARTERIAL OCCLUSION.—When *cerebral thrombosis* causes arterial occlusion, the syndrome varies according to the artery affected. Occlusion of the vertebral-basilar arteries produces paralysis of one or both sides of the body; decerebrate fits; blindness; and loss of consciousness. When the anterior cerebral arteries are occluded, motor and sensory functions of the lower extremities are lost; when the middle cerebral arteries are involved, the upper extremities and face are affected.

Signs and symptoms of *internal carotid artery thrombosis* vary with the rapidity and site of occlusion and degree of collateral circulation. Onset may be sudden and simulate hæmorrhage into the internal capsule, or various parts of the body may be affected hours or weeks apart. Sometimes symptoms occur repeatedly for a few minutes or hours at a time. Spinal fluid is clear; diagnosis must be based on cerebral angiographic examination.

Diagnosis of *cerebral embolism* as a cause of occlusion is confirmed by finding sources of embolism in other parts of the body, as, for example, valvular

disease of the heart, auricular fibrillation, an intramural thrombus or bacterial endocarditis.

Narrowing of the lumen by arteriosclerosis or atherosclerosis may produce cerebral manifestations, especially if the cerebral blood supply is impaired.

VENOUS OCCLUSION.—Phlebothrombosis and thrombophlebitis may involve the cerebral venous circulation. Symptoms depend upon the vessel occluded. Pseudotumor symptoms of head-ache, papilloedema, and other evidence of increased intracranial pressure may occur. Ventriculograms reveal small ventricles without displacement. The thrombus can be removed surgically.

ENCEPHALOPATHY.—Increased intracranial tension, multiple miliary cerebral lesions, and large cerebral vascular accidents may occur with hypertensive encephalopathy. Miliary lesions produce transient but severe motor, sensory, visual, speech, and mental disturbances. The vascular accident may take the form of hæmorrhage or encephalomalacia.

DIFFERENTIAL DIAGNOSIS.—Previous disease of the patient may suggest the diagnosis; for example, thrombotic process is likely with diabetes. The blood pressure level, state of cardiovascular system, onset and course of disease, and spinal fluid content aid in differentiating the causes of cerebral accidents.

Onset may be sudden hæmorrhage or thrombosis, but, when symptoms appear gradually, the lesion is probably thrombotic. The spinal fluid is clear with thrombosis, but is bloody with cerebral hæmorrhage, unless a subcortical hæmatoma is encapsulated. Spinal puncture should not be made when intracranial pressure is increased.

When the course of cerebral vascular accidents is progressive, a space-occupying lesion must be suspected. Head-ache, papilloedema, and convulsive seizures may give clues but none is conclusive for differentiation between tumour cerebral vascular accidents. Spinal fluid of patients with brain tumour may have an elevated protein content. Roentgen-ray examinations may be helpful. The pineal gland rarely shifts with vascular lesions. Calcifi-

cation of an angioma or aneurysm may be seen. Electrocardiographic, arteriographic, or ventriculographic examination may be necessary.

Erythromycin in pneumonia.—(*The Practitioner*, October 1954).

A comparison of the relative efficacy of penicillin and erythromycin in the treatment of pneumococcal pneumonia has been made by C. D. Gibson *et al.* (*Annals of Internal Medicine*, July 1954, 41: 112). The dosage of penicillin was 300,000 units of procaine penicillin intramuscularly every twelve hours until the temperature approached normal, and then the same amount intramuscularly once daily for another forty-eight hours. The dosage of erythromycin was 25 mg. per kg. of body weight orally every twenty-four hours, given in divided doses

at four-hourly intervals, until the temperature had been normal for two days. The initial dose was always double the subsequent doses. There were 21 patients in the penicillin series and 24 in the erythromycin series. No deaths occurred in either group, but two patients in each group 'did not make satisfactory improvement in their initial therapy and were removed from the series.' An analysis of the remaining cases showed comparable results in the two groups. No serious reactions to erythromycin were encountered. The authors comment: "Our results suggest that in a case of ordinary severity, erythromycin can match the results to be expected from penicillin. Further experience is necessary to determine the comparative efficacy of the two drugs in fulminating, poor-risk patients."

SURGERY

Diagnosis and treatment of prostatitis.—(*Proc. Staff Meet., Mayo Clin.*, 29: 247-250, 1954, via *Mod. Med.*, 1-10-54).

Since inflammation of the prostate gland is uncommon among men under 40 years of age, a related condition should be sought when a young patient has symptoms of the disease. Causative factors may be foci of infection in the teeth or tonsils or strictures in the vesical neck.

The aetiology of prostatitis is not known. An excessive number of leukocytes in the prostatic secretions is the only typical sign. The severity of the inflammatory process is graded according to the number of cells per high-power field. Clumping of the cells is a sign of impaired drainage of the acini and ducts.

Symptoms include burning and frequent urination, dysuria, nocturia, and aching pain low in the groin or suprapubic region. An urethral discharge is rare except with stricture. Perineal pain with transient testicular distress and a watery urethral discharge after stripping the penis are usually caused by a functional disorder rather than prostatitis. The disease does not disturb sexual function.

Symptoms of prostatitis may arise from chronic abscess of the prostatic duct,

which interferes with the drainage of the prostatic glands. Cystoscopic examination reveals minute cicatricial and dilated openings of the ducts. Massage is ineffective, and saucerization of the pockets formed behind the dilated orifice is necessary.

Patients under 40 years of age with prostatitis should be treated. The gland is massaged twice a week for about three months, and 5% argyrol is instilled locally. Change in the prostatic secretion may not be noted for several months. After a three to four-month interval, another shorter course of therapy is given, if infection and symptoms persist.

Treatment of patients over 40 years with prostatitis is not advisable unless related symptoms accompany the disease. Unnecessary therapy is harmful, since local irritation and psychic disturbances may be provoked. Among aged patients, infection of the prostate frequently occurs intermittently with prostatic obstruction. In such instances massage may precipitate more severe damage.

Massage should not be done when prostatic hyperplasia or calculi exist. Unless pyuria or bacilluria is a probable cause of the infection, antibiotics are of no therapeutic value.

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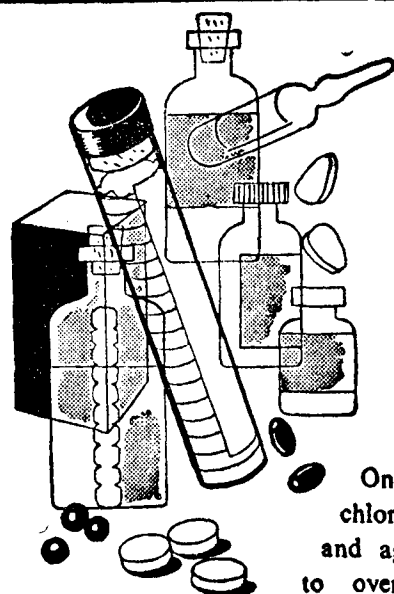
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Cardiac arrest.—(Raymond Davys, M.B., D.A., St. Vincent's Hospital, Dublin, *Jour. Irish Med. Assoc.*, 34:208, July 1954).

Early and energetic intervention will result in successful resuscitation.

The causes of cardiac failure under anaesthesia, may be primary and secondary. Primary failure may follow on ventricular failure due to increased cardiac irritability subsequent to the use of adrenaline, trichlorethylene, chloroform or cyclopropane. It may be due to reflex mechanism of vagal origin, or it may follow anaesthetic overdose. It may be due to air embolism, or it may be initiated by mechanical interference with the heart action. Secondary failure is due to an anoxic myocardium, such as asphyxia may cause.

One or more factors may be concerned in any particular arrest. All authorities are agreed that in cardiac standstill the length of time during which the cerebral cortex may be deprived of oxygen must not exceed 5 minutes, and that even two or three minutes may entail a slow recovery with a period of unconsciousness and possible decerebrate rigidity. Anaesthetists have become much more alive to the dangers of even transient anoxia, which may be responsible for postoperative sequelae, including possible cerebral oedema associated with pyrexia and circulatory collapse. It has been observed following a difficult anaesthetic in which there had been hypoxic episodes.

In the treatment of cardiac arrest speed is the main factor. The brain must have oxygenated blood so that the cardiac pump must be made to function and oxygen supplied to the lungs. For these reasons, in cases where abdomen or chest wall is open immediate heart massage is of far greater importance than the intracardiac injection of a variety of drugs. Where an intra-cardiac injection is given, the effect may well be due to the needle stimulus rather than the choice of adrenaline, procaine, saline, procaine amide or calcium chloride. McMillan favours nor adrenaline for such injection on account of its action as a powerful peripheral vasoconstrictor and coronary dilator. (*Thorax*, vol. 7 p. 205).

