

Vol. 59, No. 5

Regd. No. 9, M. 429

MAY, 1962

The Antiseptic

A Monthly Journal of Medicine & Surgery

For the use of Registered Medical Practitioners, Hospitals and Laboratories only

Founded by the late Dr. U. RAMA RAU in 1904. Past Editor late Dr. U. KRISHNA RAU

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

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

Telegrams: "ANTISEPTIC"

P. O. Box 166

Telephone: 23363

Subscription Rs. 8-00

Foreign Rs. 11 a year

Single Copy Re. 1-00 in advance

Page From 379 to 464

Contents on Matter p. 379 A

Index to Advertisers on Matter p. 379-B



in pregnancy

PYRIMESIN

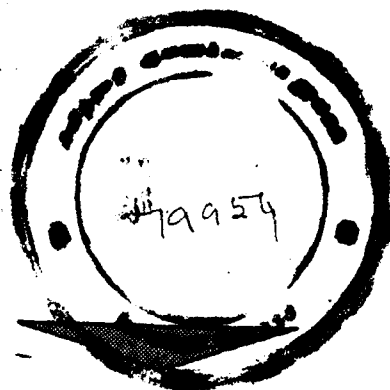
makes the mornings carefree and gay



EAST INDIA PHARMACEUTICAL WORKS LTD., CALCUTTA-26

the
safety
factor
in
corticosteroid
therapy

52
Lm2, N162
N162 59.5



In corticosteroid therapy, it is now accepted that while one can have too much potency, one cannot have too much safety. Physicians today therefore prefer to assess the value of a corticoid on the actual clinical results rather than on high potency alone. It is this factor that explains the widespread preference for LEDERCORT triamcinolone. It is backed by the most telling assurance of all—prolonged successful use coupled with a record of consistent safety in a wide range of clinical conditions.

LEDERCORT
TRIAMCINOLONE
*TRADEMARK

FOR SYSTEMIC USE

TABLETS 4 mg. (white, scored), bottle of 10

FOR TOPICAL APPLICATION

LEDERCORT ACETONIDE OINTMENT 0.1%

Tube of 5 Gm.

LEDERLE LABORATORIES (INDIA) PRIVATE LIMITED
P. O. B. 1994

BOMBAY 1.



Each ml. contains:

Vitamin A	8,000 I.U.
Vitamin D2	2,000 I.U.
Vitamin B1	2 mg.
Vitamin B2	3 mg.
Vitamin B6	2 mg.
Nicotinamide	25 mg.
Panthenol	5 mg.
Vitamin C	50 mg.
Vitamin E	2 mg.
L-lysine Mono-hydrochloride	100 mg.
in a special aqueous base	

Bottles of 15 ml.

DROPOVIT

multivitamins + lysine
for infants and children



GEOFFREY MANNERS & COMPANY LIMITED, BOMBAY-1



**FAST
SAFE
SURE**

comprehensive
treatment for
intestinal
infections

UNI-DYS Compd.

Composition :

Each tablet contains :

Iodochlorohydroxyquine U.S.P. 200 mg.,
Sulphadimidine 350 mg., Chloroquin Phos-
phate U.S.P. 50 mg., Homatropine Methyl
Bromide U.S.P. 0.75 mg.

Amebic Bacillary
or mixed dysentery.
Each component potentiates
the action of other drugs
in UNI-DYS Compd

UNICHEM LABORATORIES BOMBAY 26.



CONTENTS

ORIGINAL ARTICLES :	PAGE		PAGE
Plasma Fibrinogen Levels in Toxæmias of Pregnancy—Nawal Kishore, M.B., M.S., F.A.C.S., T. R. Aggarwal, M.B., B.S., D.G.O. (Mad.), D. obst., R.C.O.G. (Lond.), and Purnima Pathak, M.S., Agra ...	379	Treatment of acute gonorrhœal urothritis in the male with a single injection of oxytetracycline ...	427
Pruritus and its Management—U. Sridhara Rau, B.Sc., M.B., B.S., P.V.A.M. (Dermat.), D.D.V. (Vienna), F.D.S. (Lond.), Madras-7 ...	384	Progesterone requirements in pregnancy ...	428
Choroid Tubercles : Their Incidence in Tubercular Meningitis—R. K. Mishra, M.S., D.O., Jabalpur, M.P. ...	389	Immediate and prolonged therapeutic effects of corticotropin and adrenal steroids in ulcerative colitis ...	428
Treatment of Amœbiasis—With a Combination of Iodochlorohydroxyquinoline, Chloroquine and Sulphadimidine—N. G. Suchak, and U. K. Sheth, M.D., B.Sc., F.O.P.S., Parol, Bombay-12 ...	393	Osteitis pubis ...	431
Tranquillization in intra-ocular Surgery—S. P. Mathur, M.B., B.S., M.S. (ophth.), Bikaner ...	399	Immunization of preschool children with oral poliovirus vaccine (Sabin) ...	432
The Problem of Œdema—N. Sitaraman, B.Sc., M.B., B.S., M.B.C.P. (Edin.), Nagorecoil ...	405	Vascular headache ...	432
Recent Progress in Chemical Contraceptives—H. L. Bami, Ph.D., A.I.I.Sc., F.I.C., Calcutta-16 ...	413	Parenteral iron therapy ...	434
Some Aspects of Pain Relief—C. P. Bahl, M.B., B.S., D.A., New Delhi ...	419	Therapeutic misadventures ...	441
Incidence of Ascaris Lumbricoides in Dabhoi—B. T. Trivedi, M.B. B.S. (Bom.), Dabhoi, Dist., Baroda. ...	429	Phlegmasia cerulea dolens ...	441
Role of Anti-Inflammatory Agents—(Irgapyrin) as an Aid to Post-Operative Recovery—Ratubhai R. Patel, M.B., B.S., (Bom.), D.L.O. (Lond.), Baroda ...	433	Treatment of gonorrhœa ...	448
CASES AND COMMENTS :		Preventive effects of isoniazid ...	448
Fundal Fibromyoma of the Uterus Causing Non-Puerperal Inversion—(Report of a Case)—A. Sitaratna, M.D. and Vishnu Sarma, M.A., (Cantab), M.D. (Cantab), B. Chir., M.R.C.S. (Eng.), M.R.C.P. (Lond.), D.G.O. (Mad.), Madras ...	435	Medicine and Therapeutics :	
Recovery from a Deep Coma—Abbas Uddin Ahmed, L.M.F., Dinajpur, (E. Pakistan) ...	439	A comparison of the <i>in-vitro</i> effectiveness of nitrofurantoin and five antibiotics against bacteria from urinary tract infections ...	449
Anaphylactic Shock Following Parenteral Anti-histaminic—G. G. Padma Rao, M.B., B.S. (osm.) Hyderabad (Andhra State) ...	442	Severe allergic reaction after ingestion of acetylsalicylic acid compounds ...	449
EDITORIALS :		The palliation of malignant ascites with "Nitromin" ...	450
Manufacture of Drugs and Chemicals in India (Pioneering Role of Hindusthan Antibiotics) ...	443	Corticosteroid hormones in the treatment of tuberculosis ...	451
The Nation's Nutrition ...	444	A simple test for the diagnosis of diabetes insipidus ...	452
Expansion of School Health Work Urged (Third Plan Allocation Inadequate) ...	446	Ophthalmology :	
GLEANINGS :		Treatment of hypopyon ulcers ...	452
Treatment of bacillary dysentery ...	383	Acute glaucoma after general surgery ...	452
Surgery of the aorta ...	388	Intraocular acrylic lenses ...	453
Herpes gestationis ...	388	Contact lenses : Their use and misuse ...	453
Phenacetin nephritis ...	392	Epidemic kerato-conjunctivitis ...	454
Impending myocardial infarction ...	392	Bacterial infections of the eyelids ...	454
Experience with postmaturity ...	398	Kerato-conjunctivitis from print-room equipment ...	455
Diagnosis of renal hypertension ...	398	Dermatology :	
Study of Bromindione, a new anticoagulant ...	427	Interdigital psoriasis ...	455
		The synergism of salicylates and steroids ...	456
		Use of new adhesive power vehicle (orahesive) for the application of drugs to lesions of the mouth ...	456
		Acne ...	456
		Radiology :	
		Infra-red thermometry ...	457
		Contrast examination of larynx and pharynx : Accuracy and value in diagnosis ...	457
		Treatment of cancer of anus ...	457
		Creatinuria and fatigue in patients undergoing radiation therapy ...	458
		Steroids and the skeleton ...	458
		Dosimetry for a total-body irradiation chamber ...	458
		Obstetrics and Gynecology :	
		Norethisterone in the control of menopausal symptoms ...	459
		Missed abortion : The aetiology endocrinology and treatment ...	459
		Menstruation and crime ...	460
		Study of sterility and microcurettage ...	460
		Reviews of Books :	461
		Books Received :	462
		Preparations and Inventions :	462
		News and Notes :	463
		Obituary :	464

INDEX TO ADVERTISEMENTS

	PAGE		PAGE
Books & Periodicals		Glaxo Laboratories (India) Private Ltd.	35
Academic Publishers	75	Glucanate Ltd.	38
Antiseptic	6	Hewlett & Son (India) Pr. Ltd., C.J.	56
Aswini, The	78	Himalaya Drug Co., The	59
Bhattacharya & Co., S.	53	Hoechst Pharmaceuticals Ltd.	60
Health	78	I.C.I. (India) Pvt. Ltd.	20, 48
Kothari Book Depot, The	49	Indian Health Institute & Lab. Ltd.	22
Medical Digest	77	Indo-French Pharmaceutical Co.	48, 52
Popular Book Depot, The	5	Indo-Pharma Phar. Works Ltd.	11
Sarecor Book Company	5	International Chem. & Bio. Inst. (P.) Ltd.	75
Scientific Publication Concern	75	Jammi Venkataramanayya & Sons	5
Scientific Publishing Co.	79	John Wyeth & Bror. Ltd. <i>Inside Back Cover</i>	69
		Kemp & Co., Ltd.	11, 18
Foods		Khatau Valabhdas & Co.	23
Corn Products Co. (India) Pr. Ltd.	65	Lederle Labs. (I) Pri. Ld. <i>Inside Front Cover</i>	25
Hindustan Milk Food Mfrs. Ltd.	73	Lepetit Ranbaxy Labs. Ltd.	52
		Medimpex (Ranbaxy & Co. Pr. Ltd.)	78
Pharmaceutical Preparations		Mendine Pharmaceutical Works	16
Adcco Ltd.	17	Merck Sharp & Dohme of India Ltd.	44
Albert David Ltd.	50	Mercury Pharmaceutical Industries	3
Alembic Chemical Works Co. Ltd.	71	Neo-Pharma Private Ltd.	83
Alta Laboratories Ltd.	49	Nicholas of India Ltd.	32
Amarchand Sobachand	40	Oriental Pharmaceutical Industries	32
Amava	56	Parke Davis (India) Ltd. <i>Outside Back Cover</i>	21
American Products Co. Ltd.	15	Phytosynth Laboratories	72
Anglo-French Drug Co. (Estn.) Ltd.	9	Pfizer Private Ltd.	68
Associated Drug Co. Private Ltd.	34	Rallis India Ltd.	8
Atul Drug House	39, 84	Retort Laboratories Ltd.	67
Ayurvedeeya Arkashala Ltd.	27	Roche Products Ltd.	74
B. A. Bros.	75	Sandoz (India) Ltd.	7
Behar Chemical Works	75	Sarabhai Chemicals	55
Bengal Immunity Co. Ltd.	10	Schering Asia G.m.b.H.	62, 64
Benger Laboratories (India) Ltd.	54	Smith Kline & French (India) Ltd.	24
Bharati Chemical Works	57	Smith Stanistreet & Co., Ltd.	25, 42
Bio-Drug Laboratories Private Ltd.	57	Spencer & Co., Ltd.	80
Boehringer-Knoll Ltd.	61, 63	Standard Pharmaceutical Works Ltd.	80
Bombay Tablet Mfg. Co.	45	Sunways (India) Private Ltd.	34
Brahmachari Research Institute	22	Thakore & Co., T. M.	51
British Drug Houses (India) Pr. Ltd.	19, 66	Thamis Distributors	76
British Pharmaceutical Laboratories	12	Therapeutic Pharmaceuticals	28
Burroughs Wellcome & Co. (India) Pr. Ld.	13	Thilo Mody Pvt. Ltd.	79
Calcutta Chemical Co. Ltd. The	58	Treatment Home Products	2
Castophone Manufacturing Co.	77	Unichem Laboratories	81
Chemo-Pharma Labs. Ltd.	82	Uni-U.C.B. (India) Private Ltd.	40
Chowgule & Co., (Hind) Private Ltd.	4	Usan Laboratories Private Ltd.	78
Cipla Ltd.	14	Varma's Ayurvedic Pharmacy	
Comteck Labs.	36		
Crookes Labs. Ltd., The	30, 31	Surgical & Medical Appliances	
Deeruz Corporation	44	Dahyabhai & Co., D.	38
Dey's Medical Stores Private Ltd.	26, 43	Extrusion Processes Private Ltd.	78
East India Pharm. Works Ltd. <i>Front Cover</i>	47	Hindustan Syringes (P.) Ltd.	18
Eli Lilly & Company of India, Inc.	46	Industrial & Engineering App. Co. Ltd.	79
Emedia Export Co. m.b.H.	70	Mukerji, H. & Banerjee Surgical Ltd.	8
Everest Pharmaceuticals Private Ltd.	57	Shah & Co. D.	79
Fairdeal Corporation Private Ltd. The	45	Summit Surgicals	57
Franco-Indian Phar. Pr. Ltd.	29, 33, 37, 41	Unique Trading Corporation	17
G.D.A. Chemicals Ltd.	21		
G. D. Pharmaceuticals Private Ltd.	53	Miscellaneous	
Geoffrey Manners & Co. Ltd.	1	Shanti Trading Co.	81
		United Pharma (India) Private Ltd.	77

Introducing ORAL Pernavit FORTIFIED

IMPROVED FORMULA :

Each teaspoonful (4 ml.) contains :
Proteolysed liver extract derived from 4 G.
of fresh liver having Vitamin B₁₂ activity
equivalent to 1 mcg. of Cyanocobalamin.

EXTRA ADDED :

Vitamin B ₁₂	B.P.	2 mcg.
Folic Acid	B.P.	0.8 mg.
Ferrous Cluconate	B.P.	0.133 G.
Vitamin B ₁	B.P.	1.33 mg.
Riboflavine	B.P.	0.8 mg.
Nicotinamide	B.P.	4 mg.
Calcium Pantothenate	U.S.P.	0.8 mg.
Pyridoxine		
Hydrochloride	B.P.C.	0.53 mg.
Alcohol (95%)		0.2 ml.
Flavoured glycerine base		q.s.
(Alcohol content 4.7% v/v)		

DOSAGE : 1-2 teaspoonfuls three times
a day after meals.

PACKINGS: Bottles of 100 ml. and 200 ml.

Other forms of PERNAVIT

PERNAVIT Oral :
Bottles of 100 ml. and 200 ml.

PERNAVIT Capsules :
Bottles of 24's, 50's and 500's

PERNAVIT Injectable :
Vials of 10 ml.



Manufactured by
NEO-PHARMA PRIVATE LTD.
Kasturi Buildings, J. Tata Road, Bombay 1.

SUPRONAL

(sulphathiocarbamide salt of maphenide + sulphamerazine)

A POLYVALENT SULPHONAMIDE with BROAD-SPECTRUM ANTIBACTERIAL ACTION

- ★ Powerful action against both aerobes and anaerobes.
- ★ High therapeutic efficacy in low doses.
- ★ Minimal danger of crystalluria.

PACKINGS:

Tubes of 20 tablets of 0.5 g.
Bottles of 250 & 1000 tablets of 0.5 g.
Boxes of 10 strips of 10 tablets of 0.5 g.



•Bayer•
LEVERKUSEN, GERMANY

New! Neo-Bedermin



•Bayer•
LEVERKUSEN, GERMANY

For single dose treatment of
Ankylostomiasis, Ascariasis,
Oxyuriasis.

Reliable action. Excellent tolerance.

Tubes of 12 × 0.35 g. capsules.
Bottles of 100 × 0.35 g. capsules.

Sole Importers
in India:

CHOWGULE & CO., (HIND) PRIVATE LTD.

P. O. Box 1478, Bombay 1.

IT'S A MATTER OF NATIONAL IMPORTANCE...

Liver and Spleen disorders seem to have a greater bearing on the infant mortality. A nationwide survey of the number of cases treated by practitioners and hospitals for this dreaded disease which practically cripple young lives, will perhaps reveal a very alarming picture.

Fortunately, Jammi's Livercure combats this disease effectively. It saves several thousands of children year after year.

Nearly 60 years of Jammi's experience and specialised knowledge in the treatment of Liver and Spleen disorders in children, is at the service of the public and doctors.

Write for detailed literature.

Jammi's
Livercure
for Liver & Spleen
disorders in children

JAMMI VENKATARAMANAYTA & SONS, MADRAS-4

MEDICAL BOOKS

(at special rates) Rs. nP.

MACKAY: Handbook of Diseases of Skin, 1959, 260p. 200 art plates &c...	6-37
BLACK'S Medical Dictionary, 1955, 1013p. 400 illus. Col. plates &c. sh. 30/- sp. rate	15-00
MEDICAL ANNUAL, 1961, sh. 42/-	26-00
BEAUMONT: Pocket Medicine, 1959	8-60
WRIGHT: Sex Technique, 111td.	2-00
DICKINSON: Contraceptive Technique, 1957rp. fully 11td.	6-00
PILLAT: Birth Control Simplified, 1960, fully 11td.	3-25
CRUICKSHANK: Pocket Prescriber & Guide to Prescription Writing, 1960	4-50
CHAMBERLAIN: Symptoms & Signs in Clinical Medicine, 1961, Sh. 45/-	28-12
RAINER: Sexual Pleasure in Marriage, 1959, fully 11td.	5-00
WALKER: Elementary Medical Therapeutics, 1959	5-62
National Formulary of India, 1960, 325p.	2-87
STIRK-ADAMS: Treatment of Ear, Nose & Throat Conditions, 1959, 11td.	2-25

Send your orders to:

SARCOR BOOK COMPANY

12/75, Palliarakav Road, COCHIN-2 (S.I.).

USEFUL MEDICAL BOOKS

A Textbook of Gynecology: by Dr. K. M. Masani & Collaborators: 3rd revised edition: Fully Illustrated, 1960	28-00
Diagnostic Surgery: by Parvat C. Sanyal, F.R.C.S. (Eng.), Late Prof. of Surgery: Calcutta	22-50
Pharmacology For Medical Students in Tropical areas—by Roger A. Lewis, A. B., M.D., (John Hopkins)	15-00
(No. 2 & 3 if bought together will be sold for Rs. 30/- only)	
Indian Materia Medica: by Dr. K. M. Nadkarni, 2 Vols. with a Foreword by Col. R. N. Chopra	60-00
Introduction to Kayachikitsa: Dr. C. Dwarakanath: (Hindi edition also in Press—Enquiries solicited)	20-00
Pharmaceutical Directory of India: 1959 (Star Publication)	21-00
All India Pharmaceutical Directory: 1960 2nd edn. Published by Indian Pharmaceutical Assn. Bombay	38-50
(Both Directories together for Rs. 51/- only).	

POPULAR BOOK DEPOT,
Lamington Road, Bombay-7.

Hand-book on FIRST AID IN ACCIDENTS

By Dr. U. RAMA RAU

Revised by the late Dr. U. KRISHNA RAU, M.B., B.S.,

Published in: English, Tamil, Telugu, Canarese, Malayalam & Hindi

Explains how First Aid should be rendered
in Accidents such as:—

FRACTURES
CONCUSSION,
FAINTING,
CONVULSION,
SHOCK,
COLLAPSE,
SUN-STROKE,
HEAT-STROKE,
ASPHYXIA,
SHOCK from ELEC-
TRICITY & LIGHT-
NING,

BURNS,
WOUNDS,
BITES,
SNAKE BITE,
BRUISES,
STRAINS &
RUPTURE
of MUSCLES,
POISONING,
INSENSIBILITY,
ETC., ETC.



One of the illustrations

The book written in popular language with many illustrations, and running to 240 pages (Demy 16mo) has been found very useful by the lay public in rendering First Aid scientifically in cases of accidents till the arrival of the doctor. Members of the medical profession have found it useful to deliver lectures on First Aid to laymen.

The book is being published since the First Great World War (1914-1919) and has since run into several editions and thousands of copies have been sold. Mines, Factories, Police Forces &c. use these books largely.

Price Rs. 1/- or sh. 2 per copy for any edition. Postage 70 nP. Extra per copy:
Value may be remitted along with the subscription to 'Antiseptic' or 'Health' or both

COPIES CAN BE HAD FROM:

Manager, THE ANTISEPTIC, Monthly Medical Journal,

P. O. Box 166, MADRAS-1

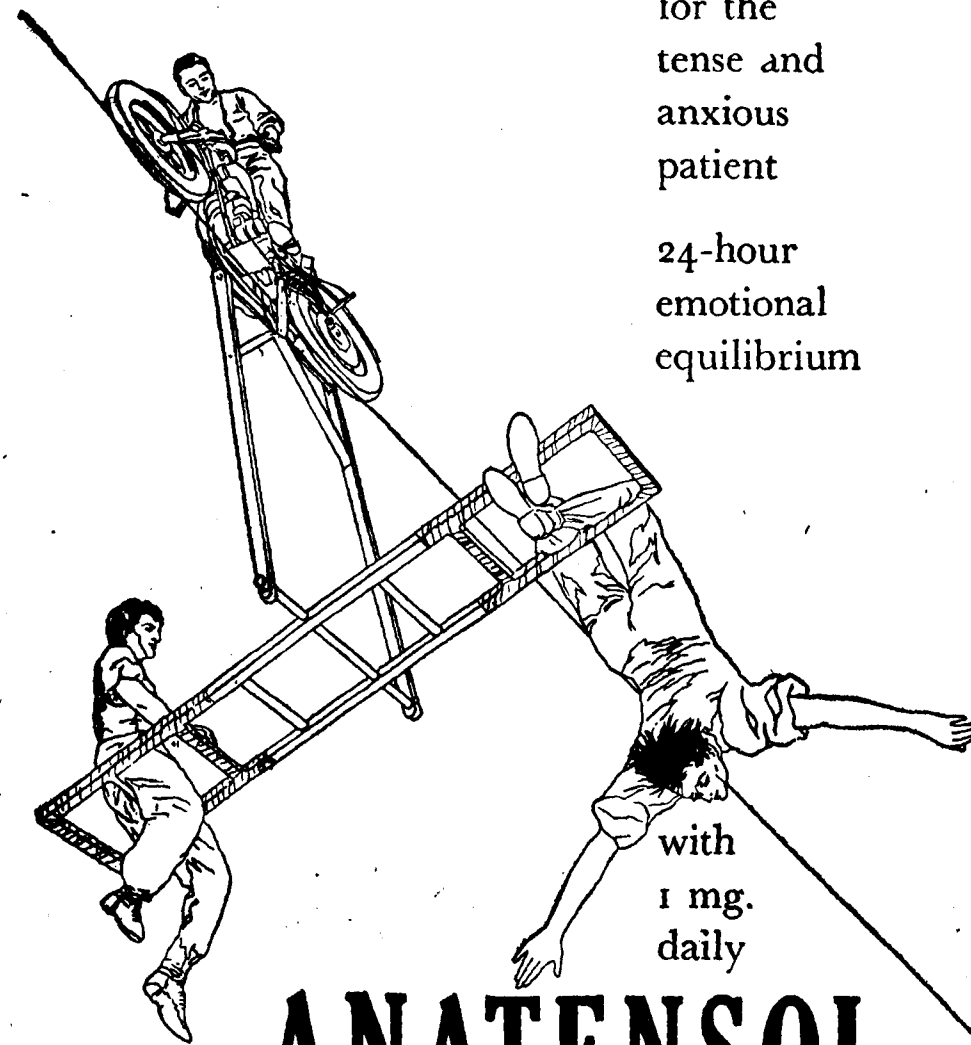
Copies are also on sale by Messrs. Higginbothams at their

Book-stalls at the following Railway stations:

ADONI	ELURU	MADURAI	SHORANUR
ARKONAM	ERODE	MANGALORE	TAMBARAM
BANGALORE CITY	GODAVARI	METTUPALAYAM	TANJORE
BANGARUPET	GUDIVADA	MYSORE	TENALI
BAFATLA	GUDUR	NAGAPATTINAM	TIRUR
BELGAUM	GUNTAKAL	NIDADAVOLE	TIRUCHIRAPPALLI
BELLARY	GUNTUR	ONGOLE	TRICHUR
BHEEMAVARAM	HUBLI	PODANUR	TRIVANDRUM
CANNANORE	JALARPET	QUILON	CENTRAL
COCHIN HARBOUR	KATPADI	RAJAHMUNDRY	
TERMINUS	MADRAS CENTRAL	RENIGUNTA	
COIMBATORE	MADRAS EGMORE	SALEM	VIJAYAWADA
GUDDALORE O. T.	MADRAS FORT	SAMALKOT	VILLUPURAM

for the
tense and
anxious
patient

24-hour
emotional
equilibrium



with
1 mg.
daily

ANATENSOL TABLETS

Squibb Fluphenazine Dihydrochloride

SUPPLY: Sugar-coated tablets of 0.5 mg. bottles of 20.



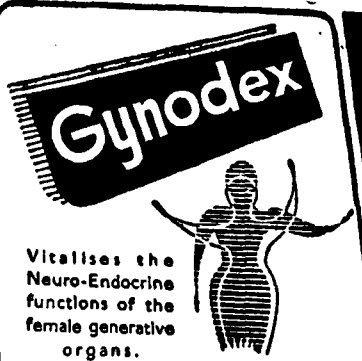
SARABHAI CHEMICALS BARODA
Karamchand Prasad & Sons Limited
MANUFACTURERS OF SQUIBB MEDICALS IN INDIA



Asthalack-P CAPSULES

A SUPREME Therapeutically effective, powerful and a dependable remedy against Bronchial Asthma, Hay Fever, Spasmodic Cough etc., etc.

Each capsule contains: Dihydroxy propyl Theophylline 120 mg. Chlorpheniramin maleate 2 mg. Prednisolone 0.75 mg., Papaverine Hcl. 15 mg. Ephedrine Hcl. 20 mg., Noscopine 5 mg.



Gynodex

Vitalises the Neuro-Endocrine functions of the female generative organs.

Utero Ovarian Tonic Sedative & Anodyne. Contains Aletria, Viburnum, Hydrastis, Piscidia, Pot. Bromide, Myosclamus, Extract of Ovary and Placenta.

NOW MANUFACTURED IN INDIA BY:

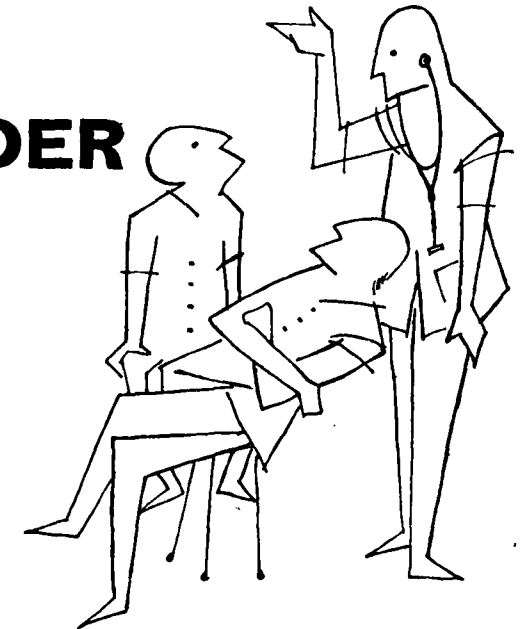
RETORT LABORATORIES
9-A, McNICHOLS ROAD, MADRAS 31

SOLE DISTRIBUTORS: J. J. MEHTA & SONS 40, BROADWAY MADRAS 1

a clear case for AFDER

for gastro-duodenal
ulcers & hyperacidity

AFDER is so remarkably effective in treating gastro-duodenal ulcers because the special fine grain of the Bismuth Subnitrate used enables it to be deposited in the cavity of the ulcer, helping it to heal.



AFDER also contains Di-hydroxy-aluminum Amino-acetate and Light Magnesium Carbonate which are extremely efficacious antacids, Sodium Carboxymethylcellulose which helps in forming a mucilaginous coating on the inside of the intestinal tract, Calamus Rhizome which has a toning up effect on the gastro-intestinal tract and Casanthranol, the new safe laxative, which prevents undesirable constipation.

Each tablet of AFDER contains:

Dihydroxyaluminum Aminoacetate N.F.	0.3 Gm.
Bismuth Subnitrate B.P.C.	0.3 Gm.
Light Magnesium Carbonate B.P.	0.2 Gm.
Sodium Carboxymethylcellulose U.S.P.	100 mg.
Pulv. Calamus Rad	25 mg.
Casanthranol	2 mg.

Available in bottles of 40 tablets.

RYBARVIN INHALANT for ASTHMA



IT affords the most speedy relief yet known to Medical Science.

Manufactured in England by **RYBAR LABORATORIES LTD.**

ASK FOR LITERATURE FROM:-
Sole Distributors for India
H. MUKERJI & BANERJEE SURGICAL LTD.
39/1, COLLEGE STREET, CALCUTTA - 12
and at ASUTOSH BLDG., CAL. UNIVERSITY



MANUFACTURED BY:

THE ANGLO-FRENCH DRUG CO. (EASTERN) LTD.

24/26, TARDEO ROAD, BOMBAY 7

PANVIT B.I. TABLETS

Multiple vitamins
with minerals

for supply of normal requirement
and treatment of deficiency states

each tablet contains :

Vitamin A	4000 I. U.
Vitamin D	400 I. U.
Vitamin E	1 mg.
Vitamin B ₁	4 mg.
Vitamin B ₂	2 mg.
Vitamin B ₆	2 mg.
Vitamin B ₁₂	2 mcg.
Cal. Pantothenate	4 mg.
Nicotinamide	10 mg.
Choline Dihydrogen Citrate	2.5 mg.
Vitamin C	30 mg.
Folic Acid	0.15 mg.
Iron (Exsic Ferrous Sulph.)	3.34 mg.
Calcium (Dicalcium Phos.)	70 mg.
Phosphorus (Dicalcium Phos. & Dibasic Mag. Phos.)	60 mg.
Magnesium (Dibasic Mag. Phos.)	5 mg.
Manganese (Manganese hypophos.)	0.05 mg.
Cobalt (Cobalt nitrate)	0.005 mg.

12 VITAMINS
6 MINERALS

In bottles of 50, 100,
500, 1000 tablets.

ALSO AVAILABLE

PANVIT B.I. DROPS
CONTAINING 10 VITAMINS
AND

PANVIT B.I. INJECTION
CONTAINING 10 VITAMINS



BENGAL IMMUNITY CO., LTD.
153, Dharamtala St., Calcutta-13.

EFFECTIVE CONTROL OF DIABETES



For severe and complicated
diabetics and juvenile cases
a wide range of

In mild and moderately severe
cases of maturity onset

DIABECHLOR

brand of Chlorpropamide

Dose: Initially: 2 tablets per day.

Maintenance: 1 - 2 tablets per day.

Supply: Bottles of 30 scored tablets;
each tablet containing 200 mg. of
chlorpropamide.

INSULIN

INSULIN

Vials of 10 ml. 40 I.U. & 80 I.U. per ml.

INSULIN PROTOMINE ZINC

Vials of 10 ml. 40 I.U. per ml.

INSULIN NPH

Vials of 10 ml. 40 I.U. per ml.

* Also available Sweetin a non-caloric Sweetening Agent in liquid form.

KEMP & CO. LTD., Bombay 28.

ASMACORT "T" WILL HELP!



In Asthma Prednisolone
Gives Quick Relief

Each tablet contains:

Theophylline		80 mg.
Ephedrine Hydrochloride		25 mg.
Phenobarbitone		15 mg.
Prednisolone		1.5 mg.

MANUFACTURED BY

I N D O - P H A R M A

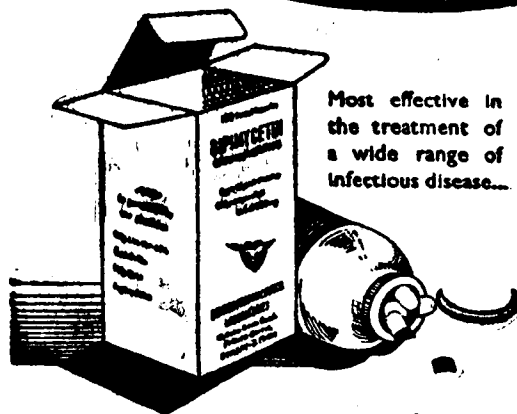
PHARMACEUTICAL WORKS PRIVATE LTD.

83, KOHINOOR ROAD, DADAR, BOMBAY-14



BIPIMYCETIN

CHLORAMPHENICOL



Most effective in the treatment of a wide range of infectious disease...

BRITISH PHARMACEUTICAL LABORATORIES
17, Babu Genu Road, Princess Street,
BOMBAY-2 (India)

- BIPIVULES CAPSULES. (Haematinic Capsules)
- BIPINAL SODIUM Capsules 100 mg. (Seco Barbitone Sodium Caps.)
- BIPIPYRIN Tablets STRIP Pkg. Phenyl Butazone 0.125 G. Amidopyrine 0.125 G.
- BIPIQUIN Tabs. STRIP Pkg. (Chloroquin Phosphate 25 G.)
- BIPIBI-12 (Vitamin B₁₂) Vials & Amps. 100 mcg., 500 mcg. & 1000 mcg.
- ERGOQUIN Capsules. (Ergot Prep. 167 mg. Pulv Zingib 100 mg. Totaquin 67 mg.)
- PROGESTONIL Amps. & Vials. (Progesterone 10 mg. & 25 mg.)
- VITAMIN E. Caps 6 mg. 30 mg. & 100 mg.
- VIT. A D Capsules
- PREDNISOLONE Tabs. 5 mg.
- TOLBUTAMIDE Tabs. 5 g.

And other Pharmaceutical Products

Distributors :- BENJAMIN & SADKA

Anand Bhuvan, Princess Street, Bombay-2

8 2208.

NEW Specific

Highly effective
well tolerated

ERGADOL (BPL)

for Menstrual Regulation

Each capsule contains:
Ergot Preparata USSR. 60 mg.
Apol 0.18 G.
Savin oil 30 mg.
Castor-Oil B.P. 0.36 G.
Aloin B.P. '53 15 mg.
Ethinyl Estradiol B.P. 0.1 mg.

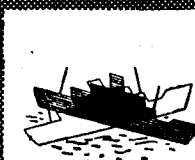
A good prescription for
IRREGULAR PERIODS, AMENORRHEA,
DYSMENORRHEA, MENORRHAGIA,
METRORRHAGIA & UTERINE TONIC.
CONTROLS MENSTRUAL AND POST-
PARTUM BLEEDING. VALUABLE IN
OBSTETRICS AFTER DELIVERY OF THE
CHILD.

A PRODUCT OF
BRITISH PHARMACEUTICAL LABORATORIES
17, BABU GENU ROAD, BOMBAY-2.

DOSAGE:
1 to 2 capsules 3 or 4
times daily.

remember 'MARZINE' forget

- ★ nausea and vomiting of pregnancy
- ★ drug-induced vomiting
- ★ radiation sickness
- ★ motion sickness
- ★ vertigo
- ★ post-operative vomiting



PACKINGS:

'Marzine' brand Cyclizine Hydrochloride
Tablets (scored) of 50 mg; 20 x 4 (catch covers) and
containers of 10 and 100

'Marzine' brand Injection of Cyclizine Lactate
Ampoules (50 mg. in 1 ml.); containers of 5



BURROUGHS WELLCOME &
CO. (INDIA) PRIVATE LTD.



CIPLAZAN

CIPLA

DIETHYLCARBAMAZINE CITRATE

- **ANTIFILARIAL**
- and
- **ANTHELMINTIC**

TABLETS



CIPLAZAN is Cipla's brand of the well-known therapeutic substance Diethylcarbamazine citrate, the most effective anti-filarial and anthelmintic agent so far introduced.

CIPLAZAN possesses high efficacy combined with low toxicity and ease of administration.

CIPLAZAN is the most potent therapeutic agent for the treatment of filariasis due to *Wuchereria bancrofti* and also for prophylaxis.

CIPLAZAN is of value in the treatment of ascariasis and tropical eosinophilia.

CIPLAZAN is readily absorbed in the system and excreted in the urine.

CIPLAZAN is well tolerated as compared to the older drugs such as arsenic in the treatment of filariasis.

PRODUCT OF



LITERATURE SENT ON ...

CIPLA SALES DEPOT, 1/186, Mount Road, MADRAS.

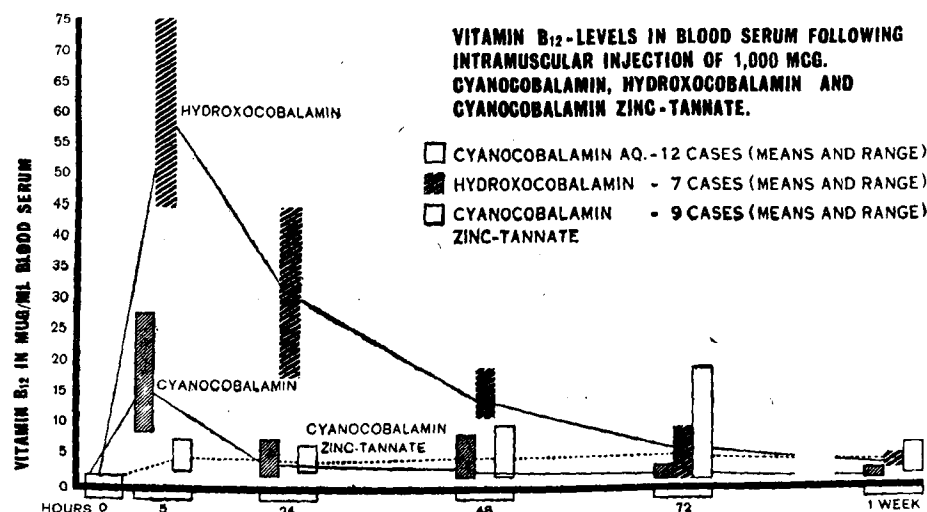
for most of your diabetic patients

DBI

(brand of Phenformin)

the full-range oral hypoglycemic agent...lowers blood sugar in mild, moderate, and severe diabetes, in children and adults

HIGHER AND MORE PROTRACTED BLOOD LEVELS AT HIGH DOSAGE



INJECTABLE
REDISOL-H
 (HYDROXOCOBALAMIN)

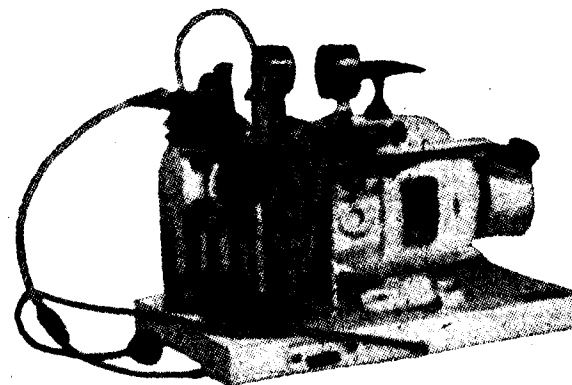
Supplied: 5 ml. vial. REDISOL-H (hydroxocobalamin) 500 mcg. per ml. & 1,000 mcg. per ml.



MERCK SHARP & DOHME OF INDIA LIMITED

Affiliate of Merck & Co., Inc., U.S.A., Dugal House, Backbay Reclamation, Bombay 1.
 Sole Distributors: **VOLTAS LIMITED**

'QUICO' SUCTION & PRESSURE PUMP



It is compact and easily portable unit with a $\frac{1}{4}$ H.P. Motor to which attached an enclosed pump, the assembly mounted on a metal base. Additional Features:-Automatic Oiling, Filtering, Pressure and Vacuum regulating valves Vacuum and ether bottles, ON/OFF switch and provisions for foot switch connection, working on 230 volts A.C. 50, Cycles; single phase A.C. supply.

- (a) with one bottle vacuum gauge, suction hook
 (b) with ether and vacuum bottles, spray and suction canula, pressure gauges.

GUARANTEED FOR ONE YEAR

For further particulars, please contact:

UNIQUE TRADING CORPORATION,

Phone : 30011

221, Sheriff Devji Street, BOMBAY-3.

Gram : UNILAB

QUICO Products are guaranteed for workmanship and accuracy.

LEUKORA



Removes
that
ailment



Write for particulars

ADCCO LIMITED

29/3A CHETLA CENTRAL ROAD, CALCUTTA-27
 GAUMATI • PATNA • VIJAYAWADA • LUDHIANA



In Diabetes and Obesity...

To Reduce Sweets
without
Reducing The Sweetness

SWEETIN

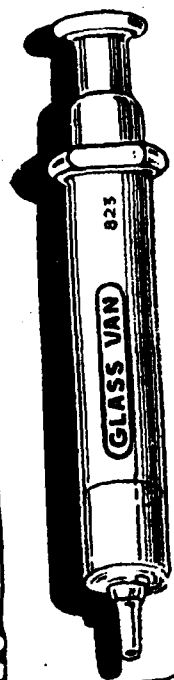
(Sodium Cyclamate Solution)
A Non-Caloric Sweetening Agent

- Available for the first time in liquid form
- Readily miscible in all types of food and drinks, hot or cold.
- No bitter after taste.



KEMP & CO. LTD., Bombay 28.

KC-9/61



GLASS VAN

ALL GLASS SYRINGES

are **A-1** in performance
made in strict con-
formity with British
Standards.

Better than the best
imported Syringes

MADE IN INDIA WITH JAPANESE COLLABORATION

HINDUSTAN SYRINGES (P) LTD.
FARIDABAD (Punjab).

PARTAP

A. B. INSULINS CONTROL

of a diabetic's blood
sugar — with insulin — is
the essence of treatment
in diabetes, but YOUR
FIRST and IMMEDIATE
PROBLEM is to decide,
with complete confidence,
on an insulin that
ensures this control, and
then to select one that
achieves it according to
the diabetic's individual
requirements.



We offer
A.B. INSULINS

You select
INSULIN A.B.

(soluble insulin A.B.)

A.B. INSULIN LENTE

(insulin zinc suspension B.P.)

**PROTAMINE
ZINC INSULIN A.B.**

(protamine zinc insulin B.P.)

Throughout the world, doctors and diabetics recognise

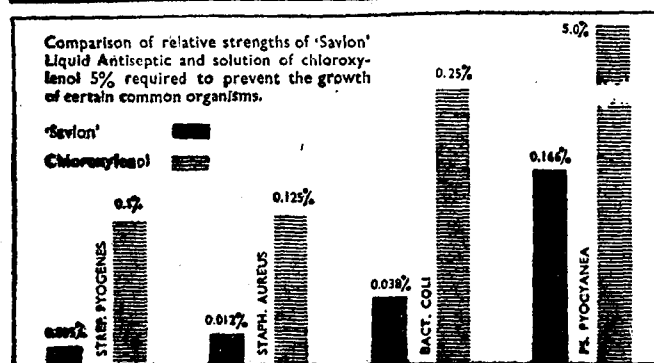
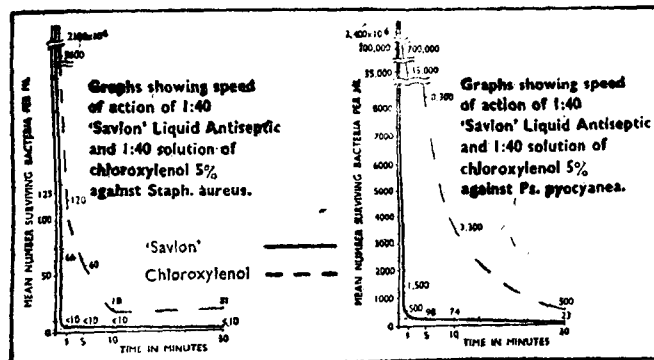


as the symbols of reliability.

Manufactured and distributed jointly in India by:

BRITISH DRUG HOUSES (INDIA) PRIVATE LTD.
AND
GLAXO LABORATORIES (INDIA) PRIVATE LTD.

Savlon kills bacteria fastest



In recent Laboratory tests in the U.K., a 1:40 dilution of 'Savlon' Liquid Antiseptic killed more bacteria more quickly than the same concentration of other standard antiseptics; proving what Doctors and Surgeons have discovered in practice; that 'Savlon' Liquid Antiseptic and Hospital Concentrate are the best for the prevention of infection in hospitals.

Essential in midwifery, first aid, disinfection of surgical instruments, 'Savlon' Antiseptic finds diverse uses in preventing and controlling the spread of infection.



Imperial Chemical Industries
(India) private Limited
Calcutta Bombay Madras New Delhi

TROPAZINE

ELIXIR

A novel combination of well established Therapeutics for the Specific Treatment of Tropical Eosinophilia

Advantages: 1. Immediate relief and spectacular improvement in all the distressing symptoms (Cough, Wheeze and the typical Rhinitis etc.) associated with Tropical Eosinophilia.

2. Free from Toxicity.
3. Palatable and Elegant.

Each 30 c.c. (1 fl. cc. approx.) contains:

Diethyl carbamazine citrate B.P.	400 mg.
Glyceryl Guaiacolate	250 mg.
∞∞ Diphenyl-oxy-β Dimethylamino-acetate hydrochloride (Diphenin)	4.0 mg.

PHYTOSYNTH LABORATORIES

Post Box No. 65,

:: :: ::

COCHIN - 2

Introducing . . .

ISOVIN

A New and Novel Anti-Tubercular Drug

Comparative Advantages:—

1. It is resistant to INH inactivation mechanism.
2. Sputum conversion takes place within six months in 90% of cases.
3. It can be administered alone in a daily dose of three tablets even in Streptomycin-resistant cases.

For further particulars please write to:—

G. D. A. CHEMICALS LTD.,

36, PANDITIA ROAD, CALCUTTA-29.

The Pioneer Manufacturers in India of:

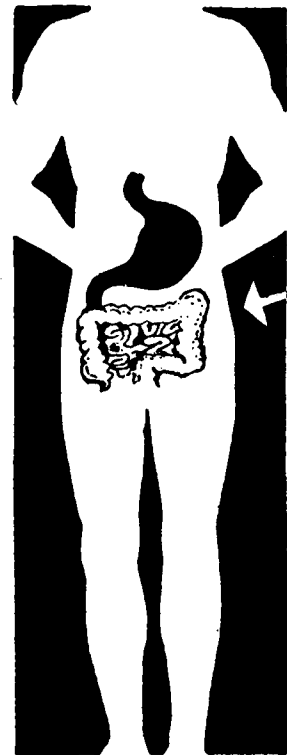
PAMICYL (Para-Amino-Salicylic-Acid).....1950.

ANAZID (Isoniazid Amino Salicylate).....1956.

BROMOCYL (5-Bromo Salicyl Hydroxamic Acid).....1959.

Gram: 'SULFAOYL'

Phone: 46-2868.



A unique combination
for the control and management of
Amoebiasis and allied intestinal disorders.

ESPIQ

COMPOSITION (One Tablet Contains)

Iodo-chloro-oxy-quinoline 150 mg.
Sulphaguanidine 250 mg.
Diatase 60 mg.
Papain 30 mg.
Pectin 60 mg.
Vitamin B1 5 mg.

THE
BRAHMACHARI RESEARCH INSTITUTE
82/3, Cornwallis Street, Calcutta-4

HEALTH'S ALUSIL

a scientifically formulated antacid tablet

Sucked regularly, provides continuous buffering of gastric acid at about pH. 4.00 in the face of widely different acidities in the stomach.

1. Because of the presence of the most effective antacid Magnesium Oxide in Alusil, it relieves rapidly gastric pain.
2. Magnesium Trisilicate and Aluminium Hydroxide safely buffer excess acid allowing peptic digestion.
3. Non-alkalising and does not stimulate compensatory secretion of acid.
4. Non-constipating.
5. Stable, predicable and consistent.
6. Non-gritting and pleasant to take.

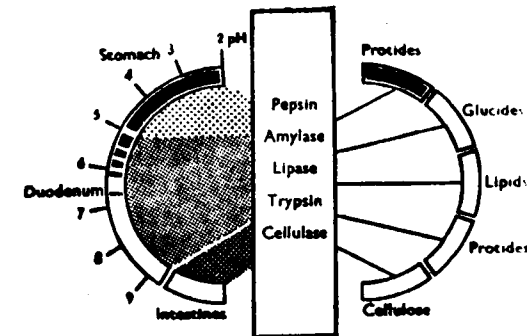


Each tablet contains:

Aluminium Hydroxide	..	200 mg.
Mag. Trisilicate	..	250 mg.
Magnesium Oxide	..	200 mg.

Supply
Phials of 75 and 500 tablets

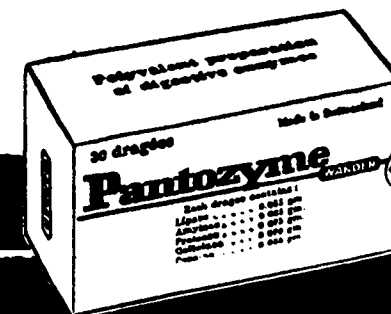
INDIAN HEALTH INSTITUTE & LABORATORY LTD. 1, Health Institute Road, Calcutta-28,
Punjab Depot: P. O. Goraya, Dist. Jullundur.



the polyvalent enzyme
preparation for the treatment
of acute and chronic
digestive disturbances.

INDICATIONS:

Disturbances of protein, fat and carbohydrate digestion. Enterocolitis and gastrogenous diarrhoeas. Pancreatic insufficiency. steatorrhea. Non-specific digestive disorders. Errors of diet



For Medical literature, samples & supplies
please contact:
Sole Distributors

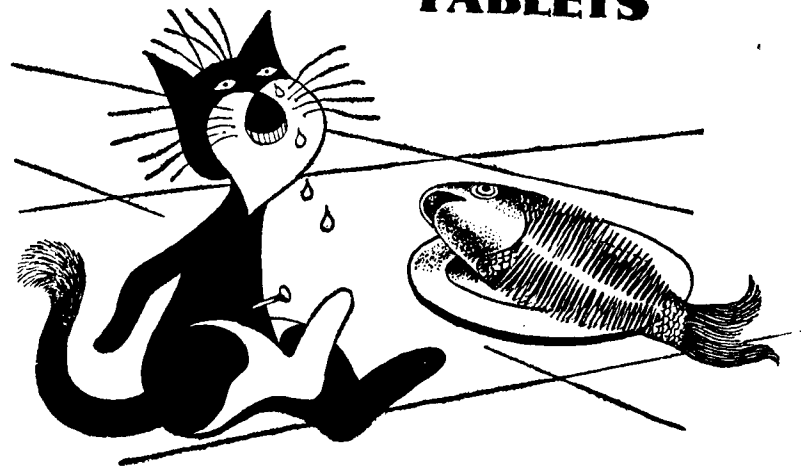
KHATAU VALABHDAS & COMPANY

Indian Globe Chambers, Fort Street, BOMBAY-1.
Phone: 24155. Telegrams: KSCARLET

KV & SEKAJ

PENZIME

TABLETS



Each tablet contains:

Pepsin	...	...	97 mg.
Papain	...	...	97 mg.
Diastase	...	...	130 mg.
Choline Dihydrogen Citrate	...	...	65 mg.
dI-Methionine	...	...	32 mg.
Inositol	...	...	65 mg.
Ext. Nuc. Vom. Sico.	...	...	4 mg.
Pulv. Ginger	...	...	16 mg.
Pulv. Cardamom	...	...	16 mg.

SMITH, STANISTREET & CO., LTD.

Head office, Factory and Laboratories:
18, Convent Road, Calcutta-14

PSST 50

in allergic diseases
in infectious diseases
in articular affections

NISONE

prednisone

5 mg tablets

the well-tolerated steroid of high potency confirmed
by world-wide clinical evidence

Enquiries to: MEDICAL SERVICE DEPARTMENT,
LEPETIT RANBAXY LABORATORIES LTD., P. O. Box No. 104, New Delhi-1.
Branches: BOMBAY - CALCUTTA - DELHI - KANPUR - MADRAS

Two in One

Vit-AE

VIT-AE is a highly potent capsule containing 30,000
I. U. of Vitamin A and 70 mg. of Vitamin E
(Tocopherol Acetate)



SPENCER & CO. LTD.

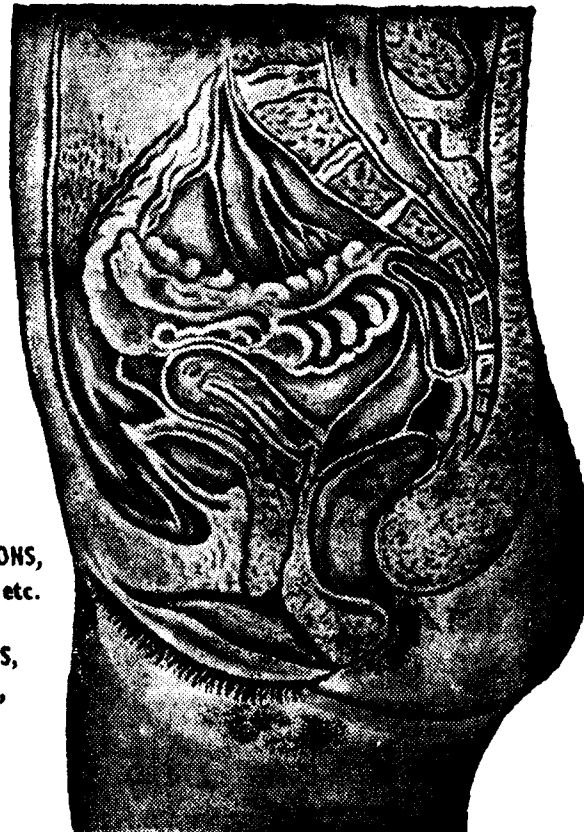
MADRAS - BOMBAY - CALCUTTA DELHI AND BRANCHES

ENTEROMYCETIN SULFA

**TABLET
AND
SYRUP**

Synergistic combination of
CHLORAMPHENICOL (Enteromycetin)
SULFADIAZINE and PHTHALLYL
SULFATHIAZOLE

- Specially Indicated In :*
- **GASTRO INTESTINAL TRACT INFECTIONS,**
e.g. Colitis, Enteritis, Salmonellosis, etc.
and
 - **GENITO URINARY TRACT INFECTIONS,**
e.g. cystitis, Pyelitis, Pyelonephritis,
Urethritis, etc.



Now Manufactured in India by

by  **DEY'S MEDICAL STORES (Mfg.) PRIVATE LTD.**
CALCUTTA-19

Under Licence from **ZAMBON S.p.A. VICENZA (ITALY).**

EXCLUSIVE DISTRIBUTORS DEY'S MEDICAL STORES PRIVATE LTD.

CALCUTTA : BOMBAY : DELHI : MADRAS : PATNA : CUTTACK : GAUHATI

195/0-2-2-99.

The most Approved Therapy in

DYSMENORRHOEA

congestive and spasmodic



UTONE

ARKASHALA

Uterine Sedative and tonic

COMPOSITION

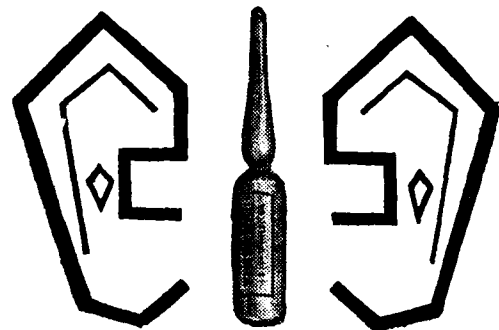
Oudumbara fruit (*Ficus glomerata*),
Ashwagandha (*Withania. Somni-*
fera), Shatavari (*Asparagus Race-*
mosus), Ashoka (*Saraka Indica*),
Anantmool (*Hemidesmus Indicus*),
Kathemath (*Amaranthus Spinosus*),
Jesthamadha (*Glycyrrhiza Glabra*),
Indrajawa (*Holarhena Antidysente-*
rica), Parasika Yawani (*Hyescyam-*
us Niger).

INDICATIONS

Dysmenorrhoea spasmodic and
congestive, Metrorrhagia, Chronic
endometritis, Habitual abortion,
Menopausal disorders.

AYURVEDEEYA ARKASHALA LTD., SATARA

in the treatment of



DEAFNESS

Timpanol

Indications:

- ◀ CHRONICAL PROGRESSIVE DEAFNESS
- ◀ CONDUCTIVE DEAFNESS ACCOMPANIED BY TINNITUS AURIUM
- ◀ MYOACUSIA - OTOSCLEROSIS
- ◀ ATROPHIC RHINITIS
- ◀ ALTERATIONS OF THE TYMPANIC SENSIBILITY

(Inj. of vit. E, vit. A. and ethylnicotinate)

INJECTABLE

Chitale Arts



manufactured under licence from:
ISTITUTO FARMACOTERAPICO ITALIANO, ROME, ITALY.

Sole Agents in India:

IFI MODY PRIVATE LIMITED, G. P. O. Box No. 609-A, BOMBAY-1.

JOINT PAIN

disappears

JOINT PAIN

with

JOINT PAIN



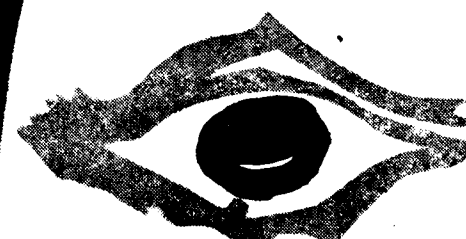
Thilozone-p

(phenylbutazone + prednisolone + magnesium trisilicate)



In Ophthalmology

An antibiotic of local action
polyvalent,
non-sensitizing



SOFRAMYCIN
OPHTHALMIC OINTMENT

—Skin lesions of the eyelids: blepharitis,
eczema—infections of the anterior seg-
ment of the eye: conjunctivitis, scleritis,
episcleritis, keratitis, iritis.....

PRESENTATION

Tube of 3 gm. of Ophthalmic
Ointment containing
0.5% framycetin sulphate.

DOSAGE

2 or 3 applications
per day on an
average.

LES LABORATOIRES ROUSSEL

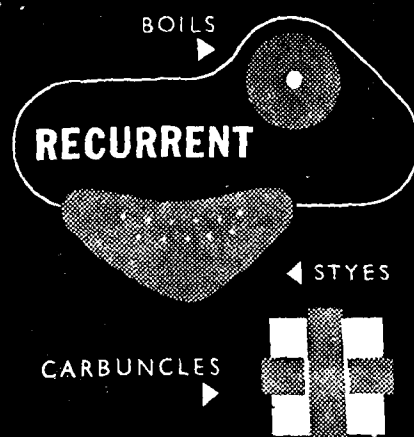
35, Boulevard des Invalides,
PARIS 7e.

Particulars and supplies from:

FRANCO-INDIAN PHARMACEUTICALS PVT. LTD.

Bapnu Ghar, Hornby Vellard,
BOMBAY 18.





**COLLOSOL
MANGANESE**

Penicillin will cure most cases quite quickly, but often fails to prevent recurrences and, what is perhaps more important, can give rise to the development of penicillin-resistant strains of staphylococci and of penicillin sensitivity which may preclude its use in more dangerous infections.

For minor infections Collosol Manganese is to be preferred since it not only cures the condition but appears to raise the resistance to the infecting organisms without giving rise to sensitisation or the appearance of resistant strains.

PACKINGS: 6 x 1 ml. ampoules
6 x 2 ml. ampoules
10 ml. vials
4 oz. bottles
100 tablets



THE CROOKES LABORATORIES LIMITED

(Incorporated in England. The Liability
of Members is Limited)
COURT HOUSE, CARNAC ROAD, BOMBAY-3

...when you prescribe steroid therapy with hydrocortisone cream? With some vehicles you risk the dangers of sensitisation, rebound phenomena and systemic absorption. But the Lacto-Calamine base in CORTODERMA and CORTODERMA-N guarantees that these effective skin preparations are free from any harmful after-effects. Soothing, bland, cosmetically acceptable, Lacto-Calamine also contributes its own anti-inflammatory action to the successful treatment of non-infected and infected dermatosis.

**DO YOU
CONSIDER
THE
VEHICLE?..**

CORTODERMA

for the treatment of non-infected dermatosis

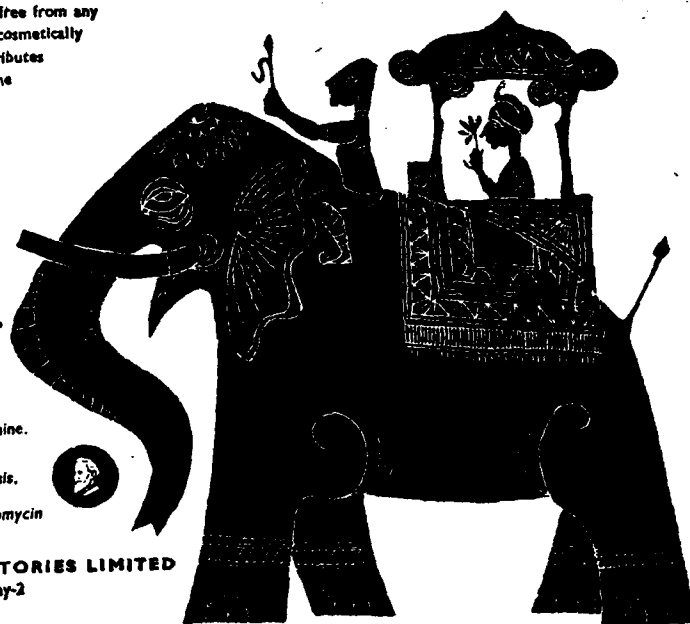
10g tubes containing 0.5% or 1% hydrocortisone acetate in Lacto-Calamine.

CORTODERMA-N

for the treatment of infected dermatosis.

10g tubes containing 0.5% or 1% hydrocortisone acetate with 0.5% neomycin sulphate in Lacto-Calamine.

THE CROOKES LABORATORIES LIMITED
Court House, Carnac Road, Bombay-2



All pain of the less severe type such as headache, neuralgia, neuritis, rheumatic joint pains and myalgias will be quickly and safely relieved with

CROCIN

It is also an effective antipyretic.