Treatment:—1. Immediate head-down position of table to aid the cerebral circulation;

2. Intracardiac puncture with the drug of choice, provided that the needle and solution are both available without delay;

3. Rhythmic inflation of the lungs with oxygen, preferably *via* an endotracheal tube;

4. Cardiac massage, if there is no response to the needle stimulus.

The choice of route for the approach is a matter for the surgeon, and will depend on what operation is being performed at the time of arrest. The cases here presented were all transthoracic as in each case the chest wall was open at the time of arrest. Massage should not be too rapid, and a good firm squeeze 30 or 40 times a minute is much more effective than a faster rate which allows an inadequate time for refilling of the heart. Attempts to compress the abdominal or thoracic aorta will increase the coronary flow, while the use of arterial tourniquets to both arms ensures maximal blood flow to the head.

Repair of indirect inguinal hernia in female children.—(*Mod. Medicine*, Minneapolis, 1-6-1954).

In young females, the hernial sac usually contains ovary with or without the fallopian tube and occasionally loops of the intestine. All such viscera are rather easily reduced into the peritoneal cavity leaving for surgical repair and disposal only the hernial sac, the round ligament, and the walls of the inguinal canal.

Formerly surgeons attempted to dissect the round ligament from the thin friable hernial sac, which too often tore away through the internal ring and complicated matters a great deal.

Recently however, surgeons have stripped the intact sac and round ligament free of cremasteric fibres and loose adventitia well down through the internal ring, flush with the parietal peritoneum. The stump of the sac is then transfixed together with the round ligament by suitable ligature.

After the stitch is tied and excess tissue amputated, the stump of the sac which has been previously tented up through the internal ring usually retracts flush up with the parietal peritoneum, well inside the internal ring. The inguinal canal and external ring are then obliterated by a modified Ferguson repair. The round ligament needs no special attention. The recurrence of hernia occurs only in 0.5 per cent of patients.

Antibiotics in surgery.—(Abst. in *G.P.*, Oct. '54).

In a timely editorial, Rives has commented on the gratifying decrease in the number of serious infections such as periostitis of the mandible, Ludwig's angina, cavernous sinus thrombosis, acute hematogenous osteomyelitis, empyema, and diabetic carbuncles. Furthermore, at the Charity Hospital in New Orleans, the mortality rate in cases of empyema, lung abscess, carbuncles of the face, and erysipelas, as well as that of other infections has dropped precipitously.

Although this is a happy state of affairs, there are certain other influences which are causes for concern. First is the rise of the incidence of the strains of organisms resistant to penicillin from 17.8 per cent in 1947 to 43 per cent in 1951, as recorded by Meleny. This is due in large part to the indiscriminate use of antibiotics in adequate doses. Furthermore, the routine use of antibiotics, especially penicillin and streptomycin, frequently masks deep-seated infections such as perinephritic abscess and sub-diaphragmatic abscess. In this way, an unjustified delay can occur in the institution of surgical therapy.

Moreover, cases of severe infections have become so scarce in the teaching wards of hospitals that medical students and physicians in resident training see them rarely. Consequently, if an individual contracts one of these grave infections caused by organisms which are insensitive to the antibiotics available, and if he is treated by a surgeon unfamiliar with such cases, he is worse off than if the antibiotics had never been discovered.—(*Am. Surgeon*, 20: 583, 1954).

Surgical management of massive gastrointestinal haemorrhage—A report of 39 surgical cases—(George A. Olander, *Am. Surgeon*, 1953, 19: 1123, via *Intern. Abst. Surg.*, July '54, pp. 52-53).

The author's analysis of 39 patients who underwent surgery for gastrointestinal haemorrhage is followed by a discussion of the important factors in diagnosis and treatment of this condition. The source of the bleeding was from duodenal in 19 instances, from gastric ulcers in 11, and from oesophageal varices in 2. In 3 cases, the source of bleeding was not found. Thrombocytopenia, ruptured oesophagus, post-gastrectomy bleeding, and a "vessel in the fundus" accounted for 1 case each.

There were 4 fatalities and 2 of these were among the 19 patients with bleeding duodenal ulcers. This is compared with 4 deaths in a group of 244 patients with the same diagnosis, who were treated by conservative measures in the same hospital during the same period. By contrast, all 11 patients with bleeding gastric ulcers treated surgically survived, while in a group of 21 patients treated conservatively, 3 died.

Accurate preoperative diagnosis is important in these cases in order to institute proper therapy. It is the group of patients with no history of ulcer, or no roentgenologic evidence of ulcer who present the greatest problem in diagnosis. Both of the patients who bled from oesophageal varices were misdiagnosed before surgery; one died and the other had a spleno-renal shunt later. Use of a Sengstaken tube is urged in these cases to control haemorrhage and to aid in diagnosis. If varices are suspected as a possible source of the blood, preoperative trial with the Sengstaken tube may establish the diagnosis and circumvent an ill-advised laparotomy. If laparotomy is mistakenly performed with this condition present, the tube may be inserted at surgery and its effect directly observed.

Thorough physical examination is important. An enlarged spleen or liver makes one suspicious of portal hypertension and oesophageal varices. The presence of petechiae calls for a thorough study to determine if blood dyscrasia

may be the cause of bleeding. The detection of a stomach distended with blood indicates that X-ray studies are likely to be inaccurate, and also precludes further oral feeding.

Röntgenograms are useful between bleeding episodes to localize the site of the pathologic condition. Oesophagoscopy is sometimes useful.

Preoperatively, adequate blood replacement is essential, with a minimum of saline being given, and fluid requirements are supplemented with 5 or 10 per cent glucose solution. Vitamins C, B, and K are added to intravenous fluids, and regulation of the potassium level is especially important in those patients with diarrhoea or vomiting.

Suction is indicated in any case with gastric distention. Unless bleeding is too massive, evacuation of the stomach should always be accomplished just before laparotomy in any case. A colon distended with blood should likewise be evacuated by enemas. Adequate sedation is helpful but must be used with care in patients in shock.

The decision of when to operate on these patients remains a difficult one. Massive haemorrhage with a precipitous fall in red blood count to less than 2.5 million is often accepted as adequate indication for surgery. Patients who readily exhibit clinical shock with lesser degrees of haemorrhage are likely candidates for surgery, however, for they are considered more likely to succumb to subsequent bleeding episodes. Less serious haemorrhage may warrant surgery if other surgical indications are present, such as obstruction or intractability.

Curare-pentothal induction followed by cyclopropane was the most common method of anaesthesia in these cases.

The choice of surgical procedure is deferred until the abdomen is open. The stomach is usually evacuated through a gastrotomy. If the source of the bleeding has still not been determined, a dry pad is placed in the fundus of the stomach and another in the duodenum. Careful inspection and palpation of the small bowel are carried out, and then the pads removed. This usually reveals the source of the haemorrhage. Patients with duodenal ulcers were

treated by gastric resections, including excision of the ulcer, in all but 2 cases. In one of these, bleeding was controlled by ligation of the right gastric vessels, external to the duodenum, and in the other by ligation of the bleeding vessel through duodenotomy. All bleeding gastric ulcers were removed by gastric resection.

Postoperative care does not differ markedly from that after routine gastric resection.

The present status of supraradical cancer surgery.—(*Am. J. Surg.*, 87: 155, 1954, via *G.P.*, June '54).

In an effort to evaluate the advisability of performing the radical mass resections now in common use for extensive malignant tumours, Fisher has reported the results of a questionnaire on this subject sent to leading surgeons throughout America. Although with the aid of excellent anaesthesia, multiple blood transfusions, and better training, these supraradical resections are now possible, the question has arisen of whether or not they accomplish anything in terms of cancer eradication and survival of the patients. Twenty-five of the country's leading surgeons were questioned.

On the value of supraradical mastectomy, including the resection of the supraclavicular and internal mammary nodes, 60 per cent of the surgeons advised against the procedure, feeling that the principles of the Halsted operation meet the requirements of an adequate operation for cancer. They felt that metastases that cannot be prevented by this operation are probably due to transmission by the blood stream, in which case, no extension of the operations would accomplish anything.