EACH TABLET CONTAINS:-

500 mg. N-acetyl-p-aminophenol which is rapidly absorbed and is of low toxicity. It does not cause gastric irritation or occult bleeding and does not form methaemoglobin or sulphaemoglobin.

Crocin is offered in tubes of 10 and bottles of 100 tablets.

JUNIOR CROCIN—specially compounded for young children, available in tubes of 25 tablets. Each tablet contains 120 mg. N-acetyl-p-aminophenol.



THE CROOKES LABORATORIES LIMITED

CROOKES



LACTO-CALAMINE

**THE SUPERFINE CALAMINE
WHICH PROTECTS & SOOTHES**

THE CROOKES LABORATORIES LIMITED
(Incorporated in England. The Liability of members is limited). Court House, Carnac Road, Bombay-2

For Nausea & Vomiting of Pregnancy

ANUROXIN

NOW WITH Chlorpheniramine Maleate and Meproamate

COMPOSITION:

Components	1 ml. Mild contains:	1 ml. Forte contains:	One Tablet contains:
Vitamin B ₁	50 mg.	100 mg.	10 mg.
Vitamin B ₆	50 mg.	100 mg.	10 mg.
Niacinamide	—	—	25 mg.
Chlorpheniramine Maleate	4 mg.	6 mg.	4 mg.
Meproamate	—	—	100 mg.



ORIENTAL PHARMACEUTICAL INDUSTRIES LTD.

64-66, Tulsi Pipe Road, Mahim, BOMBAY 16.



a

Promising

Pair to

Prescribe



B-COMPLEX

FORTE

WITH B-12

combination pack

Each ml. Contains:

Vitamin B ₁₂ B.P.	100 mcg.
Vitamin B ₁	100 mg.
Riboflavin B.P.	3 mg.
Vitamin B ₆ B.P.C.	5 mg.
Nicotinamide B.P.	0.15 G.
Panthenol	5 mg.
Choline Chloride	25 mg.
Methionine N.F.	5 mg.
Inositol N.F.	3 mg.
Benzyl Alcohol B.P.	3%
Phenol B.P. (as preservative)	0.5%

*after reconstitution



ORIENTAL PHARMACEUTICAL INDUSTRIES LTD.

64-66, TULSI PIPE ROAD, MAHIM, BOMBAY, 16.

Beyond
the range

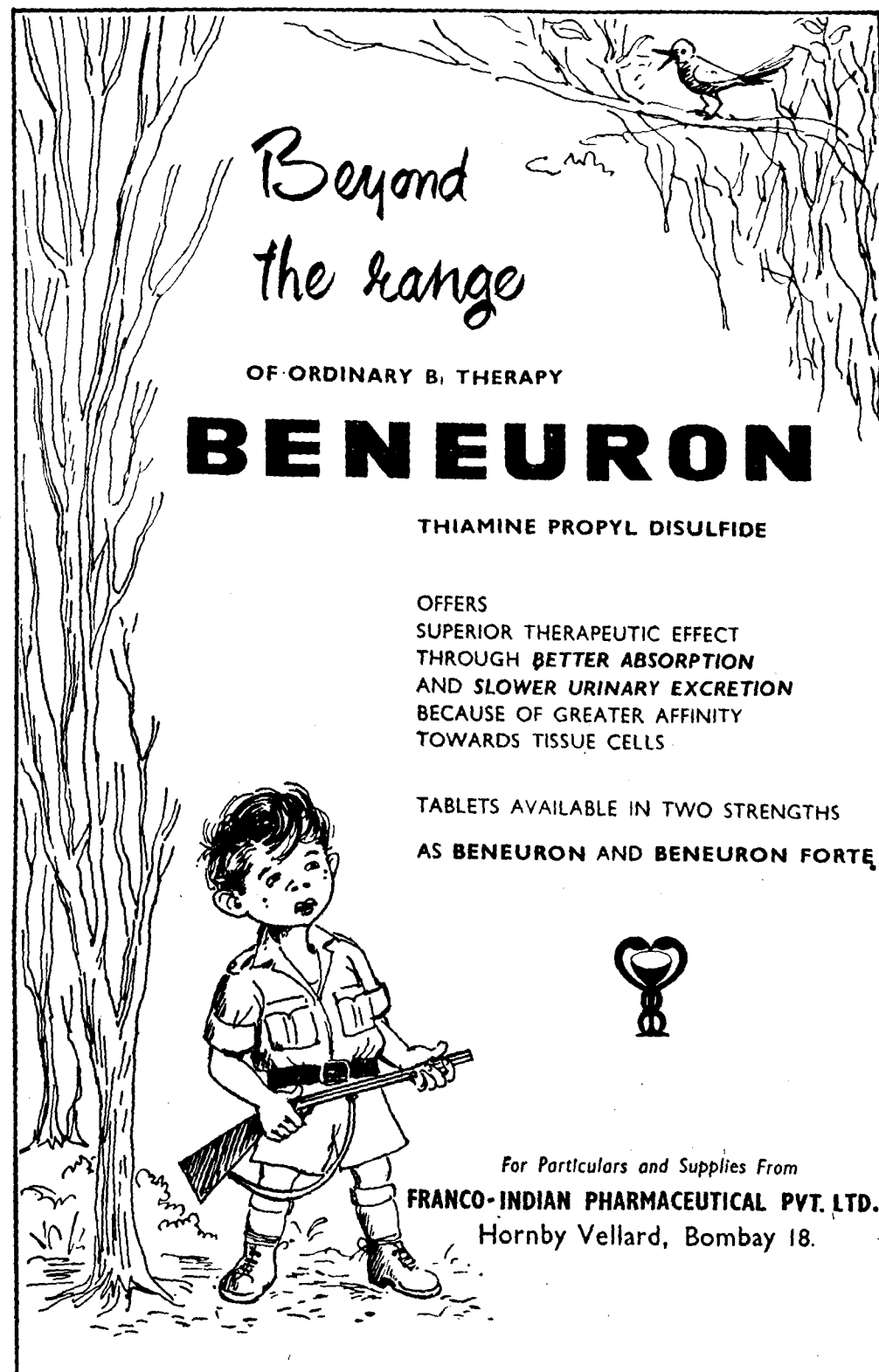
OF ORDINARY B₁ THERAPY

BENEURON

THIAMINE PROPYL DISULFIDE

OFFERS
SUPERIOR THERAPEUTIC EFFECT
THROUGH BETTER ABSORPTION
AND SLOWER URINARY EXCRETION
BECAUSE OF GREATER AFFINITY
TOWARDS TISSUE CELLS

TABLETS AVAILABLE IN TWO STRENGTHS
AS BENEURON AND BENEURON FORTE



For Particulars and Supplies From
FRANCO-INDIAN PHARMACEUTICAL PVT. LTD.
Hornby Vellard, Bombay 18.

LIVOZYME

A Non-Alcoholic Ferruginous Tonic

Containing

Both Haemopoietic and Haematinic factors. Specially suitable as a dietary adjunct and as an adjuvant in the treatment of Hypochromic microcytic anaemias, sprue, colitis, constipation, loss of appetite, etc. An invaluable Restorative during convalescence.

ASSOCIATED DRUG CO., Private LTD.,
YERCAUD (S. India).

THYMOCIN

for

PYORRHOEA - TOOTHACHE - TOOTHDECAY
and other diseases of gums & mouth

OTHER



PRODUCTS

HYPOTONE (Syrup Hypophosphites Comp.)
HICOLIN (Cough Syrup)
VIBICINE (B-Complex with C)
TONOZIME (Vitamins with Glycerophosphates)

*

Manufactured by:

T. M. THAKORE & CO.,
43, Churchgate St., Fort,
BOMBAY-1

Betnelan

an entirely new
corticosteroid

Here is a corticosteroid having increased anti-inflammatory activity with a decreased possibility of side effects.

Betnelan is devoid of salt retention activity, has negligible effect on potassium excretion, causes no mental depression, has no muscle weakening effect and shows promise of clinical superiority in other respects.

For short-term therapy a "2:1:½" dosage scheme is suggested. For example, in acute asthma, severe eczema, urticaria, some infectious fevers and other conditions for which corticosteroids are indicated systemically, the dosage may be:

2 tablets t.i.d. for 2 days followed by 1 tablet t.i.d. for 2 days and ½ tablet t.i.d. for 2 days.

For maintenance, dosage need be no more than ½ tablet twice daily.

Betnelan is presented as scored tablets containing 0.5 mg. betamethasone in foil packs of 10 and 100.

Betnelan (betamethasone) is an entirely new compound developed in Britain by Glaxo Laboratories Ltd. Its merits are derived from its unique chemical structure — the beta position of 16 methyl group in the formula 16β-methyl-9α-fluoroprednisolone (betamethasone) representing more than 20 new stages of manufacturing complexity.

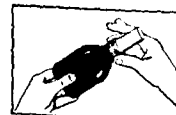
BETNELAN — better: for safety; activity; economy

GLAXO LABORATORIES (INDIA) PRIVATE LTD.
Bombay • Calcutta • Madras • New Delhi
Depots: Gauhati • Vijayawada • Bangalore • Srinagar

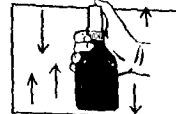
in general rundown conditions

ELIXIR COMBITONE S.F.*in liquid  + granule  form for reconstitution

Vitamin container (safe):
vitamin B₁₂, B₆ and C
in a stable granule form



Vitamins A, D₂, B₁, B₂,
Nicotinic Acid, Niacinamide,
Panthenol, Sodium
Glycerophosphate in a
flavoured non-syrupy
base containing Sorbitol



After reconstitution
ELIXIR COMBITONE is a
fully potent tonic

*always fresh, potent and
pleasant tasting*

*S.F. = SUPER FORTE



COMTECK LABORATORIES
Bombay 18.



in dietary restrictions

in digestive
dysfunctionsin pregnancy and
lactation

in geriatrics



in convalescence

in pre and
post operativelyin conjunction
with antibiotics

in B-COMPLEX therapy
a wide range of

BIRUPLEX

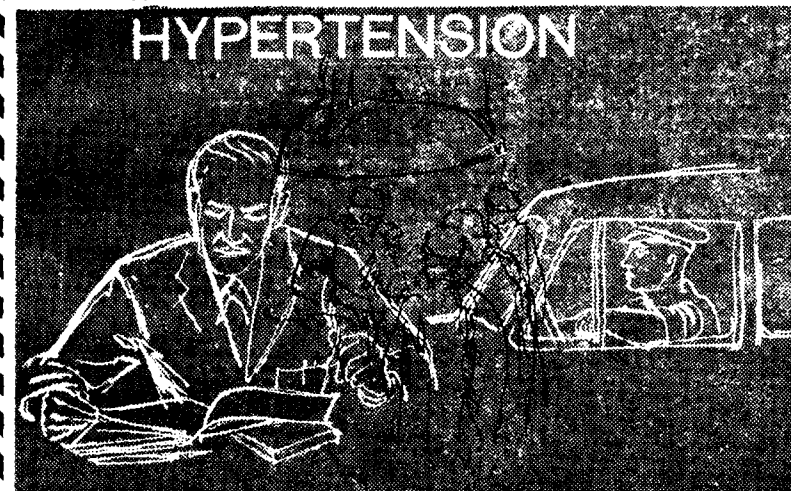
presentations

- ★ BIRUPLEX S.F.* INJECTIONS
- ★ BIRUPLEX FORTE INJECTIONS
- ★ BIRUPLEX PLAIN INJECTIONS
- ★ BIRUPLEX S.F.* CAPSULES
- ★ BIRUPLEX FORTE TABLETS
- ★ BIRUPLEX (ORAL)
- ★ S.F. SUPER FORTE



COMTECK LABORATORIES
Bombay 18.

new HORIZONS
IN THE TREATMENT OF
HYPERTENSION



decaserpyl
decaserpyl plus

- A CLEAR HYPOTENSIVE ACTION
- NO DEPRESSANT SIDE EFFECTS
- EXCELLENT TOLERANCE
- GRADUAL ACTION
- PROMPT SYMPTOMATIC RELIEF

decaserpyl
Vials of 30 tablets, each containing:
Methoserpidine ... 5 mg.

decaserpyl plus
Vials of 20 tablets, each containing:
Methoserpidine ... 10 mg.
Benzthiazide ... 20 mg.
Potassium Chloride ... 250 mg.

AVERAGE INITIAL DOSAGE:
decaserpyl 2 Tablets thrice daily
decaserpyl plus 1 Tablet thrice daily

**LES LABORATOIRES ROUSSEL**

35, Boulevard des Invalides PARIS 7e

Particulars and supplies from:

FRANCO-INDIAN PHARMACEUTICALS PRIVATE LIMITED
Bapnu Ghar, Hornby Vellard, BOMBAY-18



No. 2508

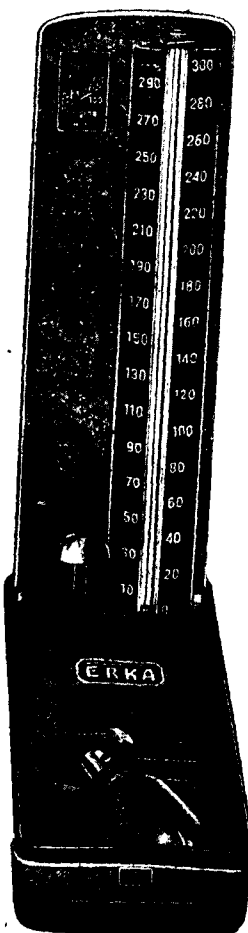
ERKA

**BLOOD
PRESSURE
INSTRUMENTS**

3 reasons for your choice.

- * ACCURACY
- * STURDINESS
- * ELEGANT APPEARANCE

Silver grey duraluminum case Unbreakable! With handle. Also available various other Models.

**ERKATONOMETER**

No. 2352 L

ANEROID MODEL

In zippered leather case 300 mm scale.

**D. DAHYABHAI & CO.**

Laboratory & Hospital Equipments
79, PRINCESS STREET, BOMBAY-2.

Keep
a bottle of
KLOFEN
in the home



the
SAFE
liquid

ANTISEPTIC
against :



- Infections and epidemics
- Cuts and abrasions
- Insect bites and stings

Ideal as a mouth wash,
and for personal hygiene

NON POISONOUS • NON STAINING

**GLUCONATE
LIMITED**

CALCUTTA-13

First choice...

HEMICAPS

® **SOFTSULES**

the ideal hematinic in
a comprehensive formula:

- Fresh liver
- Dried yeast
- B Complex factor
- Vitamin C
- Ferrous Gluconate

and 21 mcg. of Vitamin B₁₂ per day



A Product of
ATUL DRUG HOUSE
BOMBAY-18

For sustained protection...

in Cardiovascular Syndromes and Asthma

NEUTRAPHYLLINE

PAPAVERINE

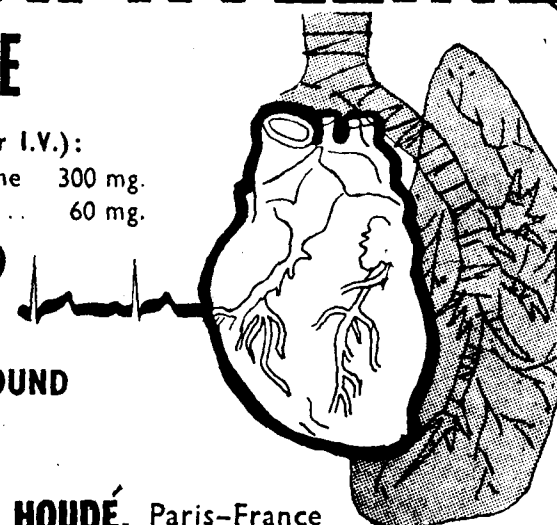
- INJECTIONS OF 3 ml. (I.M. or I.V.):
Dihydroxypropyl-7-theophylline 300 mg.
Papaverine HCl 60 mg.

NEUTRAPHYLLINE (Plain)

- Tablets of 150 mg.
- Injections (3 ml.) of 300 mg.

NEUTRAPHYLLINE COMPOUND

- Tablets



LABORATOIRES HOUDÉ, Paris-France

Sole Distributors: ATUL DRUG HOUSE, Bombay-18

C. A. F.

(CHLORAMPHENICOL USP) 250 mg. SEALED CAPSULES

For treatment of **VARIOUS BACTERIAL INFECTIONS**

Product of: CHEMUNION—LUGANO—(SWITZERLAND)

PRICE

12's Plastic Bot. ... Rs. 2.50	500's Plastic Jar ... Rs. 69.00
100's " Box ... " 15.50	1000's " " ... " 135.00
" 3 " at a time ... " 15.00	SPECIAL RATE FOR BULK ORDERS

C. A. F. Order for Rs. 15/- FREE BY POST. S. T. EXTRA.

ZAMA OIL	: Best for Colds, Coughs, Pains etc.
ZAMA RUB	: (Strong Pain Balm) For Headaches, Coughs, Rheumatic Pains etc.
ZAMA INHALER	: For Cold Stuffed Nose etc.
AMARCOSE	: (Pure Glucose Powder) For Energy and Fitness etc.

*Manufacturers and Distributors:***AMARCHAND SOBACHAND,**

P.B. 518, 95, NYNIAPPA NAICK ST., MADRAS-3

Grams: "ZAMA"

Estd. 1900

Phone: 33482

AMITROL TABLETS (Forte)

<i>Each tablet contains:</i> Pentaerythritol Tetranitrate	... 20 mg.
Theophylline Sodium Glycinate N.F.	... 0.15 mg.
Ethaverine Hydrochloride	... 15 mg.
Phenobarbitone B.P.	... 16 mg.

INDICATIONS: Angina Pectoris, Myocardial infarction, coronary insufficiency, coronary occlusion etc.

Available in the packings of 10, 25, 250, 500 and 1000 tablets bottles.

AMPCOBIN (Injection)

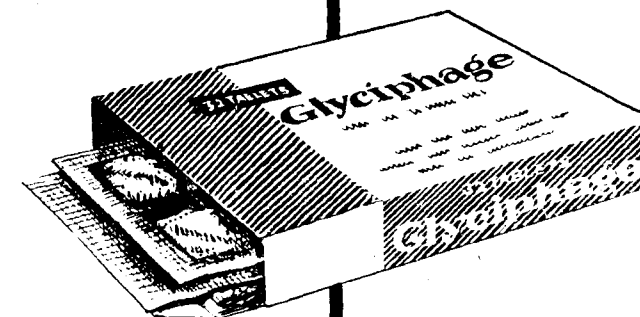
<i>Each ml. contains:</i> Adenosine 5-monophosphate	... 25 mg.
Vitamin B-12 U.S.P.	... 100 mcg.
Chlorocresol B.P.	... 0.2 %
Benzyl alcohol B.P.	... 2 %

INDICATIONS: For concurrent administration of Adenosine-5-monophosphate and Vit. B-12 in Articular involvements, Pruritus, Angina etc.

Available in the packings of 3, 6, 25 and 50 Ampoules boxes.

*For details, please write to:***USAN LABORATORIES PRIVATE LTD.,**

Amin Villa, 13, Dattatray Road, Santacruz, (West), BOMBAY-54.



active against
ALL
forms
of **DIABETES**

Glyciphage

NOT A SULFONAMIDE

ATOXIC

Literature & particulars from
FRANCO-INDIAN PHARMACEUTICALS PVT. LTD.

Bapnu Ghar, Hornby Vellard, BOMBAY 18.



THREE SPECIFIC SPECIALITIES



ASMAKON FORT

Asmakon fort is an invaluable tonic with a rare combination of the Bromide and Iodide of Sodium, Ephedrine, active principles of quillaia, stramonium, Lobelia and Grindelia. The cumulative antispasmodic, bronchodilator and Sedative effect of this preparation is powerful.



THREE TONICS

Three tonics is a stimulator of physical, mental and digestive powers for all ages in the form of an outstanding, palatable, a highly effective general tonic and nerve food. Indicated in general debility, neurasthenia, nervous breakdown, Vitamin "B" Complex deficiency diseases, poor digestion and during treatment of diseases with Sulphadruugs and antibiotics.



SPENUTRINE

A Potent uterine sedative with a wide range of application in obstetric and gynaecological practice containing the active principles of Hydrastis, Ashoka and Viburnum also Vitamin "E" is a delectable, and elegant combination. Useful in menorrhagia, uterine haemorrhage, threatened abortion and also in dysmenorrhoea.

SPENCER & CO, LTD.

Manufacturing Chemists.

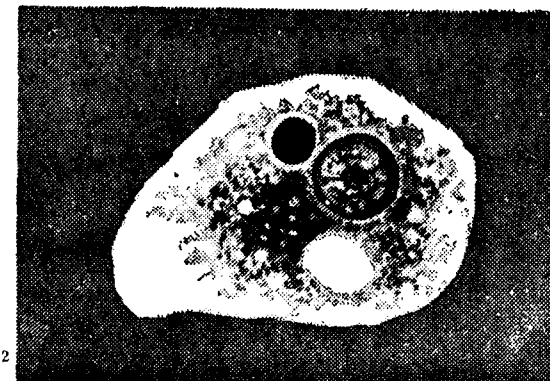
MOUNT ROAD, MADRAS-2, INDIA

AMEBIASIS

Intestinal and Extra-Intestinal

Amebiasis may be asymptomatic or may produce symptoms indicating low grade infection, inflammatory colonic disease with or without diarrhea, or symptoms resembling appendicitis, gallbladder disease, or peptic ulcer.¹

"Frequently an unrecognized hepatitis coexists with intestinal amebiasis."²



Investigators agree that complete treatment of amebiasis must include a drug effective against hepatic complications as well as one which eradicates the intestinal parasites. Milibis and Aralen are highly recommended for this purpose.

ARALIS

REGD. TRADE MARK

Each tablet contains 250 mg. bismuth glycolylarsanilate* and 75 mg. chloroquine phosphate.†

Complete Therapy and Prophylaxis of Amebiasis

• MILIBIS REGD. TRADE MARK

For Intestinal amebic infestation—a powerful amebicide, virtually nontoxic and highly effective clinically. Its relative insolubility assures high concentration in the large intestine.

† ARALEN REGD. TRADE MARK

For Extra-intestinal amebiasis—"specific for amebic hepatitis and amebic liver abscess."² As effective as emetine but without its toxicity.³

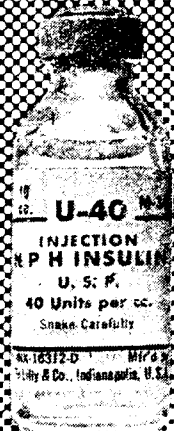


WINTHROP PRODUCTS INC.

Exclusive Distributors

DEY'S MEDICAL STORES PRIVATE LTD.
CALCUTTA, BOMBAY, DELHI, MADRAS, PATNA, GAUHATI, CUTTACK

- References 1 Sodeman, W.A., and Beaver, P. C. : Am. Jour. Med., 12 : 440, Apr., 1952
2 Zavala, D. C., and Hamilton, H. E. : Ann. Int. Med., 36 : 110, Jan., 1952
3 Conan, N. J. : Am. Jour. Med., 6 : 309, Mar., 1949



*A single daily injection
controls most diabetics*

injection NPH INSULIN

NPH Insulin has an intermediate time-activity which closely conforms to the daily needs of the average diabetic.

Approximately 85 percent of uncomplicated diabetic patients can be satisfactorily controlled with a single daily injection.

How Supplied:

Injection NPH Insulin, U-40 and U-80, in 10-cc. vials.

Also Available:

For prolonged effect: Injection Protamine Zinc Insulin, U-40 and U-80, in 10-cc. vials.

ELI LILLY AND COMPANY OF INDIA, INC.
(Incorporated in the U.S.A., the liability of the
members being limited)
P. O. Box 1971, BOMBAY 1

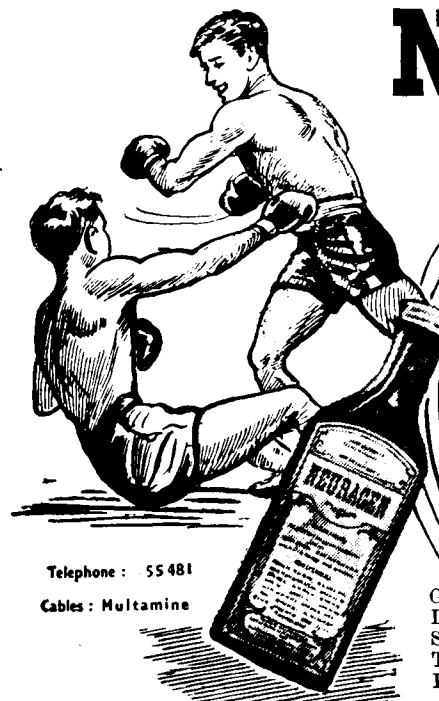


ENTERO-QUINOL

FOR
INTESTINAL
DISORDERS



EAST INDIA PHARMACEUTICAL WORKS LTD., CALCUTTA-26



NEURAGEN

A FORTIFYING TONIC

for
**VIGOUR
&
RADIANT HEALTH**

**RECUPERATIVE
& PICK-ME-UP**

Telephone: 55481
Cables: Multamine

Glycero-phosphates of Sod., Pot., Calcium, Iron, Mang. and Strychnine, Copper Sulphate, Caffeine, Papaine, Diastase, Tr. Auranti, Kola Champagne Flavour, Elixir Base.

INDO-FRENCH PHARMACEUTICAL CO., CATHOLIC CENTRE, MADRAS-1.

When recovery is slow and convalescence protracted Anapolon' gets your patient going

'ANAPOLON' has a specific action on protein metabolism and provides a highly effective and safe means of rapidly building up depleted tissues.

Given in tablet form, this new anabolic agent restores the metabolic balance so that the debilitated patient rapidly regains appetite and improves in weight and bodily condition. It is thus particularly helpful during the convalescent period after febrile

or wasting diseases, surgical procedures, burns and other injuries; and in under-weight children 'Anapolon' is no less useful because of its favourable influence on growth and development

ANAPOLON

TRADE MARK

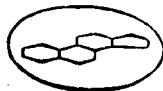
the new anabolic agent

IMPERIAL CHEMICAL INDUSTRIES (INDIA) -
PRIVATE LIMITED

Calcutta Bombay Madras New Delhi

Sole Distributors in India for

IMPERIAL CHEMICAL INDUSTRIES LIMITED
Pharmaceuticals Division, Wilmslow, Cheshire, England



A product of the
Syntex Corporation

KOTHARI's Important Announcement

We have much pleasure to announce that we have just received our consignment of the New (9th) edition, 1962 of

TABER'S CYCLOPEDIA MEDICAL DICTIONARY

Being
a Digest of Medical Subjects: **Medicine, Surgery, Nursing, Dietetics, Physical Therapy-Treatment and Drugs.**

Demy 8vo. 1328 pages fully illustrated.

Published Price \$ 6.75. Retail Indian Selling Price Rs. 30-37 np.

The Purpose of this **Popular Medical Dictionary** is to inform as well as to define; to extend information about the things that words symbolize. The aim throughout has been to supply voluminous information in the various fields of **Medical Practice, Nursing and Allied Subjects.** This Dictionary is long described as:

The Storehouse of Medical Knowledge Over One Million Copies Sold
ORDER YOUR COPY IMMEDIATELY.

THE KOTHARI BOOK DEPOT (Regd.)
(Estd. 1935)

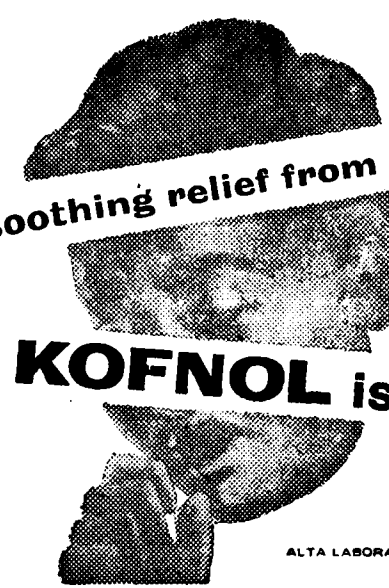
'Phone: 60805

Exclusive House for Medical Books

'Grams: 'KOBOK'

Head Office: King Edward Road, Parel, BOMBAY-12.

Branches in: POONA, INDORE, AHMEDABAD and HYDERABAD A.P.



For soothing relief from Cough

KOFNOL is best!

Ephedrine Hydrochloride B.P.
Terpine Hydrate B.P.C.
Antimony Tartrate B.P.
Sodium Benzoate B.P.
Pot. Bromide B.P.
Pulvis Glycyrrhiza B.P.C.
Pulvis Vasaka B.P.C.
Pulvis Ginger B.P.C.
Menthol B.P.



a name
you can
trust

ALTA LABORATORIES LTD., Vissani Park, Dadar, Bombay 14.

OMT-28

A POWERFUL COMBINATION

1. Sulphaguanidine
2. Phthalyl Sulphacetamide
3. Di-Iodo-Hydroxyquinoline



ENTEROGUANIDINE

FIGHTS BOTH DYSENTERIES

AMOEBIC AND BACILLARY

1. SULPHAGUANIDINE effective in Bacillary Dysentery in adults. Reported already in the Indian Medical Gazette.
2. PHTHALYL SULPHACETAMIDE—its action is superior to Succinyl Sulphathiazole and Phthalyl Sulphathiazole.

Reported by L.S. Goodman and A. Gilman, Pharmacological Basis of Therapeutics, 2nd Edition; also in Abstracts of World Med. 1950, 7, 213.

3. DI-iodo-HYDROXYQUINOLINE is very potent for its direct amoebicidal activity. It is active against both mobile and cyst forms.

Reported by D. Antoni, Am.J.Trop. Med., 1943, 23, 237
Available in bottles of 20, 50, 100 and 1,000 tablets.



ALBERT DAVID LIMITED

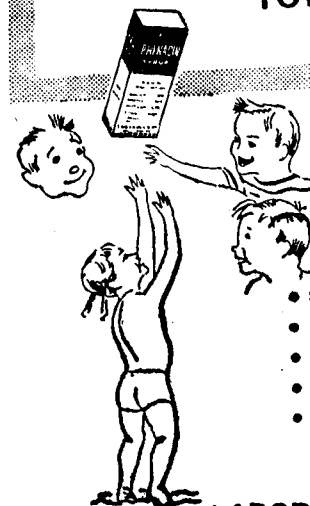


15, Chittaranjan Avenue, Calcutta - 13.

Branches: ALLAHABAD • BOMBAY • DELHI • GAUHATI • MADRAS • NAGPUR • SRINAGAR • VIJAYAWADA

introducing ...

New **antipyretic & analgesic**
for INFANTS & CHILDREN



PHENACIN

SYRUP

- safe
- palatable
- ease of administration
- maximum utility
- minimum intolerance

Each 4 ml. (Teaspoonful) contains:
N-acetyl p-aminophenol
(paracetamol) N. F. 0.125 Gm.

PACKINGS: 60 ml. and 450 ml.

LABORATORIES ORGASYN
43, QUEEN'S ROAD, BOMBAY 2.

Latest clinical assessments suggest the use of Corticosteroid with adjunct in Asthma therapy for prompt & certain relief...

Adredrine

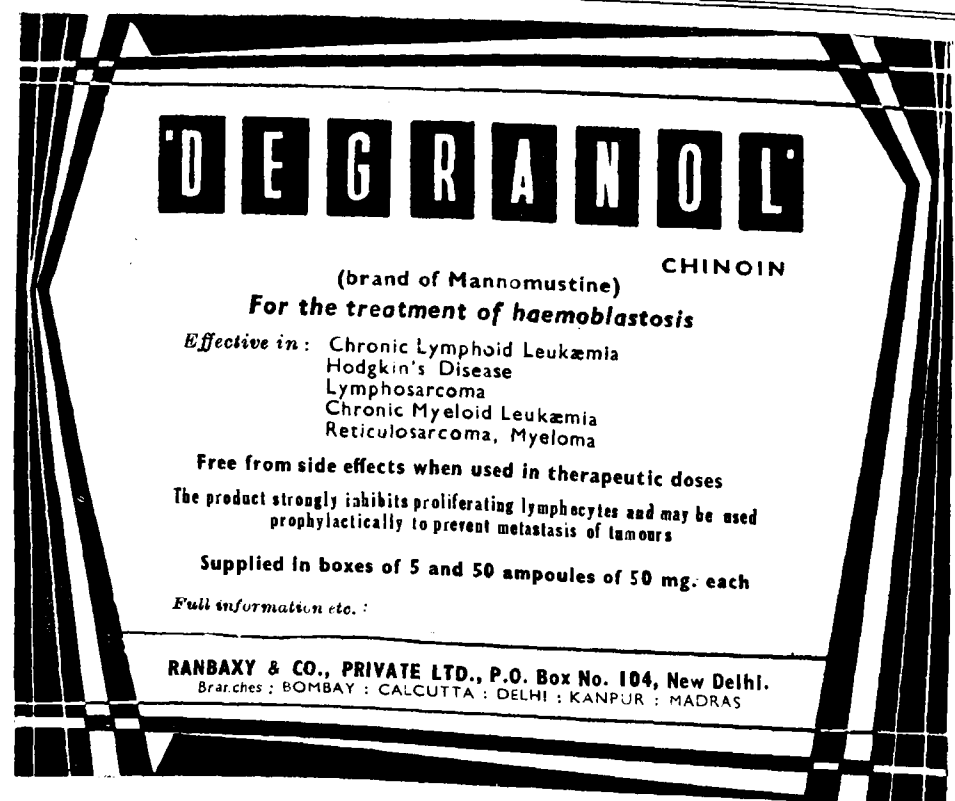
TABLETS

for
disturbed
bronchial
ventilation...

LABORATORIES ORGASYN Office: 43, Queen's Road, Bombay 2.

Sole Distributors: THEMIS DISTRIBUTORS, 43, Queen's Road, Bombay-2.

ADVANCE



'DEGRANOL'

(brand of Mannomustine) CHINOÏN

For the treatment of haemoblastosis

Effective in: Chronic Lymphoid Leukæmia
Hodgkin's Disease
Lymphosarcoma
Chronic Myeloid Leukæmia
Reticulosarcoma, Myeloma

Free from side effects when used in therapeutic doses
The product strongly inhibits proliferating lymphocytes and may be used prophylactically to prevent metastasis of tumours

Supplied in boxes of 5 and 50 ampoules of 50 mg. each

Full information etc.:

RANBAXY & CO., PRIVATE LTD., P.O. Box No. 104, New Delhi.
Branches: BOMBAY: CALCUTTA: DELHI: KANPUR: MADRAS

JUST PUBLISHED

CHATTERJEE: Parasitology (Protozoology and Helminthology) in relation to Clinical Medicine, 4th Ed.	1962	Rs. 18-75
DEY: Medical Bacteriology, 2nd Ed.	1962	17-50
DAWN: Text-Book of Obstetrics, 2nd Ed. (previously titled PRACTICAL OBSTETRICS)	1962	22-50

Useful books for Students & Practitioners.

NOTES ON OPHTHALMOLOGY, New 3rd Ed.	1962	10-00
NOTES ON PATHOLOGY, BACTERIOLOGY and PARASITOLOGY including Practical PATHOLOGY	1962	14-00
NOTES ON MEDICAL JURISPRUDENCE and TOXICOLOGY	1962	10-00
NOTES ON DISEASES OF EAR, NOSE and THROAT	1961	6-00
NOTES ON HYGIENE AND PUBLIC HEALTH	1960	6-00
GUHA: Everyday Prescriptions with Hints on Treatment, 2nd Ed.	1961	7-00

'Grams :
'MEDBOOKCO'

S. BHATTACHARYA & CO.,
Publishers of Medical Books and Importers,
49, Dharamatala Street, CALCUTTA-13.

Phone :
24-2847

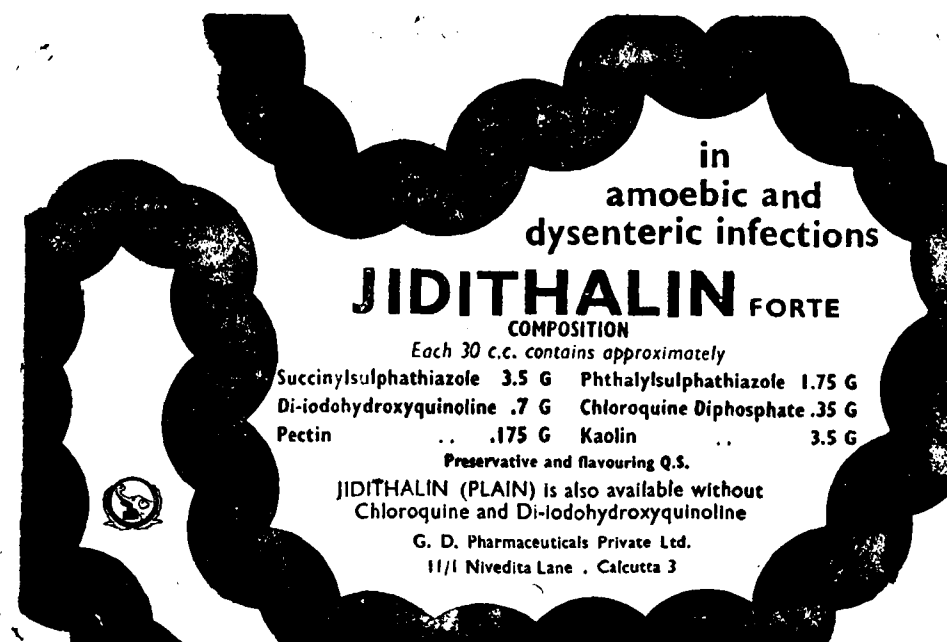
Branch Offices in: Madras, Nagpur, Delhi, Hyderabad-Dn., Indore, Jabalpur, Patna, and Visakhapatnam.



Ferro-Hepatine
(BLOOD TONIC & RESTORATIVE)

Liver Extract, Haemoglobin, Vitamin B₁, Vitamin B₂, Vitamin B₆, Ferrous Gluconate, Copper Sulphate, Manganese Sulphate, Sod. Arsenate, Tr. Nux Vomica.

INDO-FRENCH PHARMACEUTICAL CO., CATHOLIC CENTRE, MADRAS-1



in
amoebic and
dysenteric infections

JIDITHALIN FORTE

COMPOSITION

Each 30 c.c. contains approximately

Succinylsulphathiazole 3.5 G	Phthalylsulphathiazole 1.75 G
Di-iodohydroxyquinoline .7 G	Chloroquine Diphosphate .35 G
Pectin .175 G	Kaolin 3.5 G

Preservative and Flavouring Q.S.

JIDITHALIN (PLAIN) is also available without Chloroquine and Di-iodohydroxyquinoline

G. D. Pharmaceuticals Private Ltd.
11/1 Nivedita Lane, Calcutta 3

WHEN ORAL IRON IS NOT TOLERATED
AND
PARENTERAL IRON
IS INDICATED

Imferon
iron-dextran complex Trade mark

INTRAMUSCULAR IRON
IN THE TREATMENT OF IRON DEFICIENCY

BENGER

BENGER LABORATORIES (INDIA) LIMITED

Mercantile Buildings, Lall Bazar, Calcutta-1

Distributed in India by

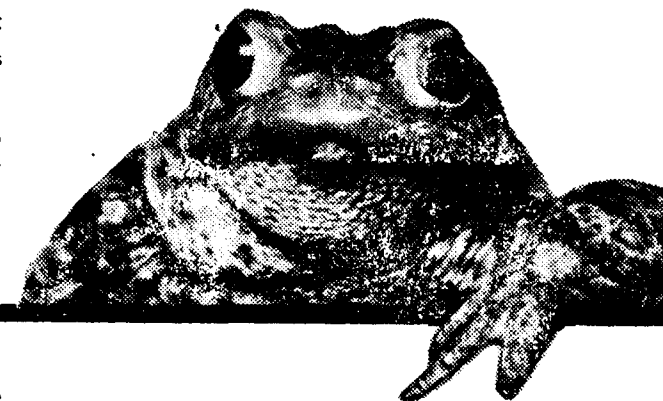
MARTIN & HARRIS (PRIVATE) LTD.

Branches throughout India

51/52/53

Pregnant or not?

This question can be
answered by the toad test
only fourteen days
after the menstrual
period is missed,
and the biological test
is rather expensive.



quicker
easier
equally reliable
and
considerably
cheaper

Duogynon

oral · i.m.

Dosage

1 ampoule intramuscularly
or 1 tablet
on each of two
consecutive days

if no pregnancy exists bleeding
occurs after 3 to 6, or in some
cases after 10 days.

Presentation

2 tablets containing
nor-ethisterone acetate
and ethinyl oestradiol

2 ampoules
containing progesterone
and oestradiol benzoate

SCHERING ASIA G.m.b.H., BOMBAY BRANCH
P. O. Box 10085, Bombay 1

Schering

WE SERVE HUMANITY
by
SERVING the MEDICAL PROFESSION

FLUIN

(Tablet)

- * Anti-Allergic
- * Anti-infective
- * Anti-Pyretic
- * Analgesic

ISONIVIT

Anti T. B. Product

Isoniazid
with
Vitamins B.C.D.

Made in India by:

AMAVA

2/1, Cornwallis St., Calcutta-6.

Telegram: 'HALLMARK' Calcutta.

Telephone: 34-2948.

SULFOMIN

(Phenyl methyl amine-p-aminobenzene sulphinate)

A dependable Drug

For

LEPROSY

(Neuro macular, Tuberculoid & Lepromatous type)

Effective Drug for Lepra-reactions too.

Manufactured by:

ALKALOID RESEARCH LABORATORIES LTD.,
CALCUTTA.

Distributors:

AMAVA, Calcutta-6.



SURE RELIEF AND IT'S SAFE

A DEPENDABLE REMEDY FOR STOMACH DISCOMFORTS

HEWLETT'S

MIXTURE

IN 4 OZS & 16 OZS BOTTLES WITH OR WITHOUT OPIUM

The relief afforded is soon observed as it rids all pain, facilitates digestion, neutralises excess of acidity and dispels the flatulency. In bowel complaints it has been taken with decided success. Recommended by the Medical Profession.



G. J. HEWLETT & SON (INDIA) PRIVATE LTD.,
MADRAS.

BELLABITAL

TABLET

(Belladonna alkaloids Atropine
Methylnitrate cum Phenobarbitone)

Sedative & Antispasmodic.

Mainly for Renal & Uteral Colic, Cardiac Neurosis, Spastic Dysmenorrhoea, Etc.

BHARATI CHEMICAL WORKS, 67/42, Strand Road, CALCUTTA-6.

NEO-CASINATE

TABLET

Antacid Drug of choice

Aluminium Casinate, Hyoseyamine Hydro Bromide, Phenobarbitone

It is for Hyperacidity, Peptic ulcer & Pylorospasm.

One tablet B.D. 1 or 2 hours after two principal meals.

Everest's PHOSPHOVIDINE

A TONIC STIMULATING
APPETITE, SUPPLYING EXTRA
NOURISHMENT IN GENERAL
DEBILITY AND RUNDOWN
CONDITION.

Detailed Literature From:

EVEREST PHARMACEUTICS PRIVATE LTD.,

71, Indra Biswas Road, CALCUTTA-37.

ALUPECTIN

A soothing medicament, in colloidal cream, for peptic ulcer, abdominal cramps, hyperacidity, non-specific ulcerative colitis, pain before or after food, gastritis etc.

COMPOSITION

Each 30 Gm. represents:—

Aluminium Hydroxide	1000.0 mg.
Dihydroxy Aluminium- Aminoacetate	200.0 mg.
Colloidal Kaolin	3200.0 mg.
Apple Pectin	100.0 mg.
Calcined Magnesia	300.0 mg.
Sodium Carboxymethyl- cellulose	125.0 mg.
Sodium Salt of Vitamin C	50.0 mg.
Magnesium Trisilicate	3200.0 mg.
Atropine Methylnitrate	1.0 mg.
Tinct. Belladonnae	1.2 ml.
Olive oil and glycerine	18.0% v/v.
Aromatics	q.s.

Presentation: 225 Gm. & 350 Gm.
50 & 100 Tablets.

Manufactured by:—

**BIO-DRUG LABORATORIES
PRIVATE LIMITED**

348, Maharaja Nandakumar Road, (N),
Alambazar, CALCUTTA-35.

Gram: BIOLAB-Alambazar,

Phone: 56-2863-Calcutta.

SUMMIT BRAND

LUER-LOCK SYRINGES

(Made in Japan)

Leur Lock Syringes, Summit Brand of resistance glass, calibrated to read easily and permanently, each in a box.

Centre Nozzle

2 cc.	5cc.	10 cc.	20 cc.
Rs. 2-50	2-75	3-50	5-50 ea.

Side Nozzle

10 cc.	20 cc.	30 cc.	50 cc.
Rs. 3-75	6-50	8-75	10-50

QUALITY AT ITS BEST.

SOLE DISTRIBUTORS:

THE SUMMIT SURGICALS

27/29, Popatwadi, Kalbadevi Road,
BOMBAY-2

Phone: 38689.

Grams: SURGESUMIT

**restores physiological
activities of liver and
gall bladder**

COLIBIL promotes biliary secretion so free the flow of "truly 'thin' bile". It regenerates liver cells and is useful in a wide variety of hepato-biliary disorders.

Each 30 c.c. of COLIBIL contains:

Choline Chloride	— 1.50 Gms.
Desiccated Whole Bile	— 0.15 Gm.
Dehydrocholic Acid	— 0.10 Gm.
Proteolysed Liver Ext. from	— 7.5 Gms. of fresh liver
Autolysed Yeast Ext.	— 0.5 Gm.
In a base containing:	
Bitter Stomachic Principles	
& Cholagogues	— 0.5
Alcohol	— 11.5% v/v

Supplied in 60 c.c., 120 c.c. & 450 c.c. Bottles.

COLIBIL

Choline, Liver & Bile Compound

The Calcutta Chemical Co., Ltd. CALCUTTA-28

**DIARRHOEAS of
non-specific and
toxic origin,
DYSENTERIES
and other intestinal
bacterial infections**



can be effectively and quickly controlled by this new pleasant tasting suspension of Chloro-pectidin which combines potent intestinal bacteriostatic agents & amoebicide drug in an adsorbant and protective vehicle of Light Kaolin & high grade apple pectin.

100 ml.
& 500 ml.
Bottle

Chloro-pectidin

THE CALCUTTA CHEMICAL CO., LTD. CALCUTTA-28.

The Antiseptic

A Monthly Journal of Medicine and Surgery

Published on the 6th of every month

Founded by the late Dr. U. RAMA RAU in 1904

Past Editor late Dr. U. KRISHNA RAU

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

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

Annual Subscription: Rs. 8-00. Foreign—Rs. 11—Post Paid

Vol. 59

MAY, 1962

No. 5

Original Articles

PLASMA FIBRINOGEN LEVELS IN TOXÆMIAS OF PREGNANCY*

NAWAL KISHORE, M.B., M.S., F.A.C.S.,

Professor and Head of the Department

T. R. AGGARWAL, M.B., B.S., D.G.O. (Maid.), D. Obst., R.C.O.G. (Lond.),

AND

PURNIMA PATHAK, M.S.,

(Department of Obstetrics and Gynaecology, S.N. Hospital, Agra)

In toxæmias of pregnancy, there is very often an increase in the coagulability of the blood; rarely, however, the blood fails to clot or clots very slowly.

Hypofibrinogenæmia is rare in toxæmias of pregnancy and only a few cases have been reported by Dieckmann (1941), Dillon and Schmitz (1949) and Willie (1957).

Several authors, Dienst, Eufinger, Gram, Foster had shown increased plasma fibrin levels in toxæmic women as compared with normal pregnant women. Dieckmann (1941) stated that in eclampsia, the plasma fibrinogen might become quite high, occasionally exceeding 1 g. per cent in concentration. Their average was 0.66 g. per cent in a range of 0.36 g. to 0.95 g. per cent. In cases of pre-eclampsia, the average fibrin concentration at term was 0.51 with a range of 0.30 g. to 0.90 g. per cent. The fibrin concentration showed a still greater increase during the first postpartum week in both instances.

Reid (1951) found an increase in the plasma fibrinogen concentration in various types of toxæmias of pregnancy.

Mack *et al* (1951) showed a rise in the mean fibrinogen value during the third trimester as compared with non-pregnant level.

*Specially contributed to the ANTISEPTIC.

They reported little change at delivery and in the first post-partum week. Their results in pre-eclampsia showed a similar pattern to the one observed in non-pregnant women but the fibrinogen levels were higher. In eclampsia however, the mean levels reported were higher than in any other group. This high figure continued from the first to the fifth day of the puerperium.

Vara (1958) reported an average plasma fibrinogen value of 551 mg. per 100 ml. in mild toxæmia and 604 mg. per 100 ml. in eclampsia during the 39th week; 497 mg. and 572 mg. during labour; 514 and 559 mg. immediately after delivery in cases of pre-eclampsia and eclampsia respectively. The average figure on the fourth day of the puerperium was 488 mg. per 100 ml. for both types of cases. His figures, therefore, indicate a rise during pregnancy but a fall during labour and puerperium.

Thus, there is uniformity of opinion that plasma-fibrinogen concentration is increased during the antepartum period, but there is a difference of opinion regarding the change in the blood-fibrinogen-levels during labour and puerperium.

Keeping these conflicting reports in view, an attempt was made to study the plasma fibrinogen levels in cases of toxæmias of pregnancy.

Material and methods.—The plasma-fibrinogen levels were studied in 8 cases of pre-eclampsia and 3 cases of eclampsia.

Four cases of pre-eclampsia were seen for the first time in the antepartum period and 4 cases came in labour. Two of the three cases of eclampsia came during the antepartum period and one came in labour.

TABLE I

Showing the plasma-fibrinogen-levels in normal pregnant women, during pregnancy, labour and puerperium
(Variations, mean values and standard deviation in mg. per 100 ml.)

	No. of patients	Variations	Mean	Standard deviation
Non-pregnant women	25	298.2 to 390.6	350.1	25.86
II trimester	53	326.7 to 611.9	414.5	64.02
III trimester	51	364.5 to 625.0	461.8	58.59
During labour	50	382.4 to 625.0	485.3	52.46
Immediately postpartum	53	420.6 to 694.6	551.9	53.48
1st day postpartum (12 to 24 hours)	28	468.7 to 651.0	567.1	50.15
2nd day postpartum (24 to 48 hours)	9	458.3 to 580.3	525.6	45.34
4th day postpartum (73 to 96 hours)	53	350.0 to 558.0	449.3	52.54
7th day postpartum	4	326.7 to 460.5	379.2	52.64

In every case of pre-eclampsia and eclampsia, the fibrinogen levels were determined for the first time as soon as the patient came under observation and were followed during labour, immediately after delivery and on the first, 4th and 7th days of the puerperium.

Observations.—We also studied as controls the plasma fibrinogen in 25 cases of healthy non-pregnant women and 53 cases of pregnant women during pregnancy, labour and puerperium (See Table I, on p. 380).

The range of plasma fibrinogen levels, mean values and standard deviation, in cases of pre-eclampsia and eclampsia are given in Table II below.

TABLE II

Showing plasma-fibrinogen levels in cases of pre-eclampsia and eclampsia
(Range, mean values and standard deviation in milligrams per 100 ml.)

	Ante-partum	Intra-partum	Post-partum			
			Imme-diate	1st day	4th day	7th day
1. <i>Pre-eclampsia</i>						
Range	535.7 to 580.3	507.8 to 625.0	531.2 to 683.5	568.1 to 687.5	460.5 to 580.3	364.5 to 468.7
Mean values	561.6	548.3	599.0	607.4	501.9	470.3
Standard deviation	16.31	38.59	57.58	41.15	43.47	35.72
2. <i>Eclampsia</i>						
Range	558.0 to 580.3	572.9 to 616.7	596.5 to 664.0	625.0 to 674.2	497.1 to 568.1	390.6 to 461.6
Mean values	569.1	594.2	628.5	648.8	537.3	434.5
Standard deviation	11.31	17.91	27.65	24.85	38.21	31.32

During the antepartum period, in cases of pre-eclampsia, the mean value of plasma fibrinogen found in this series was 561.6 mg. per cent with a standard deviation of 16.31, while during the intrapartum period the mean figure fell to 548.3 mg. per cent showing a standard deviation of 38.59. The postpartum levels on the first, fourth and seventh day were 607.4, 501.9, and 470.3 mg. per 100 ml. respectively thus showing a regular sustained fall.

In cases of eclampsia, the average antepartum level was 569.1 mg. while the intrapartum level was 594.2 mg. per cent, indicating a rise. During the postpartum period, the figure continued to rise on the first day but fell on the fourth day to a level of 537.3 mg. The fall was more marked on the seventh day when the mean level was 434.5 mg.

Comments.—In the present series, during the antepartum period, the plasma-fibrinogen concentration showed an increase above the normal pregnant level in both groups of cases. The mean level showed an increase of 99.7 mg. (21.5 per cent) and 107.2 mg. (23.2 per cent) in cases of pre-eclampsia and eclampsia respectively.

Our results are in agreement with those of Foster (1924), Dieckmann (1941) and Mack (1951) who also recorded a rise in the fibrinogen concentration in toxæmias of pregnancy.

During the intrapartum period, the mean fibrinogen level was higher than the normal intrapartum level in both pre-eclampsia and eclampsia showing an increase of 12.9 per cent and 22.4 per cent respectively. Dieckmann (1941) and Mack (1951) also reported similar results. However, in cases of pre-eclampsia in the present series, the mean fibrinogen-level during labour showed a fall of 13.3 mg. as compared to the mean antepartum level. This insignificant fall was also observed by Vara (1958) who thought it to be due to fibrinolysis.

During the immediate postpartum period, the fibrinogen-concentration increased still further, and reached its maximum on the first postpartum day in both groups of cases. This was followed by a gradual fall of 16.2 per cent and 17.3 per cent on the 4th postpartum day in cases of pre-eclampsia and eclampsia respectively. On the 7th postpartum day, the mean levels decreased still further but were higher than the normal non-pregnant level.

Vara (1958) has reported increased plasma fibrinogen levels in cases of toxæmias of pregnancy. The levels decreased during labour in both the pre-eclampsia and eclampsia groups. Immediately after delivery, the level decreased further in eclampsia cases, while a slight increase was noted in pre-eclampsia cases. On the fourth day, the levels further decreased in both eclampsia and pre-eclampsia. The results are not quite confirmatory in the present series.

The results in the present series are in greater accord with those of Mack (1951). High plasma-fibrinogen levels are seen during pregnancy in cases of toxæmia. The level further increased during labour and on the first postpartum day. However, in the present pre-eclampsia series the mean fibrinogen level showed a fall during labour. Thereafter, a gradual fall was seen on the fourth and seventh postpartum days.

Summary and conclusions.—The plasma-fibrinogen-levels in cases of pre-eclampsia and eclampsia have been studied. It was found that:—

1. In pre-eclampsia, the mean fibrinogen levels showed a greater increase during the antepartum period, labour and first postpartum day, when the maximum concentration was reached as compared to the normal levels, followed by a fall on the 4th and 7th days of the puerperium. During labour,

however, the fibrinogen concentration showed a slight fall as compared with antepartum levels.

2. In eclampsia, the fibrinogen concentration was markedly increased during the antepartum period and continued to increase still further during labour reaching a maximum on the 1st postpartum day followed by a gradual fall on the 4th and 7th days of the puerperium.

3. The relevant literature on the subject is reviewed.

REFERENCES:

1. Dieckmann, W. J. (1941)—Toxæmias of Pregnancy, Mosby.
2. Dienst, A. (1918)—Quoted by Dieckmann, W. J. and Wegner, C. R. Arch. Int. Med., 53: 353.
3. Dillon and Schmitz (1949)—Illinois, Med. J., 96: 255.
4. Eufinger (1928)—Quoted by Dieckmann, W. J., Wegner, C.R., Arch. Int. Med., 53: 353, 1934.
5. Foster, D. P. (1924)—Arch. Med. Int., 34: 301.
6. Gram, H. C. (1921)—Arch. Int. Med., 28: 312.
7. Mack, H. C. Robinson, A. R. Wiseman, M. E., Scheeb, E. J. and Macy, J. G. (1951)—Jour. Clinical, Invest., 30: 609.
8. Reid, D. E. (1951)—Am. J. Obst. and Gynec., 61A: 765.
9. Vara, P. (1958)—Obst. and Gynec. Survey, 13: 790.
10. Willie, P. (1958)—Abst. Jour. Obst. and Gynec., Brit. Emp., 65: 335.

TREATMENT OF BACILLARY DYSENTERY

Bacillary dysentery is caused by bacteria of the genus *Shigella*. The infection is limited to the intestinal tract and is characterized by fever, abdominal pain and diarrhoea. The most important members clinically are *Sh. shigae*, *Sh. flexneri*, *Sh. sonnei* and *Sh. boydii*. The asymptomatic or convalescent carrier is the principal reservoir of the disease.

The sulphonamides are highly effective in *Shigella* infections but, unfortunately, the incidence of sulphonamide-resistant strains has greatly increased. Sulphadiazine, 4 g. initially followed by 1 g. every four or six hours, is very effective. The poorly absorbed sulphonamides, such as sulpha-suxidine, are also helpful, but offer no advantage. Treatment is continued for seven to ten days and should include an adequate fluid intake to reduce the hazard of renal crystallization. The substitution of triple sulphonamide mixtures or sulphafurazole for sulphadiazine has therefore been recommended (Weinstein *et al*, 1960). Chloramphenicol or the tetracyclines, in a dose of 1 to 2 g. daily, appear to be equally effective. Both streptomycin and polymyxin B apparently have been used with success, but offer no advantages, and are definitely more toxic. Chloramphenicol and, especially, paromomycin appear to be more effective than the sulphonamides in eliminating the organisms in chronic carriers.—(*Practitioner*, London, January, 1962).

SURGERY OF THE AORTA

In the desperate situation of a *dissecting aneurysm* fenestration in the middle part of the descending aorta seems to be a suitable procedure, if the patient survives the initial shock. The operation is not too extensive. Although it helps in guiding the blood stream from the newly organized canal within the aortic wall into the normal lumen, the danger of a second rupture of the ascending aorta always remains.

The replacement or by-passing of the *abdominal aorta* in the treatment of *sclerotic stenosis* or *aneurysmal lesions* has become a well-established domain of vascular surgery. 'Teflon' or 'dacron' prosthesis has helped to make this gratifying development possible and it seems that these materials have solved the problem of plastic replacement.—(*Practitioner*, London, October, 1961).

PRURITUS AND ITS MANAGEMENT*

U. SRIDHARA RAU, B.Sc., M.B., B.S.,
F.V.A.M. (Dermat.), D.D.V. (Vienna), F.D.S. (Lond.),
Madras-7

PRUERITUS means itching and the only treatment for itching is scratching. But unfortunately, it is not all that simple. The itching in many skin lesions can be controlled, if those dermatoses are diagnosed and specific treatment instituted. The aim of this paper is to enumerate various systemic disorders associated with pruritus and their management as far as is practicable.

Introduction.—Experimental work by Koenigstein has shown that a 'scratch centre' may be situated in the medulla oblongata, somewhere between the auditory nuclei and the restiform body. The introduction of certain dyes like 'Alizarin-blue' into the cerebrospinal fluid has been located in this area of the medulla after the animals have been killed following severe scratching attacks. Koenigstein followed his experiments by introducing various ions into the spinal fluid and showed that Calcium abolished the itch reflex and Potassium produced increased pruritus. Other prurigenic substances were Bromine, Strontium, Morphine, Ammonium chloride etc.

The pathway of itching follows the peripheral neurons of the cord and after crossing at the posterior commissure runs up to the medulla. The itch-fibres share the same pathway with pain and thermal sensations to a great extent. Hence it is possible, to allay itching to a moderate extent by the application of heat and the use of anti-inflammatory agents such as X-rays and by the administration of salicylates. The itch fibres are never relayed to the cortex and hence thalamic depressants like barbiturates have better anti-prurigenic effect than the cortical depressants like morphia and bromides.

Koenigstein has concluded that the sympathetic system also plays an important part in pruritus though entirely unconnected with the itching pathway through the spinal cord. It may be due to the liberation of a histamine-like substance in the skin possibly originating from the vascular endothelium. Hence we use anti-histaminics to control itching. Ergotamine tartrate by inhibiting the sympathetic system is able to relieve itching while caffeine by stimulating does the exact opposite.

Rothman feels that the sensations of itching and pain are intimately related and vary only in grades of severity. According to him, itching sensations could be converted into pain sensations if the stimulus is stronger. Fortunately, if this were so it would benefit mankind. Pain is a controllable sensation while itching

is continuously intolerable. Pain rapidly diminishes by adaptation and any painful area could be left untouched and undisturbed, whereas an itching area provokes greater scratching with resultant damage to the skin by violent bouts of intense scratching.

Mild types of pruritus are pleasurable sensations which could be promptly relieved by light scratching or by gentle stroking of the affected area. Mild itching sensations are commonly produced while changing clothes or blowing of gentle breeze and slight emotional disturbances and they are every day experiences not generally taken notice of.

As stated earlier, pruritus is associated with very many diverse cutaneous diseases like parasitic, mycotic and coecal infections of the skin, and therapy for these conditions lies entirely within the domain of the Dermatologist, who by directing his attention to the underlying infections, is able to control pruritus promptly. But there are several systemic disorders without cutaneous manifestations in which pruritus is a dressing accompanying symptoms and as these cases are usually treated by the General Physician or the family practitioner, the Dermatologist is very often called in consultation, so I will briefly enumerate a few of such conditions with appropriate therapy where possible.

1. *Diabetes* :—Pruritus is rarely seen in a well-controlled diabetic. The normal glucose content of the skin is 58 mg. In diabetic patients this may go up to 68 or 70 mg. Urbach has termed this condition as glycohystecia or skin diabetes. The pruritus in these cases has been attributed to local tissue factors and unknown metabolic factors released. Ultraviolet ray exposures reduce itching by altering these local factors. The cure eventually rests in the proper management of the diabetics with regulated dosage of insulin, oral antidiabetic preparations like Tolbutamide and proper diet. Hypercholesterosis favours pruritus presumably by changing the pattern of the skin texture. Hence diseases like myxedema, hypertension and biliary cirrhosis in addition to diabetes exhibit pruritus.