Concerning total gastrectomy for carcinoma of the stomach, not one of the surgeons favoured routine total gastrectomy for carcinoma of the stomach. The consensus seemed to be that it should be reserved for cases in which it is impossible to get well above or below the lesion with any lesser operation. One surgeon felt that, although five-year survival rates in carcinoma of the stomach have been improved,

this betterment also has occurred in patients treated by subtotal resection providing no gland involvement is present. Another surgeon emphasised, however, that an improperly performed total gastrectomy might actually remove less lymph-node-bearing tissue than a properly performed subtotal resection. One of the chief advocates for total resection advocated that the number of patients submitted to total gastrectomy should be increased, although he felt that this operation is unnecessary for prepyloric lesions.

Concerning quarterectomy, all felt that their experience with this operation was insufficient for real conclusions.

The opinions concerning pelvic evisceration were more divided. Some felt that it had a definite place in the therapy of pelvic carcinoma in women and is worth doing. Many felt that the terminal days of such patients are made more miserable by the addition of a wet colostomy than if they had been permitted to die in peace. One author

stated that if lesions are localised to pelvic structures and do not involve the pelvic wall, the procedure will be followed by an occasional cure.

Most of the surgeons agreed that multiple organ excision is not justifiable.

Pancreaticoduodenectomy in the treatment of true adenocarcinoma of the head of the pancreas was felt to be ill advised and futile, although in some cases in which a lesion of the bile duct cannot be distinguished from carcinoma of the pancreas, it is indicated on the basis of mistaken diagnosis. Approximately 90 per cent of the replies were unequivocally opposed to the "second look" operation.

The results of the survey indicated that supradical surgical procedures are too new for absolute conclusions and are still in the experimental stage: and although at the present time results are disappointing, this is by no means a unanimous view point, since a few of the surgeons were optimistic and favoured increased use of such procedures.

OBSTETRICS AND GYNAECOLOGY

Toxaemia of pregnancy.—(*Med. Illust.*, 8: 8, Aug, 1954).

Eclampsia and pre-eclampsia, numerically the largest contributors to toxæmia mortality, present a further challenge—aetiologically they remain one of the unsolved problems of medicine. The same obscurity involves the other common toxæmias of late pregnancy, those associated with chronic nephritis and chronic hypertension, and these pre-existent diseases are themselves of uncertain aetiology. The hypotheses that have been advanced to explain eclampsia have been many and various, and this confusion of opinions has been reflected in treatment; for example, both low protein diet and high protein diet have their advocates. Diet seems to be involved in some way, for in wartime in Germany and Holland, when food was scarce, there was a fall in the incidence of eclampsia, which supports the view that excessive dietary protein is a factor, and there is some evidence to suggest that incidence is high in

communities suffering from deficiency of vitamin B or of calcium. Recently the Trueta mechanism has been invoked by way of explanation of pre-eclamptic toxæmia. It is thought that afferent stimuli from an over-taut uterus constrict the intralobular arteries of the kidneys, thereby causing ischaemia of the renal cortex with consequent impairment of function; but while vascular spasm is now regarded by many authorities as fundamental to the pathology of eclampsia, it has more to do with pathogenesis than with aetiology. In other words, why the vascular spasm, or the hypertensive uterus which is said to give rise to it? It must be admitted, unfortunately, that we are quite ignorant of fundamental causes in eclampsia, the only certain aetiological factors being contributory rather than basic, for example, the primigravid state, multiple pregnancy, and hydatidiform mole.

Eclamptic toxæmia belongs to the group of diseases known as streptococcal allergic disorders, typical examples of

which are nephritis and acute rheumatism, following streptococcal infections like tonsillitis or scarlet fever. It is common to get a history of antecedent streptococcal infection in toxæmia. For example, a mother developed pre-eclampsia in her eighth pregnancy, though her previous pregnancies were normal but between the seventh and eighth she had suffered from scarlet fever, otitis media, and mastoiditis. Another patient with a record of 6 normal pregnancies had taken puerperal sepsis after her sixth confinement. With her seventh pregnancy she developed pre-eclampsia. The history of streptococcal infection in these cases appears to be relevant because of the freedom from toxæmia in the earlier pregnancies and suggests that the subsequent toxæmia was the result of an allergic response to infection by *Streptococcus hemolyticus*.

In the nephritic type of toxæmia a history of streptococcal infection is frequently obtained. Scarlet fever is a factor here, and Cruickshank *et al* (1927) noted that 27 per cent of the cases in their series gave a remote history of this condition, and it is apposite to recall the frequency of antecedent streptococcal infection in acute glomerulo-nephritis in view of the clinical resemblances between nephritis and eclampsia. Both are associated with impairment of renal function and both may lead to convulsions or to permanent hypertension. Histologically they are acute vascular disorders, the vascular reaction being the fundamental response in the allergic state. In both conditions, changes occur in the glomerular capillaries, and the characteristic lesions of the eclamptic liver are now widely thought to be due to vascular spasm. The pathological findings, therefore, appear to accord well with the allergic hypothesis.

Treatment of prolonged labour.—(*J. Amer. Med. Assoc.*, 5th June '54, *Med. Press*, 25-8-'54).

Definition of prolonged labour varies with different authorities, but there is fair agreement that twenty-four hours with progressive dilatation and effacement should be considered prolonged.

There is a prolongation of the first stage except when disproportion, abnormal position, or pelvic tumour blocking the birth canal remains unrecognised.

The difference between false and true labour is that the latter does accomplish work, *i.e.*, effacement and dilatation, whereas the former does not. Reynolds has shown with a tokodynamometer recording that there is a pattern of inco-ordinate readings of uterine action in false labour; the midportion of the uterus may contract more than the fundus, or the entire organ may contract so that the cervix and the lower segment of the uterus offer resistance to dilatation.

Prodromal labour is the same as preliminary labour. In occipito-posterior and breech presentations contractions may continue for several hours before any considerable effacement of dilatation occurs. The pattern of contractions is normal for labour, but labour does not progress. Sedation and bolstering up of the patient's morale is the treatment indicated.

The greatest alleviator of a patient's fear is confidence in her physician's ability to make the right decisions and to care for her properly as an individual. Whilst fear may produce inco-ordinate uterine activity, there is no proof that tense or spastic cervix is created by fear tension as an entity existing separately from the general uterine action. A successful physician is able to control not only the patient and her immediate circumstances, but also her husband and importunate relatives, all of whom may be pressing for action when masterly inactivity may be life-saving.

Cephalopelvic disproportion should have been detected by antenatal examination. X-rays must be taken if the slightest doubt exists.

Uterine inertia is, perhaps, the most important clinical condition in obstetrics. Unwise interference may precipitate a train of circumstances ending in disaster. To be able to recognise this condition, to differentiate its effects from, say, disproportion, may avoid an interference (Caesarean section) that results in fatality. Jeffcoate's classification of (1) hypotonic inertia, (2) hypertonic lower segment, internal os,

colicky uterus and constriction ring dystocia, (3) asymmetrical uterine action and (4) cervical dystocia is the finest.

Termination of prolonged labour may be varying:—Low forceps, Cæsarean section, spontaneous delivery are the chief.

In prolonged labour, regardless of the cause, the patient must be fortified by fluids given by mouth, intravenously in the form of dextrose in distilled water. Penicillin must be given intramuscularly every twelve hours in doses of 400,000 units. Sedatives to give rest, bladder and rectal hygiene, avoidance of solid food, and a minimal number of rectal examinations with no vaginal explorations, if possible, are other steps to manage these cases properly. Oxytocic drip may be used with every caution. Good judgement in everything is the most important factor.

Clamping of umbilical cord.—(*New England J. Med.*, 250: 629, 1954 via *G.P.*, Sep. '54).

In his study of various methods of clamping of the umbilical cord, Colozzi showed that the infant receives the most voluminous "transfusion" of placental blood with the following method:—

1. Place the infant on a table below the level of the placenta.
2. Strip the umbilical cord slowly and methodically from vulva to umbilicus (four to eight times).
3. Clamp cord when no longer distended with blood.
4. The author noted that this acquisition of blood from the placenta is relatively unimportant in the normal healthy newborn. However, cord stripping or delayed cord clamping or both are urged to effect a maximum placental transfusion in infants who are shocked after a traumatic delivery, anæmic after a bleeding accident before or during birth, delivered by cæsarean section or born prematurely.

ACTH for hyperemesis gravidarum.—(*Obst. and Gynaec.*, 3: 50-52, '54).

Pernicious vomiting of pregnancy

may be a manifestation of the general adaptation syndrome, according to Dr. B. Benach Carreras of the Municipal Maternity Hospital, Havana. This ætiology explains the success obtained with ACTH for treatment of the condition.

Nausea and vomiting ceased entirely in each of the 15 patients given ACTH as the sole therapeutic measure; 3 had not benefited from other forms of treatment. Vomiting did not recur. Blood pressures and serum electrolytes remained normal, and the patients all delivered healthy infants at term.