2. *Liver damage* :—Jaundice of the toxic type is invariably accompanied by severe pruritus. The exact mechanism has however, not been worked out. Circulating bile-salts and porphyrins have been blamed. In obstructive jaundice, pruritus was controlled by the administration of oral testosterone, presumably by reducing the serum cholesterol. In many cases of intrahepatic jaundice, pruritus preceded clinical signs. Small doses of thyroid produce beneficial results by eliminating the output of bile-salts. Gall-stones may cause pruritus and when removed by cholecystectomy result in a remarkable freedom from itching.

* Based on a lecture delivered at the Annual Meetings of Tirunelveli and Tiruchirappalli District Medical Associations in 1960.

Specially contributed to the ANTISEPTIC.

3. *Cardiovascular diseases*:—Pruritus is manifest in an intense form in hypertension and in arteriosclerosis and severe eczematization may occur in areas of the skin easily available to the patient for scratching.

4. *Renal diseases*:—A rise in blood-urea is almost always accompanied by severe and increased itching sensation probably due to peri-vascular infiltration of urea and its products like ammonia. Chronic glomerular nephritis and essential hypertension with azotæmia also exhibit pruritus. Prostatic enlargement is also accompanied by pruritus in which case it may be due to toxic products of the dribbled urine or associated cystitis.

5. *Gastro-intestinal diseases*:—Pruritus in these cases may be due to poor digestion especially of proteins and carbohydrates. In habitual users, laxatives containing phenolphthalein, itching may be a distressing symptom.

6. *Malignant conditions*:—Hodgkin's disease, mycosis fungicides, leukæmias and internal cancers are in many cases associated with intense itching which in most cases are least suspected to be due to internal malignancy.

7. *Allergy to foods and drugs*:—Phenolphthalein, aspirin, phenobarbital, cocaine, quinine, sulphonamides acid penicillin are the commoner among the numerous drugs that would cause allergic reactions accompanied by severe pruritus. In view of the multitude of diseases in which the above mentioned group of drugs are daily being used, I wish to invite the pointed attention to this fact by the family physician. Very many vegetable and chocolate laxatives containing phenolphthalein are consumed daily by the lay public in total ignorance of their deleterious effects. Tobacco, tea, coffee and alcohol are prurigenic as also some foods like shell fish, eggs and tomatoes in allergenic individuals.

8. *Psychological*:—It is the common experience of all practising physicians to come across some psychological cases every week and the Dermatologist is no exception. But it must be our endeavour to see that no case is labelled as psychological until all other ætiological venues have been fully explored.

Special types of pruritus.—1. *Pruritus hiemalis and pruritus oestivalis*:—These two types are seen in winter and summer respectively of which the former is more common especially in the elderly age-group. Itching is very severe especially while removing clothes at night time and while getting up early in the morning.

2. *Bath pruritus*:—This is usually due to soap and other irritants used during bathing, and only in rare cases could be traced to mere bathing. In these types, treatment is quite

simple. People taking cold water bath should be made to take warm water bath and *vice versa*.

3. *Senile pruritus*:—This is peculiar to old age due to the loss of elastic tissue in the skin and to hormonal influences. Senile pruritus should be diagnosed only after all other types of pruritus of known causation have been eliminated. These cases benefit by a high protein diet and the use of male hormones.

4. *Pruritus ani*:—Itching in these cases is severe at night and troublesome during the day. Due to severe bouts of itching secondary excoriation and eczematization always occur round about the perineum and this adds to the suffering of the patient.

The causes are:—(1) Piles, polyps and fissures of the anus; (2) worms, especially thread-worms; (3) chronic constipation; (4) malignant ulceration of the rectum; (5) fungus and monilial infection of the surrounding parts; (6) seepage of liquid paraffin taken by patients to regulate bowel movements; and (7) in some cases due to psychogenic stimulus. Treatment in all these cases should be directed to eliminating the cause.

5. *Pruritus vulvae*:—May occur at any age and is a quite distressing complaint of the fair sex. It may be due to:—(a) *Intra-vaginal causes*—persistent discharge from the vagina—monilial or trichomonal infection or chronic cervicitis; (b) *Local causes*—pediculosis—seborrhœic dermatitis, intertrigo, kraurosis vulvæ, lichen sclerosis et atrophicus, irritation due to soaps, detergents and perfumes; (c) glycosuria and urinary incontinence; (d) thread worm infestation; (e) diabetes, nephritis and drug addiction and (f) psychological causes—where itching is manifest as an hysterical phenomenon. Treatment in all these cases also should be directed to eliminate the cause as in pruritus ani.

TREATMENT OF PRURITUS IN GENERAL:—As stated earlier, the lines of treatment mentioned below are to be tried only in those cases wherein an ætiological factor cannot be detected and also in cases wherein symptomatic relief is highly welcome and much needed as in cases associated with internal malignancy and those with hypertension and kidney failure. Calcium has been used in almost all cases of pruritus with a fair amount of success. It is advisable to limit the use of calcium intravenously to the younger age-groups. Bromides are useful and can be combined with calcium, strontium or magnesium. Barbiturates and paraldehyde are not of much value though chloral hydrates combined with belladonna and barbiturates are more effective.

Procaine hydrochloride (Planocaine, M & B) as an intravenous drip—500 cc. of 0.1 to 0.2% saline solution has been dramatic in reducing itching in selected cases especially in senile pruritus.

Novocaine though less effective has been tried orally—0.15 g. in capsules every three hours for a week. It should not be forgotten that procaine sensitivity should be tested in each case before therapy is started. Aminophylline 0.1 to 0.5 g. as intravenous drip can also be tried but one should be aware of the heart-conditions especially high blood-pressure.

Among the vitamins that could be tried are Nicotinic acid (25 mg. slow intravenous) Thiamine hydrochloride, Pantothenic acid, vitamin E and Rutin.

Adenylic acid—20 mg. every 6 hours for 3 or 4 days has provided good relief in selected cases especially in pruritus associated with Hodgkin's disease. Muscle extracts too have a similar action. Urethane is being extensively used orally in Vienna—3 to 5 g. daily for a week or more with a fair measure of success. Priscoline gives some relief for a short while in senile pruritus due to its vasodilatory effect.

Male hormones—Methyl testosterone 25 mg. daily given sublingually is effective in pruritus associated with obstructive jaundice.

ACTH—10 to 25 units daily as an intravenous drip and corticosteroids (Cortisone down to Dexamethasone) provide immediate relief in intractable itching. But one should always bear in mind the dangers associated with the extensive use of these steroids as well as their contra-indications in certain clinical conditions like hypertension, duodenal ulcers, tubercular infections and diabetes.

Anti-histaminics given either orally or through the needle have no contraindications though they are entirely symptomatic excepting in those cases with associated allergic conditions.

The recently introduced Trimeprazine tartrate (Vallergan M & B) of the Phenothiazine group combines both anti-histaminic and soporific properties. Its tranquillizing effects with a mild sleep-inducing action go a long way in giving relief to patients suffering from severe bouts of itching which cause restlessness and insomnia more so in emotionally unstable patients. A single dose just before retiring to bed often suffices to rest the patient's nerves and the resultant undisturbed sleep paves the way for an uneventful recovery through Nature's benevolent act of restoration.

'Dermal Centre,'
8-A, Ritherdon Road,
Madras-7.

HERPES GESTATIONIS

This is peculiar to pregnancy, and may begin between the 3rd and 5th month; but clears promptly on termination of pregnancy. Its treatment is difficult; sulphones (Promacetin) cortisone, prednisolone, or triamcinolone may be tried with benefit.—(*Hawaii Med. Jour.*, 21: 1, 1961).

CHOROID TUBERCLES: THEIR INCIDENCE IN TUBERCULAR MENINGITIS*

R. K. MISHRA, M.S., D.O.,

Eye Surgeon, Victoria Hospital, Jabalpur, M.P.

AUTENRIETH described tubercle in the year 1808 in a patient who died of miliary tuberculosis. In 1855 Jaeger gave the first anatomical demonstration of the lesion and Manz showed them to be tuberculous in nature on histological examination. In 1863 Cohnheim demonstrated that the choroidal tubercle was identical to tubercular lesions elsewhere in the body. He suggested that the choroidal lesion was a metastatic one and a part of the systemic disease.

Mode of infection of choroid had been a matter of dispute for quite some time. Later on, it was conceded that it was of Hematogenous origin derived from some focus of infection elsewhere in body. The focus could be an active lesion or a healed one. The spread occurs during generalized bacillæmia, which may be of a very mild and transient nature or a heavy overflow. The focus may be in the lungs, glands or meninges. It is interesting to note that choroidal tubercles have been found in apparently healthy children, with only a primary complex. Although it is claimed by some that a certain degree of organotropism and selective sensitization must be postulated to explain the frequency of ocular tuberculosis and its bilaterality. It is possible that the localization of the bacilli in the eyes, is largely a matter of chance and their drastic effects are frequently due to an allergic sensitization, this area affording a favourable nidus owing to the predominance in it of the elements of the reticuloendothelial system. Acute miliary tuberculosis of the uveal tract is merely an incident in the general systemic metastasis which occurs when an active progressive lesion gains access to a blood-vessel by a necrosis through the vascular wall. It is therefore, associated with a similar disseminated lesion elsewhere usually in the meninges and most of the internal organs and is thus a terminal event in a patient already gravely ill. Occasionally it is the first evidence of disseminated tuberculosis. The tubercles may be found in any part of the choroid but its posterior part supplied by the posterior short ciliary arteries is the common site.

Ophthalmoscopically they appear as greyish white spots with blurred indistinct edges under an area of retinal oedema over which the retinal blood vessels bulge as they pass. The nodules vary in size from a pin-point to about 0.5 to 2 mm. in diameter. Confluence may lead to larger nodules. They may be a few or many, (even 70 as reported by Cohnheim and Mestan). These may disappear or may leave patches of choroiditis as permanent stigma.

*Specially contributed to the ANTISEPTIC.

Pathologically they are tuberculous areas rather than nodules. There are numerous giant cells with peripheral nuclei surrounding epithelioid cells with a peripheral zone of lymphocytes. In the larger tubercles the central areas are caseous. A varying number of tubercular bacilli are frequently found. The process begins in the chorio-capillaries with effected capillaries exhibiting epithelial proliferation. There is little or no inflammatory reaction in the adjacent choroid and the retina remains normal. The incidence of choroidal tubercles in tubercular meningitis has been a controversial matter. Marpole and others of his way of thinking consider it to be of universal occurrence if carefully examined over a long period. Others consider them to be of rare occurrence. In view of the fact that tubercular meningitis is a late form of tubercular infection and that in the majority of cases meningitis is an extension from some neighbouring tubercular lesion in the cranium (bony wall or the brain) and is thus a secondary infection, whereas choroid tubercles are the direct result of a general bacillary metastasis, it appears that the relationship of the two cannot be taken as more than incidental. As Took has put it "choroid tubercles are seen not *because* of meningitis but *inspite* of meningitis." On somewhat similar lines Sir Fredrick Still has stated that choroidal tubercles though rare in meningitis, are common in miliary tuberculosis. All this fits in with the general theory of dissemination of organisms by the blood-stream.

I have made a close study of 40 cases of tubercular meningitis looking for ocular complications. The cases were taken from the medical wards of medical college hospitals (M.G. Medical College, Indore and K.G. Medical College, Lucknow), and were followed up from the day of admission to the date of discharge or otherwise. Fundus examination of the cases was made thrice a week. They were followed in some instances for as long as 8 months and in all till they remained in the wards in order to eliminate the chances of missing fresh crops of tubercles. When the incidence of ocular complications, in one form or other was found to be very common, choroidal tubercles were certainly much less common. The incidence of ocular complications in tubercular meningitis, is given in the statement below.

TABLE I
Showing the incidence of ocular manifestations in tubercular meningitis

Total No. of cases	Ocular complications in	Ant. segment involvement in	Choroidal tubercles in	Neuro-retinitis in	Optic nerve lesions in	Nystagmus	Ocular mot in	Pupillary changes in
40	25 or 62%	Nil	3 or 7.5%	Nil	24 or 60%	3 or 7.5%	12 or 30%	10 or 25%

Of the three cases seen with choroidal tubercles, one was a case of miliary tuberculosis in a female child. This patient died. The other two were in young adults with tubercular meningitis. Both of them recovered and were discharged 'cured.' Both of them had good vision on discharge. From this study I inferred that choroidal tubercles are uncommon in tubercular meningitis as compared to other ocular complications. In this context, it will be worthwhile recalling the work of Illingworth and Wright who studied the incidence of choroidal tubercles.

TABLE II
Showing the incidence of choroidal tubercles —(Illingworth and Wright)

Condition studied	No.	Choroidal tubercles seen in
Tubercular meningitis	11	1 or 5.5%
Tubercular meningitis in association with miliary tuberculosis	28	18 or 64.0%
Miliary tuberculosis without meningitis	14	7 or 50.0%

It will be seen from the above statement that choroidal tubercles are :—(1) Uncommon in T.B. meningitis uncomplicated by miliary spread ; (2) very common when associated with miliary spread and (3) fairly common in cases of miliary tuberculosis without meningitis. Also it is obvious that what predisposes to choroidal tubercles is not meningitis but miliary spread.

The prognostic value of choroidal tubercles is again uncertain. Walsh considers them to be a precursor of death. This is certainly much too gloomy a picture. When viewed against the background that choroidal tubercles are seen mostly in miliary spread and the patients with miliary spread are always gravely ill, the conclusion is forced that choroidal tubercles indicate a grave prognosis.

My own experience of a smaller number of cases is *not* in accord with the above finding; in addition to the three cases reported in this series, I know of atleast another 8 patients who have been cured of meningitis and are alive for the last 3 to 6 years. A fresh crop will no doubt indicate fresh activity in the septic focus and a flooding of bacilli. By and large this would certainly suggest a poor prognosis; similarly a healing of the tubercles may be taken as an encouraging sign. Although I am not prepared to venture a definite opinion on the results of the small number of cases seen by me, the appearance of one choroidal tubercle does not indicate imminent death in my opinion.

Summary.—The history and pathology of choroid tubercles are discussed and 40 cases of tubercular meningitis have been studied with reference to their

incidence. In tubercular meningitis uncomplicated by miliary spread choroidal tubercles are uncommon.

REFERENCES:

1. Duke Elder—Text book of Ophthalmology, Vol. 3: Kimpton, London.
2. Illingworth and Wright (1948)—B.M.J., 365.
3. Walsh, F. B. (1957)—Neuro-ophthalmology, 2nd Ed., Th. Williams & Williams Co., Baltimore.

PHENACETIN NEPHRITIS

'Any heavy phenacetin consumer who develops progressive impairment of renal function is likely to have chronic interstitial nephritis, especially if there is little to find in the urine and no history of previous renal illness,' according to J. G. Buchanan (*New Zealand Medical Journal*, May 1961, 60: 207) in reporting a fatal case of 'phenacetin-induced chronic interstitial nephritis.' The patient was a 50-year-old man who for at least two years had taken 15 tablets daily of a proprietary tablet containing 3 grains (0.2 g.) of phenacetin in combination with aspirin and caffeine. For two months before admission to hospital he had complained of headache, became increasingly drowsy and 'appeared to be cyanosed.' On admission to hospital he was uræmic and the blood contained 15% sulphæmoglobin. 'Despite energetic treatment of his uræmia, his condition gradually deteriorated and he died in a coma, sixteen days after admission.' The diagnosis of chronic interstitial nephritis was confirmed at necropsy. The amount of phenacetin necessary to cause renal damage is variable but 1 gramme or more daily is 'certainly dangerous.' Attention is drawn to the fact that 'the two symptoms most likely to lead to prolonged self-administration of phenacetin are chronic headache and various musculo-skeletal pains.' As persistent headache is a common symptom of chronic renal disease, the dangers of a vicious circle being established are obvious. —(*Practitioner*, London, October, 1961).

IMPENDING MYOCARDIAL INFARCTION

Recognition of impending infarction is primarily dependent on the occurrence of cardiac pain. Careful analysis of the patient's pain thus becomes the first major requirement for accuracy of the clinical diagnosis. The pain of impending myocardial infarction has, at first three common characteristics:—

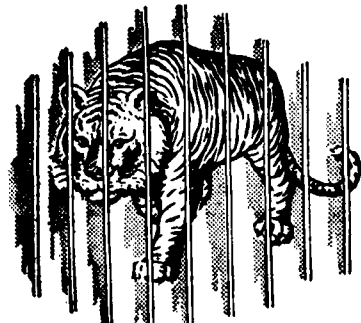
(1) Onset of ischæmic cardiac pain in a patient previously free of symptoms. Usually the patient experiences repeated bouts of spontaneously-occurring pain, and these last from 15 to 30 minutes or longer, without clinical, electrocardiographic, or laboratory evidence of infarction. Less commonly, the pain may take the form of rapidly-progressive angina of effort. Whether the pain develops with the patient at rest or with exertion, it occurs oftener, lasts longer, and becomes more severe over the course of a few days or weeks.

(2) Intensification of angina of effort in a patient with previous angina for several months or years. Usually there is an abrupt change in the pattern of the chronic symptoms: pain occurs oftener, with less provocation, lasts longer, and is more severe.

(3) Recurrence of pain on slight provocation or at rest, in a patient who has been pain-free ever since a previous myocardial infarction.—(*Current Med. Dig.*, October, 1961).

*Controlled
Tension*

SERPINA



- Standardised 4 mg. Total Alkaloids of Rauwolfia serpentina (Benth) per tablet.
- A safe and effective hypotensive of precise therapeutic value.
- Mild sedative and tranquillising effects useful in anxiety neurosis and mental conditions.
- Bradycrotic effect helps in tachycardia and cardiac strain.
- Marked symptomatic improvement.
- Clinically tested on millions of cases.

Cystone

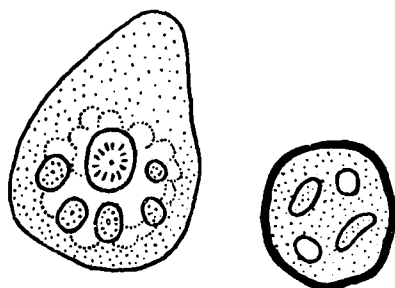
**FOR CRYSTALLURIA,
UROLITHIASIS and OEDEMAS**

By restoring the crystalloid-colloid balance CYSTONE helps to disintegrate urinary and salivary calculi. CYSTONE is a safe diuretic that does not alter the electrolyte balance even on prolonged use.

THE HIMALAYA DRUG CO. 251, Dr. D. Naoroji Rd., Bombay 1 (India)

HIGHEST
cure rate...

LOWEST
relapse rate...



In the treatment
of amoebiasis
with

NEOVIASEPT®

The complete amoebacide

'The trials conducted with NEOVIASEPT, other antiamoebic drugs and antibiotic drugs for amoebiasis show that the best results are achieved with NEOVIASEPT tablets in acute as well as in chronic amoebiasis, may it be intra-intestinal or extra-intestinal.' '...comparative study showed the best results with NEOVIASEPT as the relapse rate was the minimum and the percentage of cure is the highest.'

Kakade R.T., Paper read at the Symposium on Amoebiasis and other Intestinal Infections, Lucknow, November 16-18, 1959.

PRESENTATION: Dragees containing 250 mg. Viasept® (glycobiarsol) and 75 mg. chloroquine diphosphate

★ Bottle of 24

★ Bottle of 48

★ Bottle of 250



HOECHST
PHARMACEUTICALS LTD.
Backbay Reclamation, Bombay 1

Branches at Bombay, Calcutta, Madras, and New Delhi,
Depots at Ahmedabad and Gauhati.

हेक्स्ट फार्मास्युटीकल्स लिमिटेड

TREATMENT OF AMOEBIASIS*

With a Combination of Iodochlorhydroxyquinoline,
Chloroquine and Sulphadimidine

N. G. SUCHAK, AND U. K. SHETH, M.D., B.Sc., F.C.P.S.,
(From the Department of Pharmacology, Seth G.S. Medical College,
Parel, Bombay-12)

Introduction.—In the last few years many drugs have been advocated for the treatment of amoebiasis, but no single drug has as yet proved efficient in eradicating the infection. Various combinations of drugs have been suggested. During the clinical trial of a drug in the treatment of amoebiasis, it is often very difficult to distinguish between relapse and reinfection. This problem gets further complicated in treating outpatients. We tried a combination of †iodochlorhydroxyquinoline and chloroquine and sulphadimidine in the treatment of amoebiasis and the results are reported below:—

Material and methods.—Patients were referred from the outpatient department of the K.E.M. Hospital, Bombay-12. All patients complaining of abdominal pain or/and frequency of stools were subjected to stool-examination. Only those having trophozoites or cysts of *Entamoeba histolytica* in their faeces were included in this clinical study. In acute cases, fresh samples from liquid stools containing blood and mucus were directly examined microscopically. In other cases, a saline purge was given and a second stool sample was examined, for the parasite. In certain patients, where a single stool examination did not show the parasite, the examination was repeated on two subsequent days consecutively, to confirm the findings. All patients were examined clinically and their histories were recorded in detail. The above compound was administered orally, in a dosage of one tablet three times a day for 10 days. Each case was followed during the therapy for clinical improvement and side-effects if any due to the drug.

Stools examination was repeated on the 5th or 6th day of the therapy and again on the 11th day after the full course of treatment. It was again repeated as and when the patients reported for a follow-up.

One patient who had associated ascariasis infestation was treated with Piperazine citrate 4.25 g. given in one single dose after finishing the Unidys therapy. In some of the cases blood examination was made including leucocyte counts and before and after the treatment haemoglobin estimations.

Results.—In all 193 stool-examinations were done. There were 20 patients with amoebiasis; in 34, worm infestation was detected and in another 139, the stool examination was negative.

*Specially contributed to the ANTISEPTIC.

† Unidys compound of M/s. Unichem Laboratories, Bombay-26.

[393]

The important clinical findings in the cases selected for the study are given in Table I, p. 395. There were 12 cases of acute and eight of chronic amoebic dysentery. In some the disease was of long duration ranging from 1½ to 3 years. The majority of patients complained of abdominal pain and frequency of stools with blood and mucus; two cases (R.B. and J.D.) complained of pain in the right hypochondrial region.

The results of the therapy are given in Table II, p. 396. It will be seen that out of 12 patients diagnosed, as having acute amoebic dysentery, four harboured both trophozoites and cysts of *Entamoeba histolytica*. In all cases considered clinically to be chronic amoebic colitis, the stool examination showed the cystic forms of *Entamoeba histolytica*. In one case stool examination revealed the presence of ova of *Ascaris lumbricoides* and in another *Giardia lamblia* in addition to cysts of *Entamoeba histolytica*.

It will be seen from Table II that the stools became negative on 5th or 6th day of treatment in 18 patients, and remained so on the 11th day of therapy. In one (R.B.) the cysts persisted even after 10 days' treatment, but disappeared on 16th day of therapy. In 9 out of 12 patients suffering from acute amoebic dysentery the frequency of stools was controlled on the 5th or on the 6th day of treatment. On stool examination, 90% became negative free. In four patients abdominal pain persisted even after the clinically and revealed no abdominal tenderness. The two rendered symptom-free after a full course of therapy.

As regards side-effects of the drug, two patients complained of flatulence and one had headache, but these symptoms disappeared without any specific treatment. In the remaining patients no side-effects were noted.

Discussion.—Amoebiasis constitutes a pathological state of diffuse invasion of the mucosa of the large bowel, accompanied by tissue lysis. The tissue most frequently invaded beyond the intestine is the liver where *E. histolytica* produces hepatitis and occasionally also abscesses. In the lumen of the bowel the bacterial flora may influence the invasive propensities of the amoebæ or may precipitate or aggravate intestinal symptoms of amoebiasis. In the tissue phase of amoebiasis, only trophozoites are found, whereas in the lumen of the colon either cyst (in the chronic carrier state) or trophozoites (in acute amoebic dysentery) may be found. Thus the problem of treating amoebiasis becomes a complex one, depending on the site of invasion, the presence or absence of associated organisms, involvement of the liver or any other extra intestinal tissues and the presence of

TABLE I
Showing the more important clinical findings

S No.	Name	Sex and age	Clinical diagnosis	Duration	Clinical data
1	B.M.	M., 32	Chronic amoebic colitis	6 months	Pain in abdomen, frequency of stools with blood and mucus, anorexia, gurgling
2	B.R.	M., 20	" "	7 months	Pain in abdomen, flatulence
3	D.G.	M., 21	" "	3 years	Pain in abdomen
4	B.M.	M., 30	Acute amoebic dysentery	8 days	Pain in abdomen, frequency of stools with blood and mucus
5	K.Y.	M., 25	" "	15 days	Pain in abdomen, nausea, anorexia, low fever
6	I.D.	M., 25	Chronic amoebic colitis (<i>Ascaris lumbricoides</i>)	5 years attacks off and on	Pain in abdomen, nausea, anorexia
7	K.S.	F., 30	Chronic amoebic colitis	2 months	Pain in abdomen, frequency of stools, nausea
8	G.B.	F., 35	Acute amoebic dysentery	15 days, 1st attack 6 months ago	Pain in abdomen, frequency of stools
9	R.B.	M., 26	Chronic amoebic colitis	1½ years attacks off and on	Pain in abdomen, constipation, nausea, tenderness, right hypochondrium
10	S.K.	M., 48	Acute amoebic dysentery	10 days	Pain in abdomen, frequency of stools with blood and mucus
11	V.S.	M., 38	" "	5 days 1st attack 2 years ago	Pain in abdomen, frequency of stools with blood and mucus
12	R.J.	M., 33	" "	12 days	Pain in abdomen, frequency of stools
13	B.M.	F., 30	Chronic amoebic colitis	4 months	Anorexia, constipation
14	P.S.	M., 19	Acute amoebic dysentery	7 days	Frequency of stools with blood and mucus
15	C.F.	M., 26	" "	3 days	Pain in abdomen, frequency of stools with blood and mucus
16	S.R.	M., 25	Chronic amoebic colitis (<i>Giardia lamblia</i>)	6 months 1st attack 3 years ago	Pain in abdomen, tenesmus
17	T.C.	F., 30	Acute amoebic dysentery	2 days	Pain in abdomen, frequency of stools with blood and mucus, anorexia, low fever
18	C.N.	F., 14	" "	3 days	Frequency of stools with blood and mucus
19	J.D.	M., 22	" "	7 days	Pain in abdomen, frequency of stools with blood and mucus, tenderness right hypochondrium
20	N.K.	M., 35	" "	5 days	Pain in abdomen, frequency of stools with blood and mucus

TABLE II

Showing the results of treatment with the drug

S. No.	Name	1st day	5th-6th day	11th day	Clinical results	Side-effects if any
1	B.M.	+	Positive	Negative	Pain reduced, but persisted	Nil
2	B.R.	+	Negative	"	Good	"
3	D.G.	+	"	"	"	"
4	B.M.	++	"	"	"	"
5	K.Y.	+	"	"	"	"
6	I.D.	+	"	"	Pain reduced after piperazine therapy	"
	Ova of ascaris lumbricoides					
7	K.S.	+	"	"	Good	"
8	G.B.	+	"	"	Pain reduced, but persisted	"
9	R.B.	+	Positive	Positive (Negative on 16th day)	Delayed response: No right hypochondrial tenderness	Flatulence
10	S.K.	+	Negative	Negative	Good	Nil
11	V.S.	++	"	"	"	"
12	R.J.	+	"	"	Pain reduced but persisted	Flatulence
13	B.M.	+	"	"	Good	Nil
14	P.S.	++	"	"	"	"
15	C.F.	+	"	"	"	Headache
16	S.R.	+	"	"	Pain reduced but persisted	Nil
17	T.C.	+	"	"	Good	"
18	C.N.	+	"	"	"	"
19	J.D.	++	"	"	No right hypochondrial tenderness	"
20	N.K.	+	"	"	Good	"

cystic as well as trophic forms. It is no wonder therefore, that no single agent is available, which is thoroughly effective against all the above mentioned aspects of the disease.

Many workers believe that some involvement of the liver is always present in cases of chronic amoebic dysentery, even though clinical symptoms of hepatic involvement may not be

evident. This is particularly true in India where repeated reinfections are exceedingly common. Phillips and Wolfe¹ believe, on the basis of the evidence obtained by them, that "some unidentified factor or factors contributed by bacteria seem to be essential for the maintenance of *E. histolytica* in the intestines and possibly to the pathogenesis of amoebic disease." Adams² came to a similar conclusion on the basis of his own clinical observations with intestinal disease and its response to therapy. Thus, it seems that amoebæ with their associated bacteria in the colon present a complex therapeutic problem necessitating some form of antibacterial therapy in addition to or in combination with any amoebicidal drug used to clear up the initial focus in the bowel. At the same time some effective drug should also be administered to combat the amoebæ in the liver or other invaded tissues.

Unfortunately no single drug is available which will be effective against both intestinal infection (acute or chronic) and hepatic involvement. In this context, we tried a combination of iodochlorhydroxyquinoline, (active against intestinal amoebæ), chloroquine (active against hepatic amoebiasis) and sulphadimidine (active against intestinal bacterial flora).

From the results obtained it would appear that the above (Unidys) compound is a useful combination in the treatment of intestinal as well as hepatic amoebiasis. All the 12 cases of acute amoebic dysentery responded favourably. Two cases with tenderness in the right hypochondrial region also responded well. In 4 cases, the abdominal pain was partially relieved. Persistent pain after the end of the therapy may be due to spastic colitis which usually takes a long time to disappear although the stool examination was persistently negative in such patients. Similar complaints are also reported with other drugs routinely used in chronic amoebiasis.

Though the number of cases studied by us is small, the drug seems to have few side-effects, also it was well tolerated by the patients. All were outpatients. So it promises to be a more useful drug in the routine treatment of amoebic infestation.

Summary.—Twenty patients with amoebiasis were treated with Unidys compound. Twelve of these were suffering from acute amoebic dysentery and 8 from chronic amoebic colitis. Two patients had also amoebic hepatitis. In 18 patients the stools became negative on the 5th or 6th day of therapy, in one patient it was negative on the 7th day and in another on 16th day of therapy.

Acknowledgement.—Our thanks are due to M/s. Unichem Laboratories, Bombay-26, for a liberal supply of the Unidys compound used in this clinical trial.

REFERENCES:

1. Phillips, B. and Wolfe, P.A. (1959)—Ann. New York Acad. Sc., 73: 308-314.
2. Adams, A.R.D. (1944)—Trans. Roy. Soc. Trop. Med. and Hyg., 38: 287-258.

EXPERIENCE WITH POSTMATURITY

Arnot and Nelson of San Francisco, California, state:—In his discussions of the many articles about this syndrome, abstracted for the Year Book of Obstetrics and Gynecology, Greenhill has emphasized that the way to decide if a pregnancy is at or beyond term, is to perform a vaginal examination. If the cervix is closed, the patient is *not* at term regardless of how many days she has gone beyond the expected date. If the cervix is effaced and partly dilated, the patient is near, at, or beyond term. In such instances the dates and size of the foetus must be taken into consideration. If the history is accurate, especially if the patient is not unusually tall or heavy, and the foetus appears to weigh more than 9 lb. (4,080 gm.) the pregnancy may be over-term.

The authors studied the case histories of 12,817 private patients delivered over a period of 36 years, between July 1, 1922 and July 1, 1958, consisting of a group of patients who had 737 pregnancies which progressed to 14 or more days late, or after the expected date of confinement. These 737 pregnancies represent an incidence of 5.75% of all of their deliveries and were made up of 388 first pregnancies and 349 multiparous pregnancies.