Thorn tests for adrenal insufficiency were made for 8 of the patients, but the results were inconclusive.

Patency of the Fallopian tubes.—(*Obst. Gynaec.*, 4: 35-38, 1954).

When insufflated with gas under pressure, patency does not exclude inability to conceive due to disease of the cilia and fimbria. Ciliary and fimbrial activity is necessary for conveyance of the ovum and is continuous throughout the cycle. Albert Decker, M.D., and Wayne H. Decker, M.D., of Knickerbocker Hospital, New York City, measure the functional capacity by the ability of these elements to transport starch granules through the tube. A sterile suspension of Bio-sorb, a glove powder containing derivatives of cornstarch, is deposited over the fimbria or surface of the ovary by means of the operating culdoscope or by cul-de-sac needling. The cervical mucus is removed twenty-four hours later with an intracervical pipette spread on a slide, and stained for two minutes with iodine. With healthy women the material stains blue; however, with atrophy or disease of the pelvic organs the reaction is negative.

Therapy for hypogalactia.—(*Gynaecologia*, 137: 192-197, 1954).

Radiation of the breasts with red light has proved an inexpensive method of increasing the production and secretion of milk in patients with hypogalactia.

Dr. Vendelin Cunderlik radiates each breast for twenty to thirty minutes

daily from the third to seventh day after delivery. Ultra-red rays are absorbed by the deep layers of the skin, thus producing heat energy in the tissue. Subpapillar capillaries dilate, blood and lymph circulation is improved, and the chemico-physical reaction of the subcutaneous tissue is activated.

Painful breast engorgement is also relieved by this procedure.

Pruritus vulvae.—(*Q. Rev. Surg. Obst. Gynaecology*, June 1954).

Pruritus vulvæ—a symptom, not a disease—is a frequent gynaecologic difficulty, being the chief complaint of 10 per cent of private gynaecologic patients. The term connotes little or no accompanying vulval skin changes. The causes of genital itching are multiple and may be classified as: physiologic, systemic, allergic, dermatologic, mechanical, neoplastic, atrophic, psychosomatic, infectious, and idiopathic. Long-continued pruritus may lead to lichenification and pigmentation of the vulva. We have found the commonest causes statistically in our series to be monilial and trichomonad infections. Mention should be made of one of the more recent incitants of pruritus vulvæ: monilial infections following the administration of broad-spectrum antibiotics either systemically or locally.

It should be remembered that the vulva is subject to a series of periodic insults in that it is wet with urine, bathed with menstrual discharge, kept moist by its location between the thighs, subjected to friction on walking, and is located near the anus. The old standby of therapy, such as careful cleansing with a mild soap and keeping the area as dry as possible, should not be omitted.

Antihistamines produce local anæsthetic, sedative, and fungicidal effects, in addition to their antihistaminic activity. Local application, by lotion, cream or ointment, has been preferred by most writers, but others have recommended systemic administration. Waldriff, Davis and Lewis reviewed their extensive experience with seven different antihistamines for pruritus, with 60 per cent to 80 per cent relief

resulting from various preparations. The main disadvantages of the antihistamines are sensitivity and cross sensitivity, which have occurred frequently enough to warrant caution in their use.

Until recently, œstrogen was the only hormone used extensively against pruritus, and its greatest sphere of usefulness is in local application for kraurosis. Within the past several years cortisone and ACTH have entered the field, with glowing reports. Since cortisone is useless locally, but hydrocortisone (compound F) is effective, the latter is used topically in ointment form. Although initial enthusiasm must wane, it seems so far to be quite effective in anogenital pruritus. In his own experience, the author has also found it a definite aid in producing symptomatic relief with decrease of inflammation. Because of the cost of such preparations, and until more experience is gained, their use is limited to those cases not responding to simpler measures.

Surgery should never be the first approach in the management of pruritus except in instances such as leukoplakia or neoplasia where operative procedures are admittedly necessary. Wilson has reported on the use of multiple alcohol injections in 49 chronic, intractable cases. Over 80 per cent received full or partial relief from the itching. By microscopic studies, the author found that the efficacy of this method was due to its degenerative effect on the nerve fibres and its diminution of infection. The main complication was abscess formation in 4 of 120 women so treated. Mering has described a method of wide plastic undermining of the vulval skin, adjacent thigh, and vaginal mucous membrane. Fifteen of 16 patients obtained relief by such a procedure.

Diagnosis of fibrinogen deficiency in obstetric hæmorrhage.—(*Editorial in Jour. Iowa, St. Med. Soc.*, July '54).

Post-partum hæmorrhage has long been a leading cause of maternal death. Of course, not all of these cases develop because of an acquired defect in the blood-clotting mechanism. In one

series, however, more than 10 per cent of the patients admitted for antepartum haemorrhage were shown to have clotting defect which is susceptible to prompt definitive treatment. In this group, premature separation of the placenta was the only associated diagnosis. Furthermore, almost 20 per cent of the patients with premature separation of the placenta had this same blood-clotting abnormality.

The defect in clotting mechanism is a deficiency of fibrinogen, probably as the result of absorption of large amounts of thromboplastin into the maternal blood stream from the placenta and decidua. Since there is often a significant concomitant reduction in the number of circulating blood platelets, it has been suggested that the absorbed thromboplastin initiates intra-vascular platelet agglutination and the formations of many minute fibrin emboli, which are then distributed throughout the body. Large amounts of fibrinogen are thus removed from the circulating blood, and a clotting defect results.

Whatever the mechanics, reconstitution of adequate fibrinogen levels in the blood stream repairs the defect and restores the clotting power of the blood in this condition. This can be done by transfusing freshly drawn citrated blood or plasma, or by using purified fibrinogen, if whole blood or plasma are contraindicated or unavailable.

Thus establishing the diagnosis of fibrinogen deficiency is the initial step in the management of the one out of five premature separations of the placenta in which a serious clotting defect develops. The laboratory diagnosis is fairly simple and rather specific. Whole-blood clotting time may not be significantly altered until the fibrinogen deficiency has become quite severe. A simple bedside test can be performed which is almost diagnostic. Withdraw 5 cc. of blood from a vein, allow it to clot, and incubate the clotted blood for 30 minutes at 37°C. If no clot appears, or if at the end of 30 minutes' incubation the clot appears to disintegrate or fall apart easily, the patient's fibrinogen level is critically low.

The time required for quantitative

determination of the fibrinogen level may be so long that the delay in beginning therapy may be quite serious. A simple fibrin-titre assay has been developed by Schneider and has proved quite useful for rapid estimation of fibrinogen levels. Venous blood is added to Ringer's solution in a series of test tubes so that the resultant dilution of the plasma component are 1, 10, 50, 100, 200, 400, 800, 1600. To each tube, 0.1 cc. of topical thrombin solution is added, and the highest dilution in which clotting occurs is the fibrin titre. Anything above a titre of 400 is considered normal. Both procedures are valuable as screening tests, even if accurate chemical methods are available. Together, they are certainly reliable enough to initiate therapy.

Commercially prepared solutions of thromboplastin have recently become available and are, of course, the most direct way of restoring the blood-fibrinogen level to normal. Whole blood or plasma can also be used, but the volume required may be so large that cardiovascular hemodynamics are disturbed.

Uterine cancer. (Silver Stain Cytology (*Obst. Gynecol.*, 2: 583, 1953).

Riley *et al* of Michigan find the following method a practical and useful adjunct to conventional diagnostic procedures for detection of carcinoma of uterus.

A specimen of the vaginal and cervical mucosa is obtained with a cotton-tipped applicator. The smear is prepared by rolling the applicator over the surface of the slide and is fixed at once in 20 per cent neutral formalin with pH of 6.8 to 7.1. The slide is rinsed in ammonia water and 2 changes of distilled water and covered with a dilute solution of silver carbonate solution. After reduction in 1 per cent formalin, the slide is rinsed finally in distilled water and allowed to dry in the air before clearing in xylene and mounting in synthetic resin.

In 138 cases of carcinoma, a diagnostic accuracy of 91 per cent was obtained in cases of cancer of cervix 88.5 per cent with carcinoma *in situ*, and 42.4% with endometrial carcinoma.

Gastric suction in infants delivered by caesarean section.—Role in prevention of respiratory complication.—(*Am. J. Dis Children*, 57: 3, May 1954).

Infants delivered by caesarean section have received considerable attention because of the relatively high mortality and morbidity in this group. In some instances, the factors which make this type of delivery necessary also contribute to the morbidity. In spite of the large amount of work done, abnormal pulmonary ventilation, including atelectasis and asphyxia in the newborn still presents a great problem. Gellis, White, and Pfeffer directed attention to the excessive amount of gastric amniotic fluid in infants of diabetic mothers delivered by caesarean section. They proposed gastric suction as a preventive measure against aspiration and asphyxia in infants delivered by this operative procedure.

Freeman and Scott of Washington investigated the amount of gastric content in infants delivered by caesarean section, particularly from nondiabetic mothers, and determined the effect of factors such as indication for operation, medication, anaesthesia and birth-weight upon the quantity of gastric fluid present.

CONCLUSIONS:—1. Infants delivered by caesarean section when considered as a group have a greater amount of gastric content than infants delivered spontaneously. 2. Respiratory distress was significantly less in infants whose stomachs were routinely emptied by suction. 3. The amount of gastric content in infants delivered by caesarean section was not influenced by such factors as pre-operative medication and anaesthesia. 4. With the exception of the diabetic mothers, the indication for operation did not appear to influence the amount of gastric content in the infants. 5. The larger infants delivered by caesarean section tended to have more gastric content than the smaller infants delivered by the same procedure. 6. The results of this study of 244 babies would appear to warrant routine gastric suction of all infants delivered by caesarean section, especially those

over 2,950 gm. (6½ lb.), as a means of preventing respiratory complications. This procedure is simple and relatively nontraumatic and can serve as an important measure in decreasing respiratory complications secondary to the aspiration of gastric contents into the tracheobronchial apparatus.

Extraperitoneal caesarean sections.—Analysis of 93 consecutive operations.—(*Obst. Gyn.*, 1954, 3: 283, via *Inter. Abst. Surg.*, December, 1954).

Numerous recent reports have stated that antibiotics and chemotherapy are so successful in preventing and treating peritonitis following transperitoneal caesarean section that there is little or no need for extraperitoneal sections. That this is not universally accepted is evidenced by reports from large clinics throughout the country, which still advocate the extraperitoneal type of section potentially in actually infected parturients, when abdominal delivery is necessitated. From January 1, 1947 to Jan. 1, 1953, a total of 23,466 patients were delivered at the City Hospital of Akron. During this period, 998 (4.3 per cent) caesarean sections were performed. Ninetythree, or 9.7 per cent of the caesarean sections were of the extraperitoneal type. The indications for extraperitoneal caesarean section are prolonged labour, prolonged rupture of the membranes, unsuccessful trial at pelvic delivery, (failed forceps), intra-uterine infection, either potential or actual, puerperal sepsis with a dead foetus, in selected cases, and secondary uterine inertia that is not amenable to treatment. Ninety-three consecutive extraperitoneal sections have been analysed, with no maternal deaths and 2 neonatal deaths. Notwithstanding today's trend away from extraperitoneal caesarean section, Paternite and Bachand believe that this operation alone or combined with prophylactic use of chemotherapy and antibiotics, is the safest and simplest method of delivery in patients with potential or actual infection, when safe vaginal delivery is not possible. The operation is believed to be safer and less traumatizing to perform than caesarean hysterectomy.

REVIEWS OF BOOKS AND PERIODICALS

Secret Enemy—(The story of a disease)—by JAMES CLEUGH THOMAS and HUDSON, London, 1945. Price 18/- net.

Ignorance and superstition together perpetuate disease. This is most vividly exemplified in the way the public looks at that most serious social problem—venereal disease. The popular association with loose living and low morals discourages individuals from disclosing their malady and seeking adequate treatment. James Cleugh in this well produced book written in simple English, tells the intelligent common man something about venereal disease. In a comprehensive historical survey he shows how syphilis came to be recognized and the result of its impact on law, society and the individual. The author quotes freely from post-war case histories compiled by Bankoff in his book "*The Shadow on the Path*" to show how a person may easily acquire syphilis without knowing it and why it is so very important not only to seek prompt and adequate treatment but in public interest to see that the source of the infection is eradicated.

"*Secret Enemy*" is a readable book, the pages of which both doctors and their more enlightened patients may turn over with profit, in their leisure hours. v.s.

Indigenous Medical Specialities—

By Dr. U. B. NARAYANA RAO, Bombay, First edition, October 1952 and re-printed 1953. Published by B. Subba Rao, 1, Nagindas Mansions, Girgaum Road, Bombay-4. Price Rs. 7/8/- per copy. (Postage extra Annas 8).

In his preface to the original publication of 1952, the author stated "It is essentially a handbook of reference for the busy practitioner who intends to use indigenous remedies. It is hoped that practitioners of all systems of medicine will find this a day-to-day reference book." This hope has obviously been so well fulfilled as to require a re-print in the very next year (1953). The author has presented a vast amount of useful information in the short compass of about 300 pages of crown octavo

print—a remarkable feat—the accomplishment of which has been possible by the ingenious system of abbreviations used and described in Section I of the book. Section II gives a table of weights and measures of indigenous medicine. Section III gives a list of about 341 drugs alphabetically arranged with their names in different languages and their important actions and uses. Section IV gives a list of about 21 indigenous medical combinations having special names like Ashta Warga, Dasha Moola, Chaturjata, Trikatu, etc., together with details of their ingredients, actions and uses. Section V the longest—contains a list of about 839 indigenous medicinal specialities (like Arishta, Choorua, Rasa, Vati, Ghrita, Taila, etc.) arranged in alphabetical order and giving the names, authoritative sources of reference, ingredients, actions and uses of each. These two sections will prove specially useful to the busy general practitioner. Section VI gives an alphabetical list of names of about 113 manufacturers of medicinal preparations containing indigenous drugs, with their names and addresses. Section VII gives an alphabetically arranged list of about 694 specialities containing indigenous drugs together with the synonyms (if any), the chief ingredients, therapeutical uses, contraindications (if any), and the dosage of each speciality.

Dr. K. S. Mhaskar in his appreciative introduction says that this list "is bound to prove useful to research workers as it gives them in a handy form much of the required information necessary for investigation work." Section VIII (the last) gives a therapeutic index of diseases alphabetically arranged. I join Dr. K. S. Mhaskar "in recommending this book to the notice of the medical profession interested in Ancient and Modern Medical Sciences." G.S.M.

Fundamental Principles of Ayurveda—Author and Publisher: Dr. C. DWARAKANATH, L.I.M.Z., Principal, Government Ayurvedic and Unani College, Mysore. Part III. First Edition, 1954, Price Rs 7-8 per copy. In parts I and II published in 1952 and 1953 respectively of the present

series on Fundamental Principles of Ayurveda, the author gave thoughtful expositions of the valuable and salient features of two of the important systems of Natural Philosophy of Ancient India which form the basis of Ayurvedic Medical Science, viz., the Nyaya-Vaiseshika system and the Sankhya-Patanjala system respectively. In this III part he commences with the study of the Ayurvedic medical science itself and gives an equally thoughtful exposition of chapters I, IX and X (entitled Ayushkamiya, Dravyadi Vignana and Rasabhediya respectively) of the Sutrasthan of Vaghbata's Ashtanga Hridya Samhita, the renowned Ayurvedic classic of high authority ranking next in importance only to Charaka Samhita and Sushruta Samhita. It is the most popular and widely read text-book which has been highly praised all over India and translated into many of the vernacular languages of our country. It was translated into Persian as early as 8th century A.D. by order of the Caliph-rulers of Persia. It was also translated into Tibetan and the translation included in the famous Tibetan collection of Tanjur. Recently it has been translated into German also. It is therefore, quite appropriate that the author has now taken up for his exposition in English such a far-famed classic, particularly the Sutrasthan on which Vaghbata is considered the best *Sutrasthanethu Vagbhatah Sreshthah* according to a well-known popular saying current among Ayurvedists. In his preliminary note the author states that "The present work like the preceding ones has grown out of my lecture notes to the students of the Government Ayurvedic and Unanian Colleges at Mysore. In getting up my lecture-notes on the various topics, dealt with in this work, I have endeavoured to approach old problems of Ayurveda from a new angle. I have, in addition, made an approach to new contributions of modern science from an old angle. These two approaches have made the ancient doctrines of Ayurveda intelligible to students of modern science in general and students of medicine in particular." It is undoubtedly true that for a proper appreciation of the treasures of Ayurveda by the present generation

of intellectuals in India and the world at large, it is necessary to present them, wherever possible, in the language of modern science. The author's attempts in this direction are worthy of high praise. The present work may well be looked upon as an up-to-date commentary on the ancient classics incorporating significant interpretations in the light of modern science. The main topics dealt with in this part are the following:—The term "Ayurveda," its meaning, scope and outlook; the *raison d'être* of health and longevity (Dharma, Artha, Sukha); the legendary origin of Ayurveda; Ayurveda—an eternal and progressive science; the Tridoshas or the Function-triad; Agni and the influence of Doshas; Prakriti or Temperament; the characteristic properties of the Tridoshas; The Saptadhatus or the seven basic tissues of the body; Malas or the waste products; the general principles which govern the increase and decrease of the Tridoshas, Sapta dhatus and Malas; Shadrasas or the six tastes; the actions of Rasas on the Tridoshas; Virya; Vipaka; Gunas or qualities of Dravyas; general causes which predispose to health and disease; two kinds of diseases—somatic and psychic; two main seats of diseases, Soma and Psyche; the Doshas of the Manas or Psyche; the examination of the *Rogi* (patient) and *Roga* (Disease); Two kinds of medicaments—Sodhana and Samana; psycho-therapy; inter-relationship between the taste and smell; the physiological actions of Rasas; the characteristics of dravyas according to their Panchbhautic constitution—the relative actions of rasa, virya and vipaka; Prabhava; and Vichitra and Samana pratyayarabhas.