The vast majority of babies that are delivered after the expected date of confinement are merely post-date babies with placentas that function normally up to the time of delivery. A small number, however, will have a placenta whose function becomes decreased or impaired even before term, or more often as they go beyond their due date, and this impairment of function may be enough to endanger the life of the foetus, thus accounting for such deaths as were observed in our series. We believe that there is such a thing as postmaturity and since there is apparently some definite risk to the life of the foetus, we believe that X-ray examination, in an effort to demonstrate the absence or presence of proximal tibial epiphyseal ossification, should be made on those patients who are definitely 14 or more days past their due date. If ossification is shown in the roentgenogram, labour should be induced if all conditions are favourable for induction and there is reason to expect a normal, easy labour. Otherwise, caesarean section should be done.

We believe that some of our dead babies would have lived if labour had been induced and, in order to prevent such deaths, we propose to do more inductions in the future.—(*West. J. Surg. Obst. and Gynae.*, September-October 1961).

DIAGNOSIS OF RENAL HYPERTENSION

Diastolic hypertension is a frequent accompaniment of renal parenchymal and renovascular disease. Numerous developmental, inflammatory, neoplastic, and other acquired lesions may be responsible for diastolic blood-pressure elevation. Although renal function may be measured by creatinine clearance, urine osmolarity, phenolsulphonphthalein excretion, and other studies, these various tests of renal functional capacity cannot identify the specific type of renal disorder or its causative relationship to diastolic hypertension. The most satisfactory diagnostic measures are pyelography, kidney biopsy, and renal arteriography. In addition, specific urinary findings may further identify particular lesions. The therapy of renal hypertension must be directed at the underlying pathology whenever possible. Where specific therapy is not available, adequate control of the blood-pressure elevation may reduce or arrest the accompanying vascular deterioration.—(*J.A.M.A.*, 18-11-1961).

TRANQUILLIZATION IN INTRA-OCULAR SURGERY*

S. P. MATHUR, M.B., B.S., M.S. (ophth.),
Department of Ophthalmology, Bikaner Medical College, Bikaner

SUCCESS in eye surgery under local anaesthesia requires considerable cooperation from the patient. Proper evaluation of the ego-strength with a measure of ability to behave, is of prime importance in the selection of cases. An apparently mature and well-balanced patient may on occasion flinch, weep, and struggle during the operation, but will afterwards feel greatly embarrassed and apologise for loss of control. Senile patients and those with organic brain disease may lose ego-strength, the extent of which will depend upon the cerebral cellular destruction. In such cases the use of general anaesthesia or curare has been suggested.

Post-operative complications more commonly associated with cataract surgery and bandaging of both the eyes, which are often sufficient to cause permanent damage, may develop due to psychosis with hallucinations, delusions, and bizarre behaviour, flatulence, distention of the abdomen, constipation, retention of urine, hypostatic pneumonia, and subclinical prostate enlargement, which becomes manifest in the recumbent position. These complications get more marked as a result of the toxic effects of the analgesics and sedatives commonly used.

Sedation should be such in which the patient is cooperative, amnesic, and has a sense of well-being and absence of worry. Oversedation is always associated with dangers similar to those of general anaesthesia; a close watch is necessary in order to prevent vomiting and possible aspiration into the respiratory passages. Nausea and vomiting are more common when the patient is in pain, apprehension, or a state of agitation.

Barbiturates being ideal sedatives decrease the toxic effects of any local anaesthetic, arrest convulsions due to overdosage, increase the minimum lethal dose to 3 or 4 times. But they are also notorious for causing delirium in the presence of pain, and recovery from a large dose may be accompanied by restlessness, during which the patient is irrational and hyperactive. This is particularly the case with elderly patients with some idiosyncrasy, who get excited and become unmanageable.

Curare, along with a local anaesthetic has been used with some additional advantage. But the associated serious complications in elderly patients particularly in the hands of a comparatively inexperienced anaesthetist may prove fatal.

Though a very powerful analgesic and hypnotic, morphine has seldom been used because it excites vomiting, produces chest complications, constipation, flatulence, and abdominal distention particularly in the old-age group.

*Specially contributed to the ANTISEPTIC.

Pharmacology and classification of tranquillizers.—The mode of action of tranquillizing drugs, (not yet fully understood is) partly pharmacological, partly neurophysiological, and partly clinical. Clinical observations indicate that the main action is on the mid-brain. A tranquillizer affects in varying degrees the vegetative regulation, specially in relation to blood-pressure, appetite, sleep, temperature, and the emotional regulative function of the mid-brain. They do not interfere to any extent with cortical functions such as intelligence and orientation. Their action may be presumed to be that of a selective sedative, which particularly affects anxiety states, tension and emotional overcharge. How this is done is still being investigated. It is postulated that the adrenergic mechanism may be involved or the action may be linked with the presence or absence of a proper amount of serotonin in the nervous system.

The following classification is based on the fundamental pharmacological properties of the individual tranquillizers, so far as they are known, subject of course, to any doubts or disputes that may be raised :—

1. *Psychotherapeutic antihistamine* :—Hydroxyzine. 2. *Central skeletal muscle relaxant* :—(a) *nonsedative* :—mephenesin (Mynesin, Tolseram); (b) *sedative* :—meprobamate (Miltown, Panediol), phenaglycodol, promoxolane. 3. *Central para-sympathetic depressants* :—Benactzine (Suavital). 4. *Central sympathetic depressants* :—(a) *phenothiazine derivatives* :—chlorpromazine (Largactil) Perphenazine, Prochlorperazine, Promazine, Promethazine, Trifluoperazine; (b) *Rauwolfia derivatives* :—Rauwolfia (Raudixine, Serpina) Reserpine, Alseroxylon, Deserpidine, Rescinamine and 5. *Miscellaneous agents* :—Azacyclonol.

The psychosympathetic antihistamines possess sedative effect and potentiate the anæsthetic and the analgesic agents. The mephenesin group produces muscular relaxation and the degree of tranquillization therefore, depends on the degree of muscular relaxation. Meprobamates, the sedative type of muscular relaxants, have in addition to these two virtues, freedom from circulatory and respiratory depression. They are good sedatives for use in anxiety and tension states but are of little value in the management of psychosis. It may be stated that scarcely any other drug has been subjected to such indiscriminate misuse and abuse, as the meprobamates, and this has led to recent reports on their toxic and other side-effects like allergic reactions, drowsiness, habituation, withdrawal symptoms like insomnia, vomiting, tremors, muscular twitchings, anxiety, anorexia, ataxia, hallucination, grandmal seizure, stupor, coma with circulatory and respiratory collapse, aplastic anæmia, fever, arthralgia, petechiæ, bronchospasm, headaches and what not.

The central parasympathetic depressants like Benactzine are characterized by an atropine-like action, sedation, mild anti-histamine effect and potentiation of general anæsthesia. Like atropine, the annoying reactions of benactyzine are dryness of the mouth, difficulty in accommodation, nausea, nervousness, dizziness, palpitation, diarrhoea, and a sense of depersonalization and unreality.

The phenothiazine type of central sympathetic depressants are sedative, antihistaminic, antinauseant, antiemetic, and depress reflex irritability, conditioned reflexes; also adrenolytic. They also potentiate anæsthetic and analgesic agents. Amongst side-effects are tachycardia, postural hypotension in patients suffering from arteriosclerosis, a depression of the central control of body temperature, jaundice, agranulocytosis, nasal congestion, urticaria, photosensitivity, engorgement of the breasts and lactation, parkinsonism, a sense of being strange, feeling out of contact, lethargy and depression. All these tend to disappear as soon as the drug is withdrawn.

The central sympathetic depressants of the Rauwolfia type produce a slowly-developing sedation, bradycardia, a reduction in blood-pressure, anxiety and tension, nasal stuffiness, and occasionally anorexia or constipation. It is contra-indicated in a depressed patient, in cases of peptic ulcer and other gastrointestinal disorders, and in asthma. The hypotension caused may sometimes be a contra-indication to surgery. They also tend to produce parkinsonian-syndrome, oedema, blurring of vision, and dizziness. Azacyclonol can control toxic hallucinations and acute schizophrenia. Its use in surgery is still under investigation but it may be useful in post-operative psychosis.

From the above description it will be seen that the choice of a tranquillizer will depend largely on the individual needs of the patient and the preference of the surgeon and anæsthetist. But for a routine use certain principles will have to be satisfied. For purposes of any type of surgery the patient should be free from anxiety and fear, should be physically relaxed, and undesirable effects of anæsthesia, such as nausea and vomiting should be eliminated both during and after the operation. Post-operatively the ideal drug will be one which rapidly restores consciousness and all the functions of the central nervous system prevents pain, psychosis, paralytic ileus, aids the healing process, and makes the patient generally well-balanced. Keeping these factors in mind the present studies were undertaken to find out a suitable tranquillizer which may be used routinely in intra-ocular surgery.

Methods and material.—The present investigation was carried out only in respect of patients with cataract and glau-

coma, operated in different ways. One or two drugs of each of the three main groups mentioned in my classification (*See* p. 400) were used. The patient was admitted in the ward at least two days earlier, and investigated to ascertain any contra-indications to the particular tranquillizer; medication was started at once (two days prior to the date of operation) and continued for 6 days. During this study, cataract operations were performed by making section with the knife, without corneo-scleral suture; peripheral iridectomy was done, and the lens was delivered with forceps or by tumbling. Both the eyes were bandaged for 24 hours, after which the unoperated eye was opened. Movements in bed were allowed after 6 hours, and from the 6th day the patient was gradually allowed to walk slowly. Operation for glaucoma included broad basal iridectomy, trephining, iridenclysis, cyclodialysis, and sclerotomy.

Discussions.—The drugs used in the present study, their dosage, complications during and after operation, and general impression gathered by the behaviour of the patient, are all recorded in a statement (*See* Table I, below)

TABLE
Giving all details relating to the different

Name of the drug	No. of cases treated	Dosage		
		Pre-operative	One hour before operative	Post-operative
1. Mephenisin (a) Mynesine tabs. (B.D.H.)	25	1 tab. b.d. for 2 days.	2 tab.	1 tab. b.d. for 4 days.
(b) Carbamate (Squibbs)	35	0.5 g. b.d. for 1 day.	1 gm.	0.5 gm. b.d. for 4 days.
2. Meproamate Lederle and therapeutic)	50	200 mg. b.d. for 2 days.	400 mg.	400 mgm. b.d. for 2 days. 400 mgm. o.d. for 4 days.
3. Benaetyzine, Suavitil (Glaxo)	28	1 mg. b.d. for 6 days.	2 mg.	1 mg. t.d.s. for 6 days.
4. (a) Chlorpromazine Largactil (Glaxo)	20	1 tab. 25 mg. o.d. for 2 days.	Inj. 25-50 mg.	Tab. 25 mg. b.d. for 4 days.
(b) Rauwolfia (Squibbs and Himalaya Drug)	31	1 tab. t.d.s. for 6 days.	2 tab.	1 tab. t.d.s. for 6 days.

Mephenisin was found to be the drug of choice which appeared to fulfil the requirements of tranquillity fairly effective, during intra-ocular surgery. Mephenisin carbamate was still better because of its prolonged action. The effect on blood-pressure, respiration or on the physiology of the eye was negligible. The patient was not at all sedated to the point of losing cooperation. Rather, he took an active part in helping the surgeon by making the required movements, and derived in time, great pleasure from a successful operation. In none of the cases was there distention in the abdomen or retention of urine, which are usually and so commonly seen after intra-ocular surgery. Generally the patients have all been quiet and co-operative with this treatment.

Meproamate may be more helpful in the case of patients who are highly strung, extrovert, nervous and unable to reconcile themselves to the idea that they have got to be operated upon. Special cases like senile patients with organic brain lesion, having lost ego-strength, and bulky (obese) patients with short necks and prominent eyes, whose slightest non-cooperation

I

drugs used and the results obtained with remarks

Average fall in B.P.	Operative complications			Remarks
	Before	During	After	
Negligible	Cooperative	Soft eye	Iris prolapse 1	More cooperative, no distention, flatulence or retention of urine. Useful in glaucoma with raised I.O.P.
"	"	"	None	
10-15 mm.	Non-cooperative oversedated.	None	3 depressed respiration 3 soft-eye upto 3 days	Oversedated and sleepy during and after operation non-cooperative. Feeling of unreality in 5 cases.
Negligible	Non-cooperative apprehensive.	Vit. escape 3.	Iris prolapse-2.	Dryness of mouth, nausea and palpitation frequent.
10-20 mm.	3 apprehensive 2 cold clammy skin.	Soft-eye.	Soft-eye with stria keratitis for 8 days in 5 cases for 10 days in 3 cases.	Marked lethargy and depression. A general feeling of being strange.
12-25 mm.	No change in behaviour.	Vit. escape.	Iris prolapse-1. Iris incarceration-1.	No optimum sedation and so lacking in co-operation both during and after operations.

on the operation table may lead to severe complications like vitreous loss, are particularly fitted for meprobamate therapy. It was observed that in normal patients meprobamate gave a little too much of sedation, which interfered with their cooperation. They were listless, speaking feebly about their requirements and sleeping most of the time. Depression of respiration was marked in 3 patients who were of feeble constitution. Four out of 50 cases refused to believe that their eye-sight had been restored, but kept their eyes closed most of the time.

Benactyzine did not tranquillize the patient adequately, and all the patients were apprehensive and non-cooperative both during and after operation. Three out of 28 patients got small vitreous escape and 2 had iris prolapse. There was dryness of mouth, nausea, palpitation, distention of the abdomen, and retention of urine in varying degrees. Post-operatively the patients were not comfortable, and symptomatic treatment had to be supplemented by other drugs.

Chlorpromazine also lacked in adequate tranquillization. On the other hand there were so many side-effects that the study had to be discontinued after 20 cases. There was a generalized fall in blood-pressure. On the table, 3 cases were non-cooperative due to apprehension, and in 2 the operation had to be delayed due to a cold clammy pale skin, and a depression of the respiration. Post-operatively the most annoying complication was a soft eye with striate keratitis even after 8 to 10 days. The ultimate clearing of keratitis took about a month and the visual prognosis was not quite as good as with the other groups.

Thirty one cases treated with Rauwolfia had developed hardly any tranquillization for cooperation during or after surgery, in spite of the fact that the medication was started 6 days ahead. A fall in blood-pressure was noticeable without any marked change in behaviour.

Summary.—Several of the commonly used tranquillizers were tried in the surgery of patients with cataract and glaucoma and their usefulness regarding the cooperation of the patients and toxicity are assessed and discussed. It was observed that as a routine Mephenisin was suitable both during and after intra-ocular surgery, as it effectively prevented many complications; Meprobamate was also helpful in a selected group of patients who required sedation in addition to tranquillization.

Acknowledgements.—I am grateful to the Editor of "THE ANTISEPTIC" who gave me an opportunity to contribute this article to his journal; to Dr. S. C. Mehta, F.R.C.S. (Eng.), Principal, Medical College, Bikaner, who kindly permitted me to work on this problem, and publish the results of my observations, and to Messrs. British Drug House, Squibbs, Lederle, Therapeutic, Glaxo, May and Baker, and Himalaya Drug Co., who kindly supplied the different tranquillizers for trial, free of cost.

Low back-pain is one of the commonest complaints in adults and is certainly the commonest presenting symptom in orthopaedic O-P. departments.—(Practitioner, London).



*for reliable
chloramphenicol
therapy*

CHLORAMPHYCIN*

Chloramphenicol 'Boehringer'

- DRY SYRUP
- DRAGEES c Vit. B-Complex
- CAPSULES imprinted
- EAR DROPS
- EYE OINTMENT



C. F. Boehringer & Soehne, G. m b H., Mannheim.

Manufactured by

BOEHRINGER-KNOLL LIMITED

UNITED INDIA BUILDING, P. MEHTA ROAD, BOMBAY I

Sole Distributors

RALLIS INDIA LTD., Pharmaceutical Division, Post Box No. 229, Bombay-I

*T. M. Regd.

IN WORLD WIDE CLINICAL USE

For over a decade 'Dexedrine' and 'Drinamyl' have been used all over the world for depression. Countless doctors and a multitude of patients have found these preparations invaluable in the states of depression, anxiety and tension that arise from the problems of everyday life. After treatment with 'Dexedrine' the apathetic and lethargic patient returns to his job with renewed enthusiasm and energy. The worried and anxious patient can, with the aid of 'Drinamyl', face his problems calmly and without emotional distress. World-wide clinical use has proved 'Dexedrine' and 'Drinamyl' safe and reliable.

DEXEDRINE

for the apathetic and
lethargic depressed patient

DRINAMYL

for the tense and anxious
depressed patient

Each 'Dexedrine' tablet contains 5 mg. 'Dexedrine' (brand of dexamphetamine sulphate). In containers of 25, 100 and 500. Each 'Drinamyl' tablet contains 5 mg. 'Dexedrine' and 32.4 mg. (gr. $\frac{1}{2}$) amylobarbitone. In containers of 25 and 500.

SK & F SMITH KLINE & FRENCH (INDIA) LTD
(Incorporated in England with limited liability)
141 FORT STREET, BOMBAY 1

Distributed by
Pharmed Private Limited — Bombay • Calcutta • Delhi • Madras

'Dexedrine' and 'Drinamyl' are trade marks

DDL: PA32 Ind

THE PROBLEM OF ŒDEMA*

N. SITARAMAN, B.Sc., M.B., B.S., M.R.C.P. (Edin.),
Consultant Physician, C.S.I. Hospital, Neyyoor and
C.B. Hospital, Nagercoil

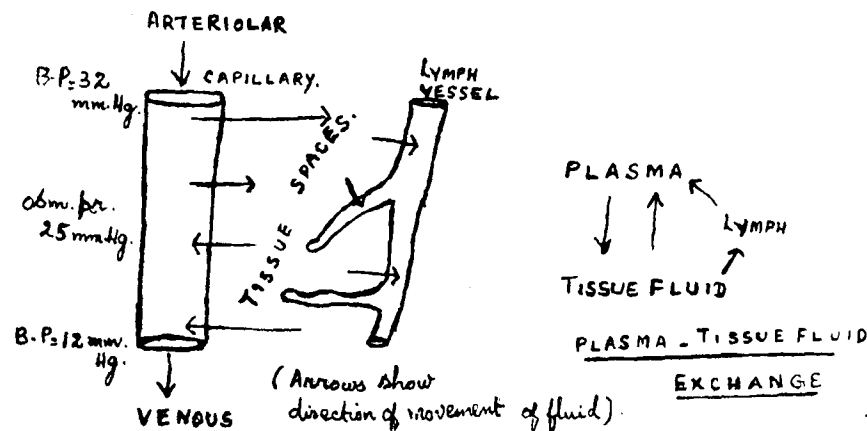
ŒDEMA is a clinical condition in which there is an abnormal accumulation of fluid in the intercellular spaces. For clinically demonstrable œdema to occur in the skin and subcutaneous tissue the volume of extra-cellular fluid must increase locally by about 10 to 15%. The first observable clinical sign is pitting on pressure against a bony eminence such as the tibia. Accumulation of œdema fluid is best reflected by the body-weight of the patient which will show a sudden increase when fluid is accumulating and a sudden decrease when the œdema-fluid is being cleared. Therefore, a chart recording the daily body-weight of the patient with generalized œdema is essential to assess the progress of the patient.

Oedema may be localized or generalized. Localized œdema suggests either obstruction or local capillary damage. The obstruction may be venous or lymphatic and the local capillary damage may be caused by inflammation or allergy. Localized œdema is not discussed in this article as its treatment is mainly surgical in many cases. Significant generalized œdema may accumulate before it can be recognized clinically [unless accurate body-weight charts are maintained: see above] and it first appears in the tissues which are loose and expansible. An elementary knowledge of the patho-physiology of plasma-tissue fluid exchange is essential for the proper understanding of the pathogenesis of generalized œdema.

Patho-physiology.—In normal health there is a constant outflow of protein-free fluid from the plasma in the capillaries into the tissue-spaces and this exchange takes place on an enormous scale; a volume of fluid equal to that of the whole plasma escaping from the entire capillary-bed into the tissue-spaces in less than one minute (Samson-Wright). Part of this tissue reenters the circulation at the venous end of the capillary and a part reenters the circulation indirectly *via* the lymphatics. The importance of the lymphatic vessels in this process of clearing tissue-fluid is frequently overlooked. Neglecting other factors involved, the force that drives the fluid out of the capillary at its arteriolar end is the hydrostatic pressure of blood which is about 32 mm. Hg. This is opposed by the osmotic pressure of blood exerted by the plasma proteins, which is about 25 mm. Hg. Therefore, there obtains a net filtering force of 7 mm. Hg. at the arteriolar end of the capillary which drives out the fluid part of the plasma into the tissue spaces. At the venous end of the capillary the hydrostatic pressure is only

*Specially contributed to the ANTISEPTIC.

12 mm. Hg. which is far less than the plasma-protein osmotic pressure (25 mm. Hg.) and therefore, tissue reenters the circulation here. As already stated a part of the tissue fluid is cleared by the lymphatic system and this reenters the circulation *via* the thoracic duct and the right lymphatic duct. The following diagram illustrates these facts:—



In other words, there are two main opposing forces *viz.*, (a) capillary pressure and (b) osmotic pressure exerted by the plasma-proteins which govern the exchange of fluid between plasma and tissue fluid and in normal health, these two forces are so balanced as to permit a free exchange of fluid between plasma and the tissue-fluid without any abnormal accumulations of fluid in the tissue spaces. Therefore, oedema formation can take place under the following circumstances:—1. Reduction in the osmotic pressure of the plasma, especially due to a fall in the level of the serum albumin, (as in Kwashiorkor with oedema, the oedema of the nephrotic syndrome etc.).

2. A general or local rise in capillary pressure. In congestive cardiac failure there is a general rise in the capillary pressure (although this is not the cause of the oedema in congestive failure). In pulmonary oedema there is a localized rise of pressure in the pulmonary capillaries which is the direct cause of the oedema.

3. Increased permeability of the capillary endothelium as in acute glomerulo-nephritis and in allergic oedema.

4. Obstruction of lymphatic channels, as in filariasis and carcinomatous lymphadenopathy.

It is fairly easy to explain the pathogenesis of oedema in diseases characterized by a fall in the level of plasma-protein, as in protein malnutrition, the nephrotic syndrome and to a certain extent in chronic liver failure. The normal level of plasma proteins is 6.4 to 8.5 g.%, in which there is 4.5 g.% albumin and

2.7 g.% globulins. The normal albumin : globulin ratio is 1.7 : 1. One gramme of albumin contributes an osmotic pressure of 6 mm. Hg. whereas one gramme of globulin contributes only 1.5 mm. Hg. osmotic pressure. Therefore, it is the serum albumin that contributes most to the plasma osmotic pressure and any great fall in the level of serum albumin will lead to the escape of fluid from the capillaries into the tissue-spaces and lead to a generalized oedema. The critical level for oedema, at least in the nephrotic syndrome, appears to be 5 g.% total plasma-proteins with a drop in the serum albumin level to 2 g.% or less. It is important to realize that oedema-formation can occur with a normal total plasma-protein level, if there is a reversal of the albumin : globulin ratio because the serum globulins are relatively less potent in retaining fluid within the capillaries (1 g.% albumin equals 4 g. globulin from the point of view of osmotic-pressure : *see above*).

For all practical purposes generalized oedema occurs under four conditions *viz.*, (1) Congestive cardiac failure; (2) renal disease; (3) hepatic disease and occasionally; (4) severe protein-malnutrition. Therefore, the presence of generalized oedema requires investigation especially for evidence of cardiac, renal or hepatic disease and, occasionally, for manifestations of nutritional deficiency.

In protein-malnutrition (where there is a gross deficiency of protein-intake) and in the nephrotic syndrome (where there is a gross loss of protein in the urine which may amount to over 30 g. in 24 hours) the oedema can be explained on the basis of the hypo-albuminaemia which is present. The oedema in cirrhosis of the liver can be only partly explained on the basis of hypo-albuminaemia. The difficulty arises in the case of congestive cardiac failure where the problem of oedema becomes more complicated. In congestive cardiac failure, (CCF) the fundamental cause of oedema appears to be the primary retention of sodium by the kidneys. When sodium is retained water also has to be retained. In normal health, sodium is filtered out by the renal glomeruli and most of this sodium is reabsorbed by the renal tubules. This renal tubular reabsorption of sodium is regulated by aldosterone—a hormone secreted by the adrenal cortex. Similarly most of the water filtered out by the glomeruli is reabsorbed by the renal tubules and this water reabsorption is governed by another hormone—the anti-diuretic hormone secreted by the neurohypophysis. These facts may be summarised as follows:—

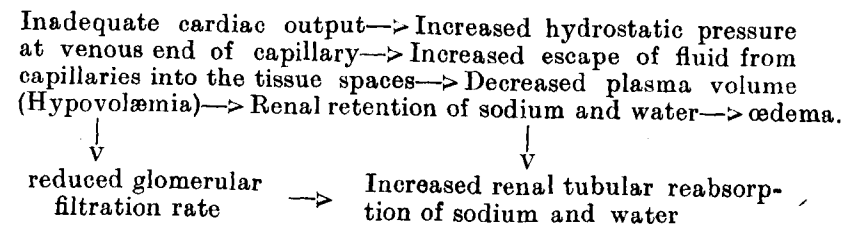
1. *Glomerular filtration* :—Entire sodium and water filtered out.
2. *Renal tubular reabsorption* :—Most of the Sodium and water reabsorbed.

Aldosterone A.D.H.

Therefore, an increased secretion of aldosterone will lead to sodium-retention while an increased ADH secretion will lead to water-retention. In Addison's disease there is a greatly diminished secretion of the adrenocortical hormones and, therefore, there is excessive sodium (and water) depletion leading to the so-called Addisonian crises. In diabetes insipidus there is diminished ADH secretion and therefore, excessive water-loss leading to polyuria and polydipsia. The problem of oedema in CCF is one of primary retention of sodium by the kidneys, the retention of water being secondary to the salt-retention. Everyone is agreed that the retention of sodium is caused by some fault in the proper distribution of blood in the vascular system. Some believe that changes in blood-flow or venous-pressure cause increased secretion of aldosterone (the receptors are probably situated in the region of the pineal gland) which increases the renal tubular reabsorption of sodium. It may well be that in CCF the reduced renal blood-flow (forward-failure) causes a reduction in the glomerular filtration-rate. When the amount of sodium filtered out falls below a certain critical level, the tubules may reabsorb the entire amount of sodium filtered out (glomerulo-tubular imbalance) because of the inability of the homeostatic forces to depress the fundamental sodium-conserving function of the renal tubules below a certain critical level. Increased aldosterone secretion as well as the reduced glomerular filtration rate may *both* contribute to the retention of sodium in CCF. The exact mechanism of oedema-formation in CCF is not very clear and the problem remains controversial.

In hepatic cirrhosis at least, the increased level of circulating ADH plays a part in oedema formation (the increased ADH level is believed to be due to lack of destruction of ADH by the damaged liver).

The following diagram summarizes the probable mechanisms involved in oedema of cardiac origin :—

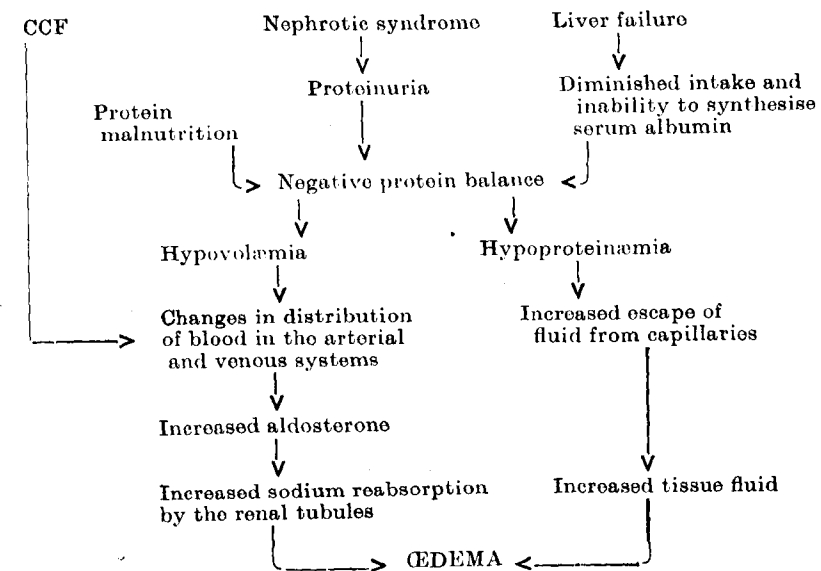


Oedema.—Oedema in malnutrition, the nephrotic syndrome and chronic liver failure is due in part, at least to a disturbed protein-metabolism and a negative protein-balance. In malnutrition there is either a diminished protein-intake or mal-absorption as in small bowel insufficiency with steatorrhœa. In the nephrotic syndrome it is the massive proteinuria which is responsible for the negative protein balance and in chronic liver

failure there is a diminished protein synthesis and intake. The following is the probable sequence of events leading to oedema in these conditions :—

Negative protein balance—Diminution in the total quantity of plasma-proteins—> Diminished osmotic pressure of blood and therefore, diminished ability to retain, water in the plasma—> Hypovolæmia—> Adrenal stimulation (? volume receptors in region of pineal body) —> Increased aldosterone production—> Increased renal tubular reabsorption of sodium—> oedema.

The following diagrammatic representation summarizes the ætiology and probable mechanism responsible for generalized oedema :—



The oedema of CCF appears to be associated with increased aldosterone production. What exactly leads to the increased adreno-cortical activity in CCF is not clear. It has been suggested that the size of the blood-volume influences the adrenal gland. It is generally considered that low blood-volume probably affects the pressure in some vascular compartment (Robinson, 1954), from the walls of which nervous impulses originate which eventually cause a nervous stimulation of the adrenals. Borst (1954) has suggested that sodium excretion is controlled by the central venous pressure. The oedema of cardiac failure also seems to be associated with increased adrenal activity but the blood-volume in CCF is usually increased. Therefore, a mechanism other than hypovolæmia must be operative in this case. Borst (1954) has suggested that central venous pressure is related to salt-excretion in the same way as it is to the cardiac output *i.e.*, he postulates a Starling curve of salt-excretion. In this way salt-excretion would decrease when the central

venous-pressure was either abnormally high or low and all forms of oedema would have a similar mechanism to account for the adrenal hyperfunction. This is an attractive but, as yet, unproven hypothesis.

To recapitulate: the problem of oedema is intimately related to the level of plasma-proteins (especially albumin), the secretion of hormones like aldosterone and ADH and the renal tubular reabsorption of sodium and water. There can be no oedema unless the kidneys retain sodium and water and, therefore, the star-role in oedema must be assigned to the kidneys and especially the renal tubules. It is emphasized that there can be no water retention and no oedema unless the kidneys retain salt and therefore, in the treatment of generalized oedema much attention is focused on the intake of salt or on measures which increase renal excretion of sodium.