The author's contributions to these topics bear marks of wide study, deep thinking and striking originality as, for example, the highly suggestive approach for reconciliation between the differing views on "Virya & Vipaka" of the highest authorities on Ayurveda like Charaka & Sushruta. The Reviewer concurs with the view of Dr. K. S. Mhaskar, who, in his foreword to the Book says, "I consider the book worthy of a place on the Library shelf for such of those students of Modern Medical

Science who desire to dive deep into gems as would form the basis for a ancient literature and pick out such future investigation."—G.S..

BOOKS RECEIVED

All India Medical Directory and Who's Who?—By Dr. K. V. MATHEW, L.M. & S., 1955 Edition, Published by Health Book Stall, Eraviperoor, Travancore.

The Indian Practitioner (Special Number on Gastro Intestinal diseases)

—Vol. 8, January '55, No. 1. Price: Rs. 2/-.

General Human Embryology.—By Dr. L. V. GURU, Lecturer: Dept. of Anatomy, B. H. U., Banaras, UP. Price: Rs. 3/- pp. 78.

NEWS AND NOTES

Temporary Free Eye-Clinic at Narasaraopet

A temporary free eye-clinic was opened on 4-1-'55 at Narasaraopet by Drs. C. V. Subbarao and C. Suryaprakasa Rao under the auspices of the Andhra Board of Indian Medicine—where eye cases will be attended to free of charge.

The Fourth Commonwealth Health and Tuberculosis Conference will be

held in London between the 21st and 25th June '55. Among the subjects for discussion will be: "The Preventive Outlook today," "Child Hygiene and Infection," "Tuberculosis—A Problem of Different Races," "X-ray and Tuberculin Surveys," "Choice of Drugs in Medical and Surgical Treatment of Tuberculosis," etc. Some of the foremost authorities on Tuberculosis from different countries will be amongst the speakers.

ANNOUNCEMENT

The 8th All India Obstetric and Gynaecological Congress, Bombay

The 8th All India Obstetric and Gynaecological Congress will be held at the Cowasjee Jehangir Hall, Bombay, from 24th to 26th March 1955. Dr. (Mrs.) D. J. R. Dadabhoy will preside. The main subjects for discussion are:—

(1) Abnormalities of the third stage of labour;

(2) Malignant ovarian neoplasms;
(3) Statistical survey of (i) New born infants regarding weight, length, circumference of head and chest; (ii) Prolapse of the uterus in relation to parity and age.

For further information please apply to the Hon. Secretaries, 8th All India Obstetric and Gynaecological Congress, Purandare Griha, Chowpatty Sea Face, Bombay-7.

ACKNOWLEDGEMENT

We acknowledge with thanks the receipt of a beautiful Calendar for 1955 from the United States Information Service, Mount Road, Madras 2.

We acknowledge with thanks receipt of a very useful Diary for 1955 from Messrs. W. T. Suren & Co., P.O.B. No. 229, Bombay 1.

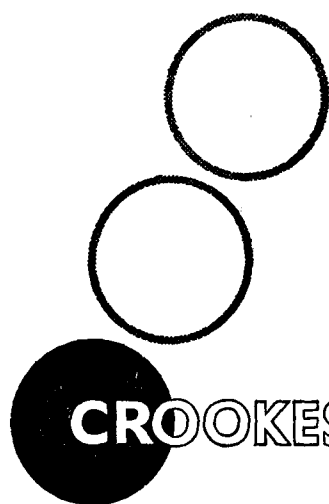
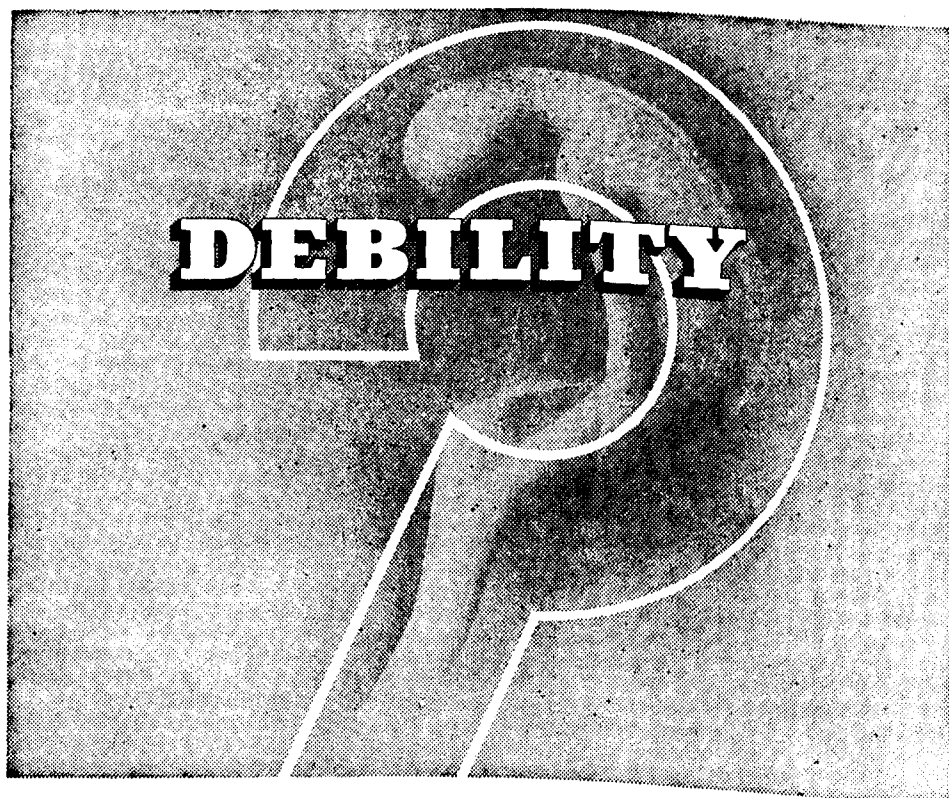
CORRIGENDUM

The ANTISEPTIC, Oct. 1954 issue page 1170, line 22: For *transfer*, read *transference*; page 1170, line 33: For "*N₂O is turned on*" read the "*N₂O is turned off and CO₂ is turned on.*" Page 1175, under reference No 3: For '*Gellhorn*' read, '*Gellhorn*.'

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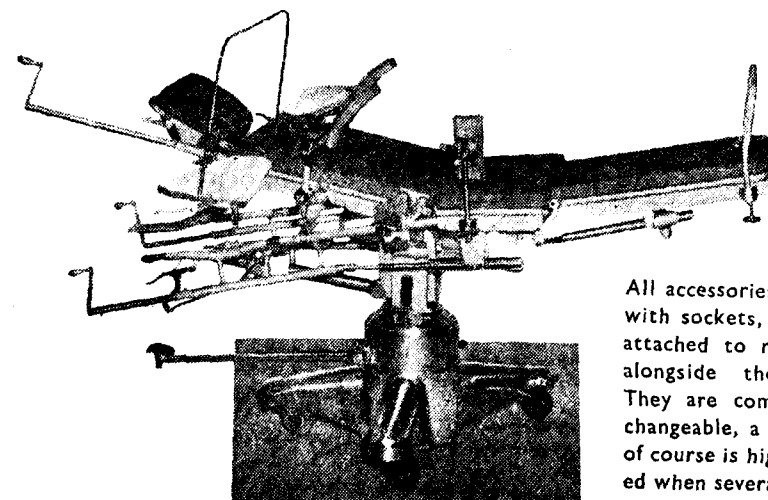
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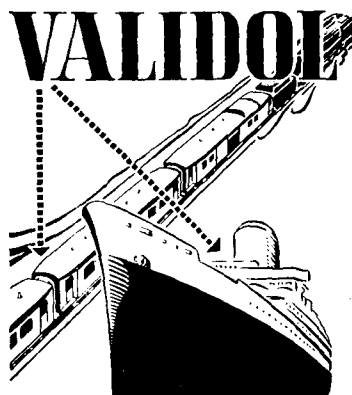
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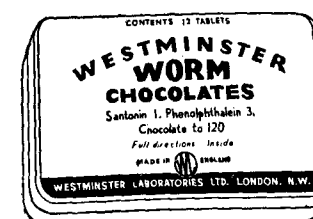
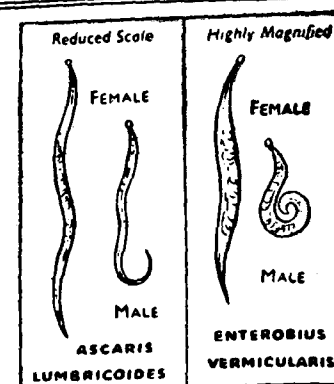
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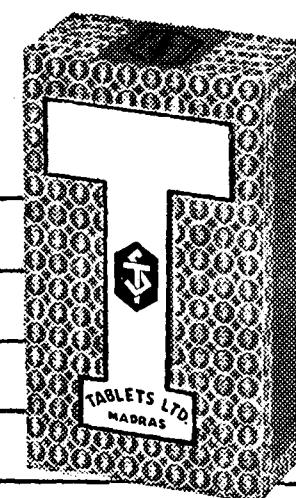


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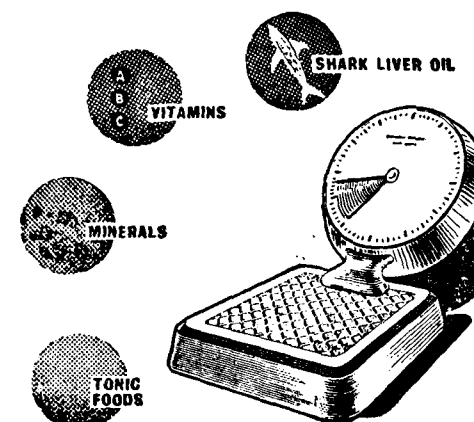
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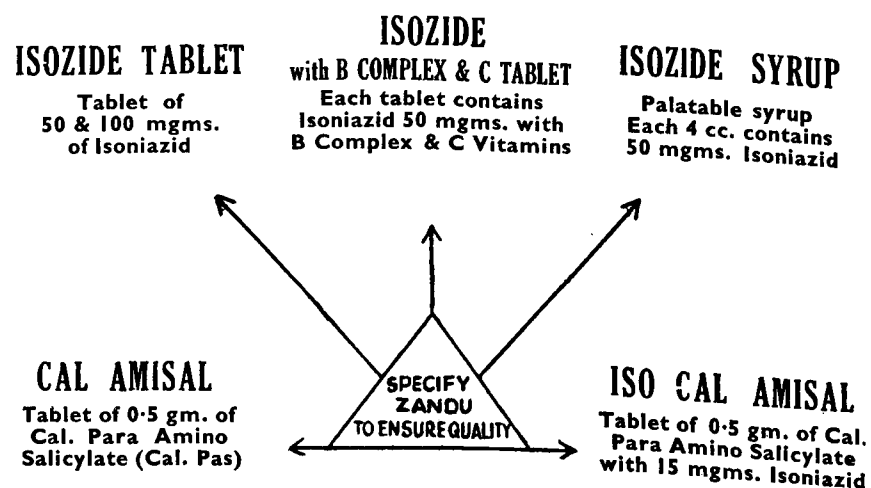
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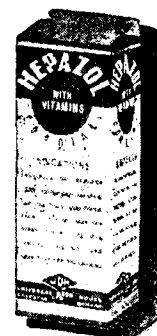
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References:-

1. "The Role of Ayurvedic Medicines in the Treatment of Diabetes Mellitus"—Indian Journal of Medical Sciences-Vol. 8, No. 2, Feb. 1952, pp-117-138.
2. "Review of Diabetic Cases Treated with Ayurvedic Medicines"—Special Therapeutics Number of the Indian Medical Review