Principles of treatment.—This discussion of the pathogenesis of generalized oedema will make the following principles of its treatment quite clear:—(1) Oedema cannot occur unless sufficient salt is available for water-retention. It follows therefore, that oedema fluid can be cleared from the body by the following measures:—

1. *By restricting the salt-intake in the diet:*—The main ion retained by the body is sodium, but chloride is also retained to some extent. Restriction of the sodium content in the diet is useful, but to be effective the restriction must be very strict. A truly salt-free diet is not only extremely difficult to attain, but also the diet is unpalatable, badly tolerated by the patient and may lead to deterioration of renal function ("salt depletion syndrome"). Generally speaking a "salt-poor" diet will suffice—one in which the sodium intake is restricted to 1 g. daily. This can be achieved by avoiding salty foods such as pickles etc. by adding no extra salt to food while eating and the avoidance of drinks containing sodium or medicines containing sodium. With the advent of the newer oral diuretic agents (*vide infra*), such drastic restriction of salt has become less imperative in moderate cases of oedema. But severe restriction of salt in the diet still remains an important measure in the treatment of chronic resistant cases of oedema.

2. *The use of diuretics* which act by blocking the renal tubular reabsorption of sodium and/or chloride:—

(a) *Organic mercurial diuretics* such as Mersalyl B.P. This preparation must be given by deep intramuscular injection. Its action is potentiated by the previous administration of ammonium chloride 2 g. in tablets given orally two hours before the injection of Mersalyl.

(b) *Acetazolamide* also known as *Diamox* and is a carbonic anhydrase inhibitor. Through its action in the renal tubules a

large increase in the excretion of sodium and bicarbonate occurs with no increased excretion of chloride. It is usual, therefore, for this drug to produce an alkaline urine and to induce a metabolic acidosis. Its action tends to be self-limiting and it is effective only when it is given intermittently. It has proved a disappointing diuretic in actual practice.

(c) *Thiazide group:*—A group of oral diuretics of very great activity and clinical importance. The first drug to be introduced under this group was Chlorothiazide and this has been followed by Hydrochlorothiazide, Hydroflumethiazide, and Bendrofluazide. The actions of all these drugs are similar and they differ primarily in their effective dosage. The equivalent dosages of these are:—Chlorothiazide 500 mg; Hydrochlorothiazide, hydroflumethiazide 50 mg., Bendrofluazide 2.5 mg. The primary action of these drugs is on sodium and chloride excretions, which are greatly increased. The increased excretion of water is secondary to the salt-loss. Their principal disadvantage is that they produce a potassium deficiency so that potassium supplements have to be given along with these drugs (1 g. of potassium chloride twice daily). The suggested dosage of these drugs are chlorothiazide 500 mg. twice daily; hydrochlorothiazide 50 mg. twice daily and bendrofluazide 5 mg. once daily. Treatment should be given on three consecutive days in each week.

(d) *Spironolactones:*—These are specific antagonists to aldosterone. One such preparation Aldactone, dispensed in tablets of 100 mg. may be given four times daily on the days on which a thiazide group of diuretic is being administered. The drug appears to be non-toxic and may induce a fully satisfactory diuresis in a patient otherwise resistant to the mercurial or the thiazide diuretics.

3. *Measures aimed at raising the osmotic pressure of blood:*—These are used in the clinical conditions characterized by hypoproteinæmia such as the nephrotic syndrome, kwashiorkor etc. These measures include high-protein feeding, which is most effective in protein malnutrition. In the nephrotic syndrome the intravenous infusion of salt-poor human albumin (50 g. I.V. per day) may induce a rapid diuresis. However, the effect is transient; most of the albumin is lost in the urine, and much of the remainder is rapidly catabolized. Intravenous mannitol is said to be more effective. Some of the newer plasma expanders such as Dextran may induce a temporary diuresis.

The following is a brief summary of the measures that are effective in clearing oedema-fluid in the four main clinical conditions causing generalized oedema:—

Protein malnutrition:—A high protein diet with mineral and vitamin supplements is usually effective.

The nephrotic syndrome:—High protein diet; use of diuretics; use of plasma volume expanders; removal of œdema-fluid by tapping.

Cirrhosis of the liver:—Here ascites is the main problem and at least one of the causes of the ascites is portal hypertension. Treatment is unsatisfactory as the usual measures to relieve œdema (such as high-protein feeding, use of diuretics especially the thiazide group, paracentesis etc.) may precipitate hepatic coma. The following regime (recommended by Shaldon) may be tried in hepatic cirrhosis with ascites:—Initially rigid salt restriction and bed rest. If insufficient, chlorothiazide with potassium supplement. If not satisfactory, add aldactone after a week and reduce potassium supplement. Satisfactory diuresis is said to start within three days and to continue at a slow, steady rate. Uninterrupted combined (chlorothiazide *plus* aldactone) diuretic therapy may be necessary for some months to eliminate ascites and thereafter it is continued indefinitely. Finally, if the patient fails to respond to this combination it may be worth administering an osmotic diuretic such as intravenous mannitol in an effort to induce diuresis.

Congestive cardiac failure:—The basic initiating cause of the œdema is the reduced cardiac output and therefore, digitalis remains the sheet anchor in treatment. If required, moderate salt restriction and the thiazide diuretics may be added later. Bed-rest must not be forgotten. In refractory cases the following treatment may be tried:—

Chlorothiazide 500 mg. *b.d.*, *plus* potassium chloride 1 g. *b.d.*, for three days a week. Prednisolone 5 mg. *t.d.s.*, for 2 days and then 2.5 mg. *b.d.*, as a maintenance dose. The patient of course is fully digitalized.

The use of Southey tubes and acupuncture may be beneficial if the ordinary forms of treatment fail. They are especially valuable in severe right heart failure with dependent œdema.

Summary.—1. The pathogenesis of generalized œdema is discussed in detail although in a somewhat over-simplified way. 2. The probable mechanism involved in each of the four main clinical conditions associated with œdema is considered. 3. A brief outline of the principles of treatment is given.

REFERENCES:

1. Best and Taylor (1955)—The Physiological basis of medical practice, 6th Edn., The Williams and Wilkins Company, Baltimore.
2. Borst, J. G. G. (1954)—Ciba Foundation symposium on the Kidney J and A Churchill Ltd., London.
3. Boyd (1958)—Pathology for the Physician, 6th Edn., Henry Kimpton, London.
4. Cecil and Loeb (1959)—A text book of Medicine, 10th Edn., W. B. Saunders Company, Philadelphia and London.
5. Daley, R. and Miller, H. (1956)—Progress in Clinical Medicine, 3rd Edn., J and A Churchill Ltd., London.
6. Dunlop, Davidson and Alstead (1961)—Textbook of Medical Treatment, 8th Edn., E. & S. Livingstone Ltd., Edinburgh and London.
7. Harrison (1958)—Principles of Internal Medicine, 3rd Edn., Mc Graw Hill Book Company, New York, Toronto and London.
8. Samson-Wright (1952)—Applied Physiology, 9th Edn., Oxford University Press, London, New York and Toronto.

RECENT PROGRESS IN CHEMICAL CONTRACEPTIVES*

H. L. BAMI, Ph.D., A.I.I.Sc., F.I.C.,

Central Drugs Laboratory, Calcutta-16

THE need and importance of birth-control for family planning is now recognized by all and the availability of suitable methods is discussed at all levels. The problem of control of reproduction has been tackled from many angles, and the three important scientific methods are: (i) physiological methods (rhythm method) (ii) mechanical means for prevention of conception and (iii) the use of chemical agents. The last included chemical substances which were spermicidal when used as contraceptives^{1, 2, 5, 6} as well as the new class of oral chemical antifertility drugs.

The progress in the well-established field of chemical contraceptives will be discussed in this article; the control of fertility by specific chemical substances has been receiving increasing attention all over the world. As regards certain practical and aesthetic objections to the use of mechanical and chemical contraceptives, various attempts are being made to discover a chemical (pill) which could prevent fertilization when taken orally^{19, 20}. It may be stated at once that the giving of oral drugs to the male population has not been found to yield practical results so far. However, the control of fertility in the female by the oral administration of certain progesterone-like hormones has been found possible. One of these *viz.*, *Nor-ethynodrel*, was active when given by mouth as it prevented ovulation and did not interfere with other hormonal functions. In several field trials,²⁰ this drug has been found to be efficacious when given properly and the side-effects were negligible and easily controlled. This has been a notable achievement in selective inhibition of ovulation and the production of temporary sterility without undue disturbance of the normal menstrual cycle. In India, Dr. Sanyal and co-workers^{22, 23} have found that an oil extracted from the field pea (*Pisum sativum*) containing 2:6 dimethyl-hydroquinone (Metaxylohydroquinone) acted as an active oral antifertility compound^{22, 23}. Detailed clinical trials with this drug following the laboratory studies, have also yielded encouraging results²³. It is however, too early to draw final conclusions about the value of oral chemical contraceptives and their long-term effects on fertility and reproduction as also any hazards such as carcinogenesis. At the moment, the conventional mechanical and chemical contraceptives continue to serve as some of the best methods available, in family planning^{28, 29}.

*Specially contributed to the ANTISEPTIC.

Suppositories composed of certain drugs are known to have been used so far back as 1500 B.C.⁷. These products have undergone several changes and some improvements but their use now is very limited. However, in the field of chemical contraceptives, vaginal suppositories (called pessaries) were first introduced. These preparations normally contained cacao butter (or similar semi-solid waxy materials) as the base in which the chemical spermicidal compounds were incorporated along with certain surface active agents, preservatives, perfumes¹⁻⁸ etc. These pessaries were normally expected to get softened and dispersed (at body temperature) after introduction. The spermicides used in these preparations usually comprised organomercurials (phenylmercuric salts), hydroquinone, formaldehyde, alkaloids of quinine, oxy-quinolines, iodine, saponins, phenols, organic acids etc. Apart from the basic efficacy of the spermicide used in the pessaries, it was found that uniform and complete dispersion of the spermicidal agents within the vagina and their actual release from the oily base was not always effectively achieved. Then again these pessaries deteriorated in storage in hot and humid climates and suffered loss of shape, discoloration, and separation of the ingredients.

In view of the above defects and shortcomings further developments in this field, led to the manufacture of "*Foam Tablets*." In this case, there was a basic mixture of sodium bicarbonate and tartaric acid in which the spermicidal agents were incorporated. At the site of action, copious foam was produced which served as a vehicle to dissolve and disperse the active agent quickly and effectively. Spermicides currently used in these foam tablets usually include, phenylmercuric salts, chloramine T, zincphenolsulphonate, hydroxyquinoline sulphate, di-chloro-ylsulphamido-benzoic acid and a new class of compounds viz., alkylphenoxy-polyethoxyethanols. This form of medication has proved very satisfactory; but being very sensitive to both heat and moisture, it has to be used carefully. As a check, unsealed containers of foam tablets are required in India, in order to maintain their foaming power and full spermicidal action for atleast three months when stored at 80 to 90% humidity.

Simultaneous with the development of foam-tablets, the manufacture of suitable contraceptive cream and jelly preparations was also taken on hand; the active spermicides were emulsified in a base consisting of gum, stearic acid, ricinoleic acid, surface active agents, preservatives, organic acids and perfumes in suitable proportions. Though the composition varied in the different commercial formulations, a smooth thin paste was obtained in all cases which could be conveniently introduced by means of simple applicators. The pH of the product was usually

adjusted at about 4.5. The active chemical agent in such cases was almost immediately available for action and was not required to be released and/or dispersed to the same extent as in the case of foam-tablets or pessaries. Chemical contraceptives used in creams and jellies include:—phenylmercuric salts, chloramine T, hexylresorcinol, trioxymethylene formaldehyde, inorganic mercuric salts, organic acids, dioctylsodium sulphosuccinate, alkylphenoxy-polyethoxyethanols^{9,15} and 7-chloro-4-indanol¹⁸. Special mention is made of alkylphenoxy-polyethoxy-ethanol group of compounds, as they are not only powerful spermicides but also surface-active agents ensuring quick and uniform spread at the site of action. Their inclusion in jellies, creams and foam-tablets has helped to simplify the composition of these formulations and as also made them highly potent. The viscosity of jelly and cream preparations was measured by a mobilometer²⁶ test while a spread-test was sometimes used to see actual dispersion of the product in the vagina. The standard preparations were found to maintain their consistency and spermicidal activity for more than a year when stored.

A general distribution of contraceptive preparations based upon the nature of the active ingredient used, is given in the Table I, alongside.

TABLE I
Showing the distribution of chemical contraceptive preparations in relation to the active spermicidal agent contained

S. No.	Spermicide	Number of formulations based on the spermicide		
		Cream and jellies	Foam tablets	Pessaries and others
1	Alkylphenoxy-polyethoxyethanols	4	4	...
2	Phenylmercuric nitrate/acetate	5	6	4
3	Chloramine T	2	10	...
4	Hexylresorcinol	4	...	2
5	Zinc phenolsulphonate	...	2	...
6	Hydroxyquinoline sulphate	...	2	...
7	Dioctyl sodium sulphosuccinate	1	...	1
8	Formaldehyde	2	...	...
9	Boric and lactic acids	2	...	...
10	7-chloro-4-indanol	1	...	...
11	Miscellaneous (sodium chloride, inorganic mercuric salts, dichloro-ylsulphamido-benzoic acid etc.).	2	1	...

Spermicidal activity (vs.) toxicity.—A large number of pure chemical substances and commercial formulations were first studied for their spermicidal properties against the sperms of

guinea pigs^{1, 2, 4, 5, 6, 7} which were readily and easily available for tests and which responded to the chemical agents very much in the same way as human sperms⁴. This technique has been further modified and improved by several workers^{10, 11, 13, 16, 21, 23} in connection with the evaluation of newer spermicides and their formulations. The sperms of other animals may also be employed for this purpose^{17, 24, 25} although the value of human sperms for more critical and thorough evaluation cannot be disputed^{2, 4, 24}. By and large, all these methods are based on observing the death of the sperms at different intervals of time, after mixing an equal volume of the spermicide solution with the semen (diluted or otherwise) containing active mobile spermatazoa, under suitable experimental conditions. The above techniques have proved useful in developing a range of highly efficient spermicidal formulations for general clinical use (See Table 1, p. 415).

Although considerable progress has been made in the methods of formulation of local chemical contraceptives, which are highly spermicidal, their possible toxic and irritative effects on prolonged and regular use on sensitive surfaces, have yet to be adequately assessed^{27, 24, 14, 16, 18}. The proper assessment of this factor should receive as much if not greater attention as the assay of the inherent spermicidal activity of any particular product. In order to study irritation of the mucous membrane, the rabbits eye-test-method developed by Draize *et al*¹² was used previously. It was however, felt that this test was not sufficiently sensitive nor did it correlate well with vaginal irritation.

Recently a more sensitive test: the rabbit vaginal irritation test has been developed by Holzaepfel *et al*¹¹. In this test, the contraceptive preparation is applied to the rabbit's vagina and the vaginal surface examined over a period of time for any irritation or sensitization effects. Using this technique, a therapeutic index (the ratio between the maximum non-irritating concentration and the minimum spermicidal concentration) has been worked out in the case of several alkylphenoxy-polyethoxy-ethanols and other organic compounds¹⁰. This approach has helped in a rational evaluation of the spermicidal activity and also in determining the margin of safety on prolonged routine use. For the clinical evaluation of short-term toxicity, the 24-hour cap-test has been used in India with good results²⁷. Tests for carcinogenicity are also conducted before a product is approved for general use²⁴.

Discussion.—The available information about the spermicidal formulations in use will now be discussed. In the United Kingdom selected products based on phenylmercuric salts, hexyl-resorcinol, chloramine T and alkylphenoxy-polyethoxyethanols have already been approved for general clinical use. In India

however, none of the existing chemical contraceptive preparations have so far been declared completely harmless when used clinically over a long period. Amongst recent spermicidal compounds, alkylphenoxy-polyethoxyethanols have shown a high margin of safety. This was partly due to their low concentration in the formulations (2 to 5%), as otherwise, these compounds would behave like soaps in their action and might cause subjective as well as objective damage¹⁴. Similarly extensive studies on the toxicity of 7-chloro-4-indanol based contraceptive formulations, have revealed their non-irritant nature in the rabbit's vagina and on the human skin¹⁸. It may be interesting to mention that the preparations based on 7-chloro-4-indanol have also been highly trichomonocidal and fungistatic against vaginal infections¹⁸. As phenyl-mercuric salts are very effective in very low concentrations, they have been generally considered safe.

Contraceptives with quinoline, hydroxy-quinoline and hydroquinone bases have been found too toxic for general use. Contraceptive jellies based entirely upon buffered organic acids, though active by virtue of their highly acidic pH, cannot be considered safe^{2, 3, 4, 16}. Besides being toxic, preparations based on trioxymethylene, sodium chloride, formaldehyde, inorganic mercuric salts and cinchona alkaloids have been shown to be less potent than the other preparations discussed above and are therefore, not favoured^{16, 24}.

Conclusion.—A very large number of chemical compounds both organic and inorganic have been found (*loc cit.*) to be spermicides *per se*. But that alone cannot be valid reason to approve of all or any of them for general clinical use. The problems involved are indeed many but the basic requirements of a good safe contraceptive preparation, are:—

(a) It should have a rapid and thorough spermicidal action at minimum concentration of the chemical agent; (b) it must possess a minimum toxicity acute and chronic on prolonged usage; (c) the chemical stability of the spermicidal agents and the physico-chemical stability of the formulation itself, must be adequate; (d) it should not stain tissues and fabrics and must be free from objectionable odour; and (e) the method of application should be clean and simple.

Recent advances in ensuring, a stricter quality control have largely eliminated many chemical spermicides and their formulations which did not come up to the above requirements. At the same time considerable progress has been made in the methods of formulating and packing these products so as to ensure potency, and ease of handling and proper storage. The present-day contraceptive preparations based largely on alkylphenoxy-polyethoxyethanols, phenylmercuric salts, chloramine T,

hexylresorcinol and 7-chloro-4-indanol are some of the efficiently formulated products which satisfy most of the above requirements. Evidently pessaries were the least acceptable now; they are not easy to prepare and do not keep well in the tropics. The choice between foam-tablets and jellies on creams, is influenced largely by personal preference, price, and availability. To be frank, quality-products of all the above types will be equally efficacious and safe when properly used.²⁸ It will be seen from the tabular statement (I) that all these products are equally in demand by the public.

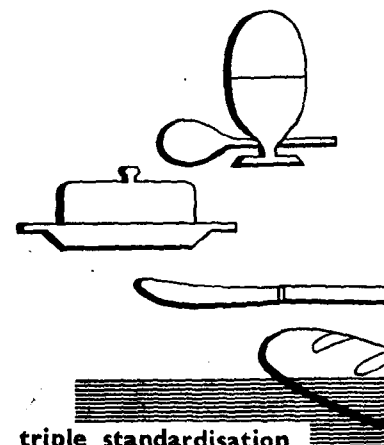
A comparison between the use of chemical contraceptives and other birth-control methods (physiological, mechanical and oral), involves several scientific, economic, social and even personal factors. A pointblank answer is hardly therefore, possible. A large number of highly potent chemical contraceptive preparations are however available on the market which are easy to handle and also afford a satisfactory and fairly safe degree of protection against conception when rightly used.^{24, 29} Further research into the problems of local and chronic toxicity as also of allergic reactions in the case of locally applied chemical contraceptives, is being continued and may lead to the development of still more potent and safer drugs in the years to come.

REFERENCES:

1. Baker, R. B. (1930)—*J. Hyg.*, 30: 323.
2. Baker, J. R. (1931)—*J. Hyg.*, 31: 189 and 309.
3. Baker, J. R. (1932a) *J. Hyg.*, 32: 171.
4. Baker, J. R. (1932b) *J. Hyg.*, 32: 550.
5. Baker, J. R. and Ranson, R. M. (1934)—*J. Hyg.*, 34: 474.
6. Baker, J. R., Ranson, R. M. and Tynen, J. (1937)—*J. Hyg.*, 37: 474.
7. Gross, H. M. and Becker, G. H. (1953)—*J. Amer. Pharm. Assoc.*, (Sci. Ed.), 42: 90.
8. Gayatonde, N. S., and Khorana, K. L. (1948)—*Indian J. Pharm.*, 10: 1.
9. Hunder, G. W., Darner, C. B. and Gilmann, J. S. (1952)—*Ann. New York Acad. Sci.*, 54: 825.
10. Holzaepfel, J. H., Warner, J. S. and Howard, J. A. (1959)—*Jour. Amer. Pharm. Assoc.* (Sci. Ed.), 48: 486.
11. Holzaepfel, J. H., Warner, J. S., Buxton J. A. and Howard, J. A. (1958)—*J. Amer. Pharm. Assoc.*, (Sci. Ed.), 47: 423.
12. Draize, J. H., Woodard, G. and Calvery, H. O. (1944)—*J. Pharm. and Exptl. Therp.*, 82: 377.
13. Dutta, N. K. Chowdhuri, B. N. and Mukherjee, B. (1946)—*Indian J. Med. Res.*, 34: 305.
14. Woodard, G. and Calvery, H. O. (1945)—*Proc. Sci. Section, Toilet Goods Assoc. Inc.*, 3: p. 1-4.
15. Bami, H. L. (1961)—*J. and Proc. Inst. Chem. (India)*, 33: 109.
16. Chowdhuri, B. N. and Bami, H. L. (1961)—*J. Indian Med. Assoc.*, 36: 408.
17. Sharma, V. N. and Saksena, K. P. (1959)—*Indian J. Med. Res.*, 47: 322.
18. Borberian, D. A., Coulston, F. and Slighter, R. G. (1959)—*Toxicol and Appl. Pharmacology*, 1: 366, (Ref. Chem. Abst., 53: 22750).
19. Jackson, H. (1959)—*Pharmacological Reviews*, 2: 135.
20. Pincus, G. (1958)—*Ann. N.Y. Acad. Sci.*, 71: 677.
21. Brown, R. L. and Gamble, C. J. (1940)—*Human Fertility*, 5: 97.
22. Sanyal, S. N. (1952)—*Calcutta Med. Jour.*, 49: 343, 353.
23. Sanyal, S. N. (1956)—*Acta. Endocy. Copenhagen Suppl.*, 28: 72 and 83.
24. Anon (1958)—"Family Planning in India," Central Health Education Bureau, New Delhi, p. 120.
25. Joshi, M. S. and Kamat, J. (1958)—*J. Ind. Med. Assoc.* 31: 246.
26. Shedlovsky (1943)—*Human Fertility*, 8: 97.
27. Israel, S., Peters, H. and Kamat, M. (1954)—*J. Ind. Med. Assoc.*, 29: 360.
28. Israel, S., and Kamat, M. (1959)—*Proc. Sixth Int. Conf. Planned Parenthood*, New Delhi, pp. 264-268, Feb.
29. Gamble, C. J. (1955)—*Proc. 5th Int. Conf. Planned Parenthood*, Tokyo, pp. 145-151.

the **modern** enzyme dragée

Dispeptal*



C. F. Boehringer & Soehne, G.m.b.H., Mannheim.



triple standardisation

triple protection

triple effect

for all digestive disorders

Manufactured by

BOEHRINGER-KNOLL LIMITED

UNITED INDIA BUILDING, P. MEHTA ROAD, BOMBAY 1

Sole Distributors:

RALLIS INDIA LTD., Pharmaceutical Division, Post Box No. 229, Bombay-1

* T. M. Regd.

FURADANTIN

*first in urinary
tract infection
because its
action is specific*

'Furadantin' is effective across a wide antibacterial spectrum, and in many indications

FURADANTIN

Cystitis	<i>Bact. aerogenes</i>
Pyelitis	<i>Corynebacterium sp.</i>
Pyelonephritis	<i>Bact. coli.</i>
Urethritis	<i>Staphylococcus (many strains)</i>
Infection before and after prostatectomy	<i>Pseudomonas</i> <i>Str. faecalis</i>
Infection after passage of instruments	<i>Str. pyogenes</i>

In urinary tract infection, treatment with 'Furadantin' can be initiated without previous bacteriological investigation.

Each 'Furadantin' tablet contains nitrofurantoin
50 mg. available in containers of 25 and 100



Smith Kline & French (India) Ltd.
(Incorporated in England with limited liability)
141 Fort Street, Bombay 1

Distributed by Pharmed Private Limited
Bombay - Calcutta - Delhi - Madras

*Furadantin' is a trade mark Ind. Pat. Nos. 56578/56, 65396/56

FR: PA52 Ind.

SOME ASPECTS OF PAIN RELIEF*

C. P. BAHL, M.B., B.S., D.A.,

Junior Anaesthetist, Irwin Hospital, New Delhi

Introduction.—"Perhaps few persons who are not physicians can realize the influence which long-continued and unendurable pain may have upon the body and mind." Thus wrote Weir Mitchell in 1872. "There is nothing that abateth so much the strength as pain" said Ambroise Pare, the great French Surgeon.

Under normal circumstances pain is a valuable warning of bodily insult and injury. In many chronic conditions, however, it serves no useful purpose whatsoever. In fact, it becomes a great mental and physical tormentor. Such excruciating pain may occur in incurable cancer, and in trigeminal, and post-herpetic neuralgias, and causalgia etc.

According to Leriche, pain produces vasoconstriction which in turn may redouble the pain. Not infrequently pain alone may be responsible for total or partial incapacity, psychical deterioration, drug addiction and even death by suicide. Relief from pain can be afforded to many sufferers by interrupting the appropriate pathway of pain. Intractable pain in most cases can be relieved by specific interruption of the afferent pathway of pain. In chronic prolonged pain the sufferer is likely to develop psychoneurotic fixation or become addicted to narcotics. Both these factors are likely to be responsible for the failure of a technically perfect interruption of pain-pathways. This must stress the importance of early intervention. For the proper selection of the method of pain-relief it is very important to understand the types and pathways of pain.

Types and pathways of pain.—Pain may be superficial (somatic), deep non-visceral, visceral and psychogenic in nature. The pathways of each of these varies and an understanding of this is essential in the choice of the method selected for pain relief in individual cases.

SOMATIC OR SUPERFICIAL PAIN:—The balance of evidence is in favour of the assumption that each of the varieties of cutaneous sensation is mediated by a separate set of nerve fibres. According to the available evidence, pain is conveyed by the fine myelinated and unmyelinated fibres. Observations on the restoration of function by regeneration of the injured peripheral nerves support the belief that specific nerve fibres and endings are responsible for the reception of impulses of specific sensations. For example, Lanier, Carney, and Wilson (1935) by carefully controlled experiments upon nerves in their own arms demonstrated the selective return of specific sensations of touch, pain and temperature independently of each other.

*Specially contributed to the ANTISEPTIC

[419]

It seems certain that at least some of the free nerve endings in the epidermis are pain receptors. In the central part of the cornea, tympanic membrane, dentine and pulp of teeth, such free nerve endings alone are present and pain is the only sensation that can be appreciated. It is not unlikely that pain is also mediated by unmyelinated fibres that give accessory innervation to encapsulated endings which are supplied primarily with myelinated fibres for reception of sensations other than pain. It appears that pain fibres in the skin can be stimulated when stretched. Pain perception in the skin usually results from stimulation of more than one nerve-ending since there is an overlapping mosaic of nerve terminals.

Nerve impulses pass through the peripheral nerve and enter the spinal cord through the posterior nerve roots. The first cell station is situated in the spinal (dorsal root) ganglion, the central branch of which enters the cord through the dorsal root and almost at once terminates in the grey matter of the posterior grey column. The second cell station is situated in the Substantia gelatinosa Rolandii (near the apex of the posterior horn of the grey matter of the spinal cord). From here, the fibres cross over to the opposite side and travel upwards through the lateral spino-thalamic tract to the postero-lateral ventral nucleus of the thalamus. In addition to this long uninterrupted path, there also presumably exists a chain of short neurones with frequent interruptions in the grey matter of the spinal cord, which serves as an accessory path to the same end station.

Fibres from the nerve cells in the postero-lateral ventral nucleus of the thalamus convey thermal and painful impulses to the somæsthetic area of the cerebral cortex in the posterior central gyrus by way of the thalamic radiation and the posterior limb of the internal capsule.

Pain fibres from the head and neck in the occipital region are mediated through the 2nd and 3rd cervical nerves. Fibres from the face and anterior part of the scalp, synapse in the nucleus of the trigeminal nerve. Pain fibres from the rest of the body are mediated through thoracic, lumbar and sacral nerves.

It has been suggested by Gellhorn (1953) that some pain fibres leave the spinothalamic tract before it enters the thalamus, relay in the formatio reticularis and then reach the cortex.

In order to treat superficial pain by nerve blocks it is necessary to determine the root value of the area of skin involved. The cutaneous area which corresponds to a single dorsal root is called the dermatome of that root.

DEEP (NON-VISCERAL) PAIN :—The nervous pathway is the same as that of superficial pain. For some unknown reason, the clinical features are however, different. It is usually of a sharp

character and associated with muscular rigidity. The pain undoubtedly tends to spread over the involved segment and is sometimes less easily located. The area of bone and ligament which corresponds to a single posterior root is called a sclerotome. A fact of great importance is that sclerotome is not directly related to the dermatome over it. Scapula, for example, is supplied by C 4-7 but the skin over it by C 8-T 8.

A distinction between sclerotomes and dermatomes was made by Belam and Dobney (1957) when using nerve blocks for the treatment of acute disc prolapse. They observed that it was very effective in relieving sclerotome pain of ligamentous strain but of little value for the dermatome pain. It must also be stressed that deep pain may also be referred.

VISCERAL PAIN :—This is transmitted through the sympathetic nerves, sympathetic chain and the white rami communicantes to the posterior root ganglia where the cell bodies are located. Within the cord, the fibres conducting visceral pain are scattered more widely. It is for this reason that a more extensive cordotomy is usually required for visceral pain. True pain is caused by distention of the œsophagus and rectum (Hurst, 1911). Any alteration in the muscle tone can cause severe visceral pain. Visceral pain is usually associated with a fall in pulse and blood-pressure, muscular rigidity and hyperæsthesia.

Visceral pain is usually referred in a different part of the body from that in which sensory stimuli arise. Harman (1948) considers that essentially deep pain and visceral pain are similar. According to him, pain from parts of the body that are unperceived and where no sensations can be localized is projected into a part of the body where perception is possible and the sensation of pain is produced by the fixed structures of the cerebral cortex supplied by the same segment. An ingenious test to enable accurate localization has been devised by Becher (1950) by intradermal injection of a mixture of acetylcholine and neostigmine. Further investigation is however, needed before the value of this test can be assessed.

PSYCHOGENIC PAIN :—This may be regarded as a projection of a mental conflict in the somatic sphere. A psychogenic factor may be present in cases of long-standing pain. Fatigue accentuates pain (Lucas, 1949). Many chronic painful affections and acute toothache become worse in the evening. This factor makes the role of adequate rest and the use of hypnotics, important in pain-relief. It is therefore, obvious that relief from pain can be afforded by various methods :—by the application of surface analgesics on the mucous surfaces or abraded skin, by infiltration of local analgesics in the subcutaneous tissues to block the small sensory fibres, by interruption of impulses in the peripheral

nerves or plexuses of nerves, by the injection of local analgesics in the epidural or subarachnoid space, or by operative procedures interrupting the pathway of pain in the cord or brain-stem. Pain-relief can also be secured by drugs acting on the thalamus, or cortex or by operative procedures like lobotomy or leukotomy. Some forms of pain are also greatly relieved by sympathetic block or sympathectomy.

The choice of the individual method will be governed by the type of pain, the needs of the patient and the skill of the physician. The method which gives least after-effects, at the same time affording adequate (relief which may not sometimes be complete) is to be preferred. On occasions it may not be possible to afford complete relief from pain, in view of possible complications from a nerve block.