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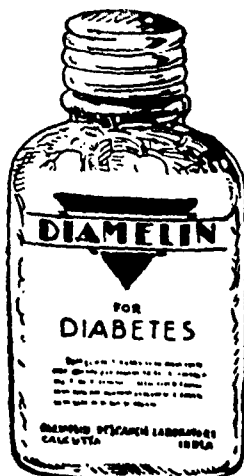
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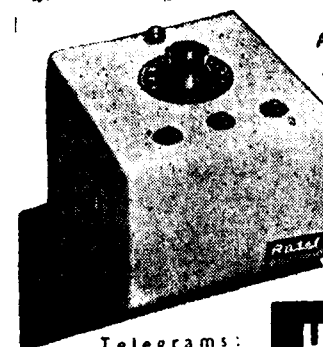
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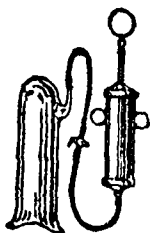
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Vitamin B12 1000 Micro 5cc	13-4	Testosterone Propionate Eng.		Atropin Sulph 2-12	Codena phos dr 4-14
Amphotycin Ger. 6x10cc.	2-8	25mg. 3x1cc 3-8; 10mg 4x1cc 2-4		B.D. Stethoscope 19-8	Triple 33-8
Cal. Gluco. And. 100x'0cc box	10-0	Vitamin B12 100 micro 10cc.	3-4	Bis Carb 1-8	Cafina Citras oz. 1-4
" Ger. 10% 5x10cc box	2-0	" 200 10cc. 5-4	500 mic 5cc 7-4	Calomal 1-6	Chlorobutol oz. 1-2
" Vit. C 500 mg. 5x10cc 3-12		Vit. B1 10cc. 100mg 1-13	50mg. 1-8	Digoxin BW 12x1cc.	1-11
Chloromycetin 12Cap 14-14	Liquid 11-8	" B Complex 10cc. Eng. 1-1		Dres. Forcep 0-12	Scissors 1-1
Chloramphenicol Italy 12 caps	7-4	Vitamin K A 100x1cc box	16-0	Doctor Plastic Bag 2	Handle 5-8
Ciba's Elkosin 200 tabs.	16-4	" K 1cc 6 amps	2-4	Ferri et (Quinine Citras oz.	1-6
Combiotic 1 gm. Pfizer	2-13	Vit. C Amp. Ger. 500mg. 6x5cc.	2-12	Elastic Plaster 1x3 yd.	0-4
Camphor in oil 3gr 10A 0-8	100A	" 500mg. 50x5cc.	13-0	Erkameter German	60-0
Distilled Water 100 amps.	[4-0	" 100mg 6x2cc 1-6	50x2cc 6-12	Ethyl Chloride 100grm.	Ger. 1-12
2 cc. 2-7; 5 cc. 3-8	10 cc. 4-8	Aminophyllin 1gr 100 tabs	1-4	Ext. Ergot Ind. 4 oz 2-8;	1 lb. 8-0
Dicystein 1-6; Ambistryn 1-5-6		" 1gr 500 5-0; 1000	9-8	Elixir Amino Consein 4oz.	8-8
Dihydro Streptomycin 1gm.		Atebrin Bayer 1000 13-0;	300 4-8	F.L. Japan 1-0;	Durapak 2-0 doz.
Rhodia DMX Glaxo, ICI 1-0	Pfizer 1-1	BW Atropine Sulph 1/100gr.	20 tabs	F.L. Washable Ger.	0-8; Ind. 0-4
Emetine Hydro 1gr.	6x1cc 2-14	" Digitalin 1/100gr 20,	0-8 [0-10	Fountain Pen Parker Type	Japan 2-0
" 6x1gr 1cc PD 6-0	1gr 12x1cc BW 7-6	Cibazol 250's 13-0; APC	1000 tab. 8-8	Fountain Pen Torch Lamp	3-0
Emetin Hyd. 1gr 12 amp	1 cc. 10-0	" 100mg 6x2cc 1-6	50x2cc 6-12	Glass Pan for Scale	0-4
" 1gr 6x1cc BW 6-12	PD 1gr 6x1cc 8-14	Di-Methionine (Ger. 100 tabs	3-12	Glass Stoppered Bottle 1oz	0-10
" Euquinine Roche 9-8	Ger. 3-12	Ephedrin Hydro 1gr. 1000 tab.	4-9	Germ. Stethoscope (B.D. type)	8-12
How. 4-2 Jap. 3-13	Java 3-14 oz.	Entroviotorm 20's 2-12;	100's 11-6	Gentian Violet 1-4	Protargol 1-3 oz.
Glucose 25% x 25cc. x 25amps	Ind 2-19	Folic Acid Tab. 5mg. 25 2-4	100 7-4	Hemoglobin Scale Book	1-8
" 25% 25cc 6A Thilo Ger.	12	Glynn. Trinitrin 1/100gr	500 tabs 1-8	Hypo Syringe (SN Rs. 1 more)	
Glaxo Whooping Cough Vaccine	5cc 4-4	Gynomin tab. 1-11	Spiton tubel-10	A.G.—	2 5 10 20 30 60cc
Hydranger Iodine Rubrum	12x1cc 0-12	Mepacrine Boots 1000 11-0	ICI 11-0	Japan	0-9 0-13 1-2 1-12 2-10 3-12
Irgapyrin 5x5cc 7-4	20 tab. 5-6	Merck H.T. Emetin 1/2 gr.	3-6 1gr 3-6	Italy	0-12 1-0 1-3 2-12 4-8 7-8
Isonicotinic Acid Hydrazide	Ger. 100 1-1	Mixed Gland Male or Female	100 1-4	Ger.	0-11 1-1 1-4 2-0 4-8 6-8
Kemicitine 12 caps	9-4	Multivitamin 100 1-6	1000 Orig. 9-0	Record	
Liver Ext. Fortified Vit. B12	20 mic. 10cc. 2 USP 5 USP	M&B Nivaquine 100 9-0	500 43-8	Ger.	2-12 3-12 4-8 8-0 10-0 18-0
2-8 3-8	4-4	Paludrin 1g 1000 20-12	3g 500 21-0	Swiss	2-10 3-10 4-4 7-0 9-0 18-8
Liver Ext. 10cc. Eng.	2 USP 2-0	P.D. Camoquin 3 0-6-6	150 tabs 19-8	B.D. Lock 6-12	10-0 12-0 16-8 23-4 32-0
5 USP 2-10; 10 USP 3-10;	15 USP 5-0	" Dilantin Sodium 100 Caps	8-12	Japan	1-5 1-12 2-4 3-0 4-0 5-0
M&B 693 Soluble 1gm. 6 amp.	2-0	Phenobarbitone tab. 100 x 1 1/2	gr. 1-6	M.Case	0-15 1-8 1-14 2-10 4-8 5-0
Milk & Iodine 100Ax5cc.	7-8 [4-12	Potas Chlorus 500 2-0;	1000 3-4	Insulin Syringe 1 cc.	Beacon 2-4
Normal Saline 100Ax5cc.	3-8 10cc	Proflavin 1000 tabs.	Aust. 2-0	Mercurochrome 10gm	0-13; 25gm 1-13
Nikethamide Boots 50x2cc	box 10-8	Quinacrine MB 1000 tabs	11-0	Needles Stainless Steel	
Penicillin G Cryst. Dmx Glaxo	or Rhodia 2 5 10 lacs.	" USA 5000 50-0; tin 1000	10-12	Star 3-0 Down 3-10	doz Record
0-6-9	0-9-9 0-15-0	Resochin tab 10 1-12	100 13-12	Ger. 2-4	" 4-0 " All Glass
Procain Peni. 20lacs	GI or DMX 1-11 6	Riboflavin 5mg 100 tab	2-8 1000 16-0	Star 3-0 Jap 1-10	" BD 9-8
" 4 lacs Rhodia	0-9-6	" 10mg 100 3-8	1000 tabs 22-8	Ointment Acid Boric	1 oz 0-4
" GI. DMX 0-9-3; Ity. 0-8-0	Belg. 0 8 0	Santonine Calomel 50 2-2	100 3-12	" Acriflavine 2 oz.	0-4
" " Oily 30 lac. Heyden	2-6	Soda Bicarb 500 tabs	1-4	" Atropine 1/2 oz.	0-6
Pronapan Pfizer 4 lacs	0-13-0	Soda Salicylas 1000 tabs.	4-12	" Calomel 1 oz.	0-4
Penicillin Skin oint 0-10	Eye 0-8-0	Strychnine Hydro 1/60 gr	20 tabs 0-8	" Mercurial 1/2 oz.	0-4
" Tab. 1/2 lac 0-13-0	1 lac 1-11	Sulphatone 100 9-8	500 tabs 40-8	Oily Needle Disposal	0-8
" Lozenges 20 0-12	ICI 500 9-4	Sulpha Tab 1000's	500	Oil Chinopodium 1 oz.	4-0 1 lb 60-0
Progesterone 5mg. 3x1cc	box 2-4	" " nllamide 6-14	3-8	Plastic Tubing 0-14	Rubber 0-14 yd.
PAS 100 2-6	500 10-0 1030 19-8	" " guinidine 11-8	6-2	Potass Citras 2-8 Pot. Acetas	2-8
" Cal. 100 2-8	250 6-4 500 10-4	" thiazole Boots 22-0	14-8	" Bromide 3-12 Ext. Ergot	Liq. SA 13-0
Quinine Sulph How. 51-8	Ger. 49-8 lb.	" " Ind. 500 tabs.	10-0	Pulse Meter 1/2 Mg. German	1-1
" Sulph Howard 5gr.	1400 tabs 48-8	" diazine 100 7-4	500 30-0	Saline Apparatus complete	
" 2gr 1000 18-8	5gr 1000 39-0	Sulphonamide Powder 1 lb.	5-4	300 cc 6-0; 500cc 8-0 each	
" Bengal 41-12	Java 47-8 lb.	" cream 4 oz. 5-8; oz. 2-0	doz.	Silver Vitelin 1-14	Menthol oz 3-0
" How. 5-8; Bengal oz	3-6	Tinct. Camphor Co. PD	500 tabs 4-0	Scalpel 1-0 Probe 0-4	Palot P.D. 6-0
" 2gr 100 2-4	5gr 100 5-0	USA Bandages Brown 2x1 1/2	yd. 0-3	Soda Salicylas	1 lb. 3-4
" Bihydro 2gr 100 3-14;	5gr 100 6-8	Upjohn's Riboflavin 5mg	100 tab 5-0	Stethoscope Bag Plastic	0-14
Q. Bihydro Amps 100x10grs	x 2cc.	Vitamin C 50mg 1000 8-8;	100tab 1-10	Suture Needle Curved	0-4
" Ind. BDH Evans BW	Hewlet Ger. 13-8 23-0	" B Complex 1000 7-2	100 1-4	Thermometer Ger. 0-10;	Jap. 0-11
" 8-8 15-0 15-8	100 x 5gr x 1cc	" B1 5 mg 1000 tabs	8-0	" Zeal 2-4; USA 0-14;	Eng. 1-1
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		" K 10mg 100 1-10	1000 " 8-12	Tuberculin Syringe 1cc	2-2
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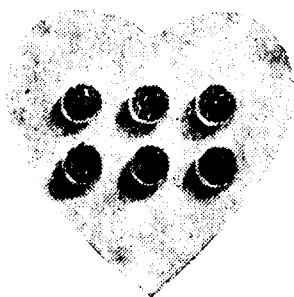
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Goldman, B. R., & Steigmann, F.: J. Lab. & Clin. Med. 40:803, 1952.

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One of the principal constituents of Metatone is vitamin "B," which plays such an important role in nutritional processes. The product also contains nucleic acid and glycerophosphates, which have been found to be of value in the treatment of debilitating diseases.

Note its complete and well balanced formula

Vitamin B, Extract	10 grains per ounce
Nucleic Acid	2 grains per ounce
Calcium Glycerophosphate	4 grains per ounce
Potassium Glycerophosphate	4 grains per ounce
Sodium Glycerophosphate	2 grains per ounce
Manganese Glycerophosphate	$\frac{1}{2}$ grain per ounce
Strychnine Glycerophosphate	$\frac{8}{200}$ grain per ounce

When digestion is at fault, *the extracted Vitamin B* is even better than food vitamin.

Nuclein stimulates phagocytosis; increases the bacterial power of the blood.

Six of the seven ingredients of Metatone contain *phosphorus* in acceptable and available form.

The importance of the other mineral elements represented in the glycerophosphates—*calcium, sodium, potassium, and manganese*—is self-evident.

The *strychnine* content is small—only 1/200 grain in each fluid drachm.

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