Relief of pain by surface analgesics.—This method is chiefly used for relief of pain from certain surgical procedures, but deserves at least a limited application in the clinical field as well. Pain from exposed root of carious tooth, a small painful ulcer on the mucous membrane of the mouth or abraded skin, or fissure in ano can be quickly relieved by the application of a piece of gauze or cotton soaked in an aqueous solution of a surface analgesic like lignocaine 1 to 2 per cent, or lignocaine jelly or cream or nupercaine ointment. This may have to be repeated or alternative methods of relief from pain considered in the meantime, if pain persists or is likely to persist. Absorption of the drug from the mucous surface is, however, rapid and large amounts of these drugs should not be applied at a time over a very extensive area.

Relief of pain by infiltration.—This method incorporates the injection of a long-acting local analgesic in *tender spots* in painful myalgias and spasm in fibro-myositis. Infiltration of procaine round the anal canal in cases of fissure-in-ano can be conveniently considered under this heading. I have infiltrated a mixture of lignocaine 2 ml. of 2 per cent solution, hyalase 1000 units, hydrocortisone 25 mg. in 20 ml. of normal saline in the lumbar muscles in cases of lumbago with great relief, which lasts for 6 to 8 weeks and the injection may be repeated.

Intra-articular injections of hydrocortisone have become a popular means of pain relief in rheumatoid and osteoarthritis. Meticulous details of asepsis should not be forgotten in these cases.

Relief of pain by somatic nerve blocks.—It is well known that conduction of impulses in the peripheral nerves can be blocked by infiltration with local analgesic drugs. One interesting feature noted is that relief from pain lasts for a much longer period than the duration of the effect of the local analgesic.

Dogliotti (1953) has suggested that repeated injections of local analgesic drugs are followed by long-lasting relief probably by selective destruction of pain fibres. Even with a single injection, the pain-relief is much longer than the duration of effect of the local analgesic.

Long-lasting effects may be produced by the injection of absolute alcohol in the somatic nerves. Maher has popularized phenol injections in the spinal cord for relief of chronic pain. Elocaine has been given up now following reports of toxic neuritis and transverse myelitis after even small doses (Clarke *et al.*, 1955).

Post-herpetic neuralgia may be relieved for a much longer period than would be expected after a paravertebral block with a local analgesic. Local analgesics injected into the painful muscles or so called fibrositis also relieve pain due in part by permitting physiotherapy.

In my opinion, simple nerve blocks with local analgesics should be used with advantage more often. Repetition of the injection may, however, be necessary and is worthwhile, if some relief occurs after the first injection. The interval between injections may be a week in the initial stages and later on a fortnight or longer. Repeated injections are also of considerable value if the pain is severe enough to call for some treatment but does not warrant any drastic nerve section or a block with alcohol.

Belam and Dobney (1957) give an account of an injection clinic. They emphasize the importance of an exact neurological diagnosis of pain and of distinguishing between dermatomes and sclerotomes. Bahl (1961) has reported on a study of 100 cases where diagnostic and therapeutic nerve-blocks were done. He emphasizes the importance of a preliminary examination before undertaking a block when cases are referred for injection. He stresses the significance of the injection of *small* amounts of a local analgesic drug before absolute alcohol is injected. This small amount of local analgesic must approximate in volume to the small amount of absolute alcohol to be injected. When pain relief by a local analgesic is apparent, injection with absolute alcohol may be proceeded with.

It must be remembered that alcohol injection is a relatively drastic procedure, since alcohol causes necrosis of the nerve and part of the surrounding tissues. Sloughing of the overlying skin may occur if the superficial nerves are injected. Failure to place alcohol in the right place will lead to incomplete nerve-block and even aggravate the pain by the irritation set up in the surrounding tissues.

Blocks of the supraorbital, supratrochlear, infratrochlear, lingual, mandibular, maxillary, intercostal and digital nerves

and the trigeminal ganglion or its divisions may be performed for pain in the distribution of the affected nerves. Technical details are beyond the scope of this paper. Blocks of spinal nerves can also be undertaken in the caudal and lumbar epidural space. Galley (1952) has injected with success proctocaine in the caudal space in cases of intractable pain of cancer.

Subarachnoid block.—Intrathecal injection with a local analgesic cannot be repeated as it may give rise to temporary and permanent neurological sequelæ. Similarly intrathecal alcohol injection should not be taken lightly because of the damage it *can* do to the spinal cord. For these reasons it is undertaken only in severe and intractable pain in cases of inoperable cancer, where other methods of pain-relief are considered inadequate or more risky and dangerous.

Although sciatica and arthritis have been treated by this method, nowadays it is reserved for incurable malignant disease especially in the pelvis which involves the sacral roots. Pain from the involvement of the lumbosacral plexus is also amenable to intrathecal alcohol. Injection of intrathecal alcohol must be done by a person specially skilled in this technique. Alcohol behaves as a hypobaric solution and by suitable posture, a selected segment of the cord can be attacked. Relief from pain may be delayed for 5 to 10 days. Greenhill (1947) reported relief in 60 of his 100 patients. The length of time of pain relief is variable. After a successful injection, relief is afforded for at least 6 weeks, but usually longer and may be even for 6 months or more.

Maher (1955 and 1957) used 5 per cent phenol in glycerine intrathecally. Stronger solutions cause cutaneous analgesia or motor paralysis while weaker solutions have only a transient effect. This solution is hyperbaric. Maher adds small amounts of silver nitrate, if this solution alone fails to give relief.

Bates and Judovich (1942) described the intrathecal use of ammonium sulphate solution. As an alternative to injection of the autonomic nerves or ganglia and intrathecal block for relief of pain, epidural blocks have also been used.

Injection of the autonomic nerves and ganglia.—Types of pain amenable to such treatment are those due to vasospasm caused by trauma or vascular disease. Diseases, like embolism, thrombo-phlebitis, Raynaud's disease, dissecting aneurysm and some vascular disorders of unknown ætiology cause pain by vasospasm which is relieved by appropriate sympathetic block. Stellate block is useful for the upper extremities and lumbar sympathetic chain for the lower limbs.

Causalgia, a distressing condition of unknown ætiology, is very satisfactorily relieved in some cases by sympathetic block. It is stressed that the sympathetic block may be repeated twice

a week at first, and later on at fortnightly intervals. Relief may be apparent after 4 to 5 such blocks have been performed.

Surgical procedures in pain relief.—Surgical section of the affected nerve (rhizotomy) or sympathectomy may also be undertaken for the relief of pain. Section of the lateral spinothalamic tract for the relief of intractable pain is now a recognized surgical procedure. When the section is made on one side only, there is analgesia of the opposite side of the body up to the caudal level of the first segment below the lesion. This analgesia involves the skin, muscles, fasciæ, tendons and bones but *not* the viscera. For visceral pain, bilateral section is required.

Bilateral lobotomy or leukotomy designed to disconnect part of the frontal cortex from thalamic nuclei have been used for the relief of intractable pain. The pain may not be abolished by such an operation but the patient no longer seems concerned about it.

Analgesic drugs including adjuvants.—The accurate assessment of the relative efficiencies of analgesic drugs is a difficult problem. Asher (1948) compared the analgesic effects of Saridon, Tab. Codeine Co. and blank tablets. It is well known that placebos are very often followed by relief or decrease of pain. Newer analgesic drugs are being constantly introduced with claims of superiority over well-established analgesics. The claims have often not however, been substantiated later on. It must be appreciated that all individuals do not react to every drug in the same way and the temperament of the patient may decide the response to the drug. In worried and excited individuals a combination of analgesics, sedatives or tranquillizers may achieve the best results. In patients with chronic pain, the question of addiction must also be considered. Levorphan tartrate and methadone hydrochloride (physeptone) cause little dulling of consciousness and are valuable in ambulant patients. Aubry (1951) has described the advantages of oxycodone pectinate (dihydro-hydroxycodone combined with pectin macromolecule). Dihydrocodeine bitartrate (Davine) has been reported by Gravenstein and his coworkers (1956) to be a very promising analgesic. There is no doubt that the use of morphine and pethidine is essential in very severe pain especially when sedation is necessary; these drugs should neither be unreasonably denied to patients nor misused. Aspirin is still a valuable drug in the pain of rheumatoid disease and common headache. Recently the combination of pethidine and levallorphan or morphine-levallorphan has been made available. It has been observed that analgesia is unimpaired while respiratory depression is minimal. This combination would appear to have a promising future.

Neostigmine has been shown to potentiate the effect of morphine. Slaughter and his associates (1940) observed that the use

of 0.5 mg. of neostigmine enabled relief of pain to be produced by half the usual doses of morphine. Pyridostigmine was used by Oehlandt (1955) to potentiate the effect of levorphan. Schwab and Chapman (1947) observed that pyridostigmine reduces the alimentary side-effects from potent analgesics and in addition to lengthening the period of analgesia, adds to the comfort of the patient. Chlorpromazine has been shown to potentiate analgesia of the analgesic drugs (Dundee, 1957 *a* and *b*). The side-effects resulting from the use of neostigmine and chlorpromazine do not justify their routine use. Irgapyrine and butazolidine are very useful pain-relieving agents in rheumatoid disease.

Discussion.—The numerous methods available for the treatment of chronic pain would warrant an assay of the individual disadvantages and relative inadequacies in certain circumstances. Nerve-blocks are very valuable methods of pain-relief. The scope of this therapy is tremendous but the individual injection techniques call for special skill, dexterity, precision, enthusiasm and above all the necessary clinical knowledge and judgement.

Surgical section of nerve or nerves (rhizotomy), section of pain-fibres in the spinal cord (cordotomy) or division of white matter below the prefrontal cortex of brain (leukotomy) may be occasionally indicated.

Analgesic drugs must neither be misused nor withheld too long. The judicious use of combinations of analgesics, ataraxic drugs and nerve-blocks—single or repeated—may lead to a surprisingly high incidence of pain-relief. Individual variations in the selection of methods or modifications in the techniques will be necessary in individual cases. It must be realized that the aim of treatment is not only to relieve pain but also to make the patient more contented.

Summary.—The physiology of the perception and the pathways of various types of pain are discussed. Various methods used in the relief of pain are presented and discussed. It is suggested that nerve-blocks be used more often either alone or in combination with adjuvants in intractable pain.

Acknowledgement.—My thanks are due to Dr. P. Diesh, Additional Medical Superintendent, Irwin Hospital, New Delhi for permission to publish the paper.

REFERENCES:

1. Asher, R. (1948)—*Lancet*, 2: 771.
2. Aubry, P., Claude, F., Lebel, M., Leblanc, M., Truchaud, M. (1951)—*Anæsth. et. Analg.*, 8: 663.
3. Bahl, C. P. (1961)—*J. Indian M. A.*, 36: 46.
4. Bates, W. and Judovich, S. (1942)—*Anæsthesiology*, 3: 664.
5. Becher, H. (1950)—*Neue Med. Welt.*, 1: 1343.
6. Belam, O. H. and Dobney, G. H. (1957)—*Anæsthesia*, 12: 343.
7. Clarke, E., Morrisson, R. and Roberts, H. (1955)—*Lancet*, 1: 896.
8. Dogliotti, A. M. and Ciocatto, E. (1953)—Presented at the Annual Meeting of the Amer. Soc. of Anæsthesiologists in Seattle, Washington, Oct. 7th.
9. Dundee, J. W. (1957a)—*Brit. J. Anæsth.*, 29: 28.

REFERENCES:—(Contd.)

10. Dundee, J. W. (1957b)—*Anæsthesia*, 12: 330.
11. Galley, A. H. (1952)—*Proc. Roy. Soc. Med.*, 45: 34.
12. Gellhorn, E. (1953)—*Physiological Foundations of Neurology and Psychiatry*, Minneapolis, Univ. Minnesota Press.
13. Gravenstein, J. S., Smith, G. M., Sphire, R. D., Isaacs, J. P. and Beecher, H. K. (1956)—*New Engl. J. Med.*, 254: 877.
14. Greenhill, J. P. (1947)—*Brit. Med. J.*, 2: 859.
15. Harman, J. B. (1948)—*Brit. Med. J.*, 1: 188.
16. Hurst, A. F. (1911)—*Sensibility of Alimentary Canal* (Goulstonian Lect).
17. Lanier, L. H., Carney, H. M. and Wilson, W. D. (1935)—*Archives. Neurol. and Psychiat.*, 34: 1-60.
18. Mahor, R. M. (1955)—*Lancet*, 1: 18.
19. Maher, R. M. (1957)—*Lancet*, 1: 16.
20. Oehlandt, G. (1955)—*Med. Klin.*, 50: 2202.
21. Schwab, R. S., and Chapman, W. P. (1947)—*Med. Clin. N. Amer.*, 31: 1238.
22. Slaughter, D., Parsons, J. C. and Munal, H. D. (1940)—*J. Amer. Med. Ass.*, 115: 2058.
23. Ranson, S. W. and Clarke, S. L. (1960)—*The Anatomy of the Nervous System. Its development and Function*, 10th edit. Philadelphia. W. B. Saunders Company.
24. White, J. C. and Sweet, W. H. (1955)—*Pain its Mechanisms and Neuro-surgical control*. Charles C Thomas.
25. Wylie, W. D. and Churchill-Davidson, H. C. (1960)—*A Practice of Anæsthesia*, London. Lloyd-Luke (Medical Books) Ltd.

STUDY OF BROMINDIONE, A NEW ANTICOAGULANT

Seventy-five patients requiring anticoagulant treatment were randomly selected for study. The majority of the patients had sustained acute myocardial infarctions. Heparin provided rapid protection pending induction of adequate hypoprothrombinæmia with bromindione. The latter was administered orally in a large initial dose and was withheld on the second day of treatment. It should be emphasized that the second administration of the drug (third day of treatment) was given 48 hours after the initial dose and was based on the degree of prothrombopænia noted approximately 37 hours after the beginning of therapy. Furthermore, the daily tests were performed on blood collected at 8 a.m. and each dose was given that same day at 7 p.m. Commencing with the third day, doses were given daily for varying periods of observation. Some patients were treated with the drug for more than 9 months.

In patients in whom the rapidity of action was studied, 12-18 mg. of the drug manufactured by Messrs. U. S. Vitamin and Pharmaceutical Corporation, New York City, induced therapeutic hypoprothrombinæmia within 28-34 hours. The drug was not administered on the second day; treatment was resumed on the third day. In most patients, maintenance could be continued satisfactorily with doses in the range of 2-5 mg. daily. The action of the drug persisted for 3-10 days after discontinuation of treatment. Vitamin K was an effective antidote. On a weight basis, bromindione was approximately 30 times more potent than bishydroxycoumarin and 3 times more potent than warfarin.

As with other prothrombopænic agents, usual precautions and laboratory control must be observed. This agent is a useful and very potent oral anticoagulant with minimal side effects.—(*J.A.M.A.*, 13-1-1962).

TREATMENT OF ACUTE GONORRHOEAL URETHRITIS IN THE MALE WITH A SINGLE INJECTION OF OXYTETRACYCLINE

An antibiotic used in a venereal disease clinic in the routine treatment of acute gonorrhœa must be therapeutically effective, injectable, and relatively non-allergenic. It is best if given in one clinic visit, and it should be neither excessively painful nor prohibitively expensive. Except for allergenic properties, penicillin is such an antibiotic, and is, therefore, at

the present time the foundation of the treatment programme for gonorrhoea. Unfortunately, the increasing incidence of penicillin sensitivity and the increasing number of penicillin-resistant gonococci have challenged the usefulness of penicillin in gonorrhoea treatment.

The present study reports three dosage schedules of a newly available preparation of oxytetracycline, in an aqueous propylene glycol base with 2% lidocaine, supplied by Pfizer Laboratories, as Terramycin intramuscular, added.

Of 997 patients included in the present study, 365 received 250 mg. intramuscular oxytetracycline; 197 received 500 mg. intramuscular oxytetracycline; 91 received 250 mg. intramuscular oxytetracycline and an additional 250 mg. after 48 hrs; and 344 received 1,200,000 units PAM.

500 mg. intramuscular oxytetracycline appears to be as satisfactory as 1,200,000 units PAM for the treatment of acute gonorrhoea in the male, but 250 mg. proved to be unsatisfactory.

250 mg. intramuscular oxytetracycline followed by an additional 250 mg. after 48 hrs. does not appear to be as satisfactory as the single dose of 500 mg.—(*Br. J. Vener. Dis.*, 37: 216, 1961).

PROGESTERONE REQUIREMENTS IN PREGNANCY

Dignam and Henley of the Department of Obstetrics and Gynaecology in the University of California say:—It has been known for a number of years that progesterone is necessary for the maintenance of a pregnancy. Although the corpus luteum does not appear to be essential for the maintenance of gestation after the second month it is likely that it secretes hormones throughout the normal pregnancy. The most commonly employed index of progesterone activity has been the urinary level of pregnanediol. A large number of determinations obtained during normal pregnancy show a gradual increase in urinary pregnanediol from a few milligrams per 24 hours to 80 to 100 mg. per 24 hours at the end of pregnancy.

Patients with normal pregnancies were selected and asked to come to the clinic in the fasting state. Morning specimens of 50 ml. of blood were collected and heparinized. These were analysed according to a modification of the method of Oertel, Weiss and Eik-Nes.

The results obtained showed that the level of blood progesterone varied from .03 to .48 mcg./ml. of plasma. The great majority of the specimens yielded from .05 to .15 mcg./ml. of plasma, and there does not seem to be any tendency for the level to rise or fall as pregnancy progresses.

If one accepts the concept that the urinary pregnanediol found in pregnant women is formed progesterone, then any explanation offered must account for the steady increase in amounts of pregnanediol excreted as the pregnancy progresses while the blood-levels of progesterone do not increase.—(*West. J. Surg. Obst. and Gynae.*, September-October, 1961).

IMMEDIATE AND PROLONGED THERAPEUTIC EFFECTS OF CORTICOTROPIN AND ADRENAL STEROIDS IN ULCERATIVE COLITIS

Corticotropin and adrenal steroids were used as an adjunctive to medical treatment of ulcerative colitis in 340 patients who were followed for 1 to 10 years. An immediate beneficial effect was seen in 90%, and sustained beneficial effect in 73%. A favourable course persisted after withdrawal in 57%. Only 54% noted side-effects other than Cushingoid appearance, including infections, emotional disturbances, electrolyte-imbalance, hypertension, diabetes, and osteoporosis. Although large doses do not alter the progressive course in some patients, medical treatment including steroids decreases the need for surgery and reduces the mortality from disease and surgery.—(*Gastroenterology*, 42: 113, Feb. 1962 via J.A.M.A.).

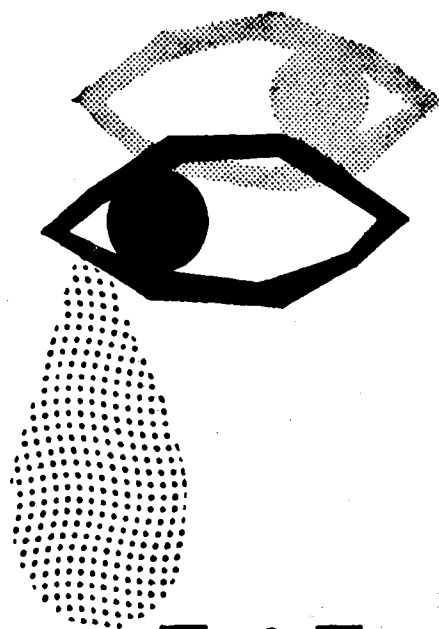
FOR INSTANT ENERGY...



Fortified d-Glucose Powder



CORN PRODUCTS CO. (INDIA) PRIVATE LTD.



Introducing

For prompt,
prolonged relief of
allergic symptoms

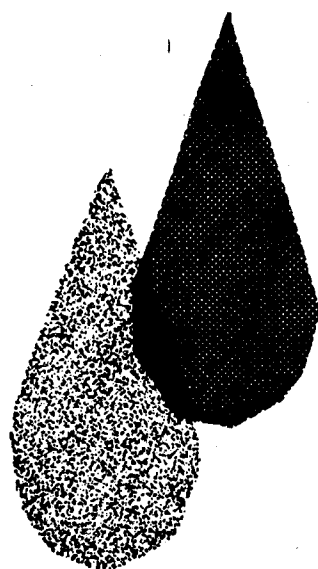
For pruritus



dilosyn

TRADE MARK

METHDILAZINE HYDROCHLORIDE



'Dilosyn' is a new antihistaminic with exceptional anti-pruritic action. It has been clinically proved in a wide range of pruritic and allergic conditions. 'Dilosyn' has an inherently sustained action, rapid absorption and rapid relief, and inhibits capillary permeability and oedema.

Dosage

ADULTS

Two teaspoonsful (8 mg.) twice daily.

CHILDREN

One teaspoonful (4 mg.) twice daily. For some patients it may be necessary to adjust the dosage to meet individual requirements.

Packings

Syrup, 4 mg. per teaspoonful, 120 ml. bottles.



BRITISH DRUG HOUSES (INDIA) PRIVATE LTD.

P.O. Box 1941, Bombay-1. Branches: Calcutta - Delhi - Madras

INCIDENCE OF ASCARIA LUMBRICOIDES IN DABHOI*

B. T. TRIVEDI, M.B., B.S. (Bom.),

Medical Officer, I/c., Referral Hospital, Dabhoi, Dist. Baroda

WE come across numerous cases of Ascariasis (due to the common roundworm in outdoor patients of the Referral Hospital, Dabhoi.

Aetiology and life cycle.—This roundworm is generally 6 to 16 inches long with tapering pointed ends and pearly white appearance. It is a common parasite of the small intestine and produces reflex nervous disturbances especially in children. It lies free in the lumen without being attached to the wall. The ova are passed in the stools and develop into embryos in moist soil. The capacity of the worm's uterus has been estimated at about 27000000 eggs and the average daily output of each female worm at 200000. Developing eggs present in uncooked vegetables, when ingested hatch into larvæ, in the intestine. The larvæ then have an extra-intestinal migration by penetrating the wall of intestine, then carried to the right side of the heart through the blood stream to the lungs, trachea and down to the œsophagus into the intestine where they develop into the adult worms. This takes about 10 days.

Clinical features with the other systemic manifestations.—Children are affected more than adults. The patient usually comes with pain in the abdomen and a history of passing roundworms in the stools or by the mouth. There might be frequency of stools or constipation. Systemic manifestations are very common in ascariæ.

(1) Diarrhœa is very common, the history is that the patient passes roundworms in the stools and hence the frequency of stools is also increased. At times there may be constipation. Vomiting may also be present and at times the vomitus would contain roundworms also.

(2) *Picture of acute abdomen*:—These worms at times block the lumen of the intestine and cause acute obstruction. In difficult cases, this obstruction is not easily relieved and surgical interference may become necessary.

(3) *Allergic manifestation*:—Urticaria is a common skin symptom with ascariæ, and disappears only when all the worms have been expelled.

Eosinophilia is another common manifestation. The differential W.B.C. count shows an increase in the eosinophils. The lungs also become eosinophilic clinical; features will then supervene.

*Specially contributed to the ANTISEPTIC.

Asthma is common in ascariasis. All these allergic manifestations are due to the toxins liberated from the body of the worms.

(4) In children, these worms usually cause convulsions, at times with high fever.

DIAGNOSIS:—Diagnosis is made by the history given by the patient, which is very important. In cases where history of passing these worms in stools is not available and other manifestations are present stool examination should be done which will reveal ova in the stool. The stool examination if negative in the first instance should be repeated.

TREATMENT:—Santonin is the drug of choice for treating the poor patient. To an adult it is given in the following formula:—

R Santonin	.. gr. ii
Calomel	... gr. ii
Sodi Bicarb	... gr. v

Ft. Pulv ono.

To be taken at bed-time followed by mist. alba next morning.

Most of the worms will be expelled. This treatment may be repeated after about a week till the stools become ova-free. As Santonin is toxic to the liver, it should be given with great care. Somewhat the patient should be given plenty of glucose if giddiness or headache appear. In one of my cases, jaundice appeared on the third day of administration of Santonin. Since then, I have reduced dose of Santonin, with good results.

Recently, Piperzine adipate and citrate have been very commonly used in the treatment. Piperzine citrate under various trade names is being used *e.g.*, Elixir Antepar, Entacyl, Helmacid. To an adult it is given in a single dose, one ounce at a stretch. It may be repeated after 10 days till the stools become ova-free. Some people have been given 3 i 3 times a day for a week or so instead of giving one ounce at a time.

Case reports.—(1) A child, aged 3 years, was brought to me for acute pain in the abdomen, vomiting and distention of abdomen with a history of passing roundworms. The child was rickety for which he was being treated. The child was also getting Elixir Antepar for Ascariasis. He was very much restless and the condition was getting worse, when the distention increased the worms could not be expelled. The child was given a glycerine enema with no result. He was then given soap-water enema with turpentine and glycerine, but to no avail. Calcium pentothemate 1 cc. six hourly was also given. But no faeces or flatus was passed. The lump of roundworms could be felt in the abdomen. Turpentine stupes and orally carminatives were given. A tablet of Carbindon strong was then given. The discomfort was increasing. Surgical interference was then

thought of. But the child's parents objected and we had to continue with enemas and stupes. The condition of the child was fast deteriorating. But in the evening, a wave of peristalsis appeared and the child suddenly passed a voluminous stool containing about thirty roundworms. The frequency of stools continued and the child passed about 160 worms in 2 days, mostly in the stools and some also by mouth. Then the child was quite all-right.

(2) A child, aged 4 years, was brought to me for fullness of face and œdema all over the body. He passed scanty urine which showed albumin all a year's duration. Subacute nephritis was diagnosed. Here also a history of passing roundworms was elicited. The child was given Elixir Antepar with other treatment for subacute nephritis with good improvement.

(3) A woman, aged about 35, was brought for breathlessness and cough with frothy expectoration. She had no fever. Her lungs were full of rhonchi. Her differential W.B.C. count showed an Eosinophilia of 40%. She was then given Umicarbazan about 5 ampoules at intervals with decrease in the eosinophil count but little or no relief as regards the dyspnoea. Her stool showed plenty of roundworm ova. She was then treated with Antepar. All the respiratory symptoms disappeared.

(4) A man, aged 45, was brought with fever, cough and expectoration, breathlessness etc. he was diagnosed to be a case of bronchitis for which Antibiotics were given to no avail. His stools showed plenty of roundworms ova. Antepar relieved his symptomatology.

(5) A child, aged 2, was brought with convulsions but no fever. He was given sedatives with relief. The child again got convulsions and the stools contained numerous roundworm ova. Specific treatment was given and the child was cured.

Discussion.—Roundworms are very common in the people of this town. The infection is usually carried through polluted water and uncooked vegetables. Absence of latrines, improper sanitation and want of protected water supply are also responsible for its spread. It has therefore become a public health problem for which adequate measures require to be taken.

Acknowledgement.—I am very much thankful to Dr. S. D. Varma, the District Medical Officer of Health, Baroda for his kind permission to publish this note. I am also thankful to Shri L. J. Patel and H. C. Joshi for their help in collecting data for the case reports from the Hospital records.

OSTEITIS PUBIS

This is seen commonly after operations in the perineum and lower abdomen; it is usually if not always, accompanied by urinary tract infection. It results not from an infection of the symphysis pubis, but an infection nearby causing venous congestion and a reflex sympathetic dystrophy.—(*J.A.M.A.*, 24-2-1962).

IMMUNIZATION OF PRESCHOOL CHILDREN WITH ORAL POLIOVIRUS VACCINE (SABIN)

Oral poliovirus vaccines have now been widely tested in various parts of the world including the United States, and their efficacy has been well documented. Nevertheless, certain problems concerning their use remain, including the question as to the most effective and convenient dosage schedule.

The effectiveness of an oral poliovirus vaccine using Sabin strains was studied by the authors among some 350 pre-school children of New Haven City beginning in January, 1960. Although 79% of the children had previously received 3 or more doses of killed virus vaccine, a relatively high per cent lacked antibody to one or more types, and 22% of 348 children were triple negatives. The oral vaccine was given according to 3 different dosage schedules: each type singly; Type 1 followed by Types 2 and 3 together; and trivalent vaccine twice, 6 weeks apart. The infection and antibody conversion rates were similarly high for all 3 schedules, the overall conversion rates being 95% for Type 1, 98% for Type 2, and 86% for Type 3. The results emphasize the desirability of oral vaccine for young preschool children regardless of previous administration of multiple doses of killed Salk-type vaccine.

The present study demonstrates that in more than 95% of preschool children a single exposure to each poliovirus type produces a prompt infection and a brisk antibody response which persists with little decline for at least one year. Oral vaccine would seem therefore, to offer the simplest and most effective means of producing immunity in this young age-group. At the present time, 0- to 5 year-olds are of particular concern, for paralytic poliomyelitis in the U.S. is again most common among them, and as shown by prevaccinal antibody determinations, their response to Salk-type vaccine is frequently *inadequate*.

Conclusions could not be drawn as to which of the 3 vaccine administration schedules used is to be preferred generally, or specifically in this young age group and type of population studied. All 3 schedules gave equally satisfactory results. However, the 10 times larger dose of trivalent vaccine, given twice, had no apparent advantage over the smaller doses used in the other 3 schedules. Therefore, the administration of the 3 types separately, or Type 1 followed by Type 2 and 3 together would seem to be preferable. The latter method has an advantage for community-wide administration since it necessitates only 2 doses of vaccine rather than 3: a great saving in terms of cost and administrative effort,—(Horstmann *et al.* in *J.A.M.A.*, pp. 693-701, 18-11-1961).

VASCULAR HEADACHE

A variety of untoward factors may result in migraine attack—personality problems, altered vasomotor tone, and the local producing of a noxious agent(s) capable of increasing capillary permeability and lowering pain threshold. The therapy that is most often neglected is the conscientious elicitation of history and the performance of a thorough-going physical examination, followed by an explanation to the patient in nonmedical terms. Perhaps re-education is the most useful factor in symptom-relief. Ergotamine tartrate (by mouth, sublingually, by inhalation, or by rectum) is a helpful adjunct; sedative and "tranquillizing" drugs have limited usefulness. UML-491 (1-methyl-D-lyseric acid butanolamide bimalate) may be of prophylactic use; rarely it has been associated with the production of occlusive vascular disorder.—(C. D. Aring, *Arch. Inter. Med.*, 109: 18, Jan. 1962, via *J.A.M.A.*, 20-1-1962),

ROLE OF ANTI-INFLAMMATORY AGENTS* (IRGAPYRIN) AS AN AID TO POST-OPERATIVE RECOVERY

RATUBHAI R. PATEL, M.B., B.S. (Bom.), D.L.O. (Lond.),

Consulting E.N.T. Surgeon, Ear, Nose & Throat Hospital, Baroda

It is essential for a person who has undergone surgery that he should have a very peaceful post-operative phase because this not only has an important psychological bearing but also leads to prompt recovery. During the operative phase, due to manipulation and otherwise, damage is often done to the surrounding normal tissues. Having overcome the effect of the anaesthetic, the person often feels that he might have been better off if he had not undergone the surgery, because the pain and inflammation consequent on the operation can be so severe as to make the recovery a very uncomfortable process.

For a long time now, clinicians have been employing certain physical measures and in addition taking the help of certain chemical agents to relieve the post-operative pain and inflammation at the site of the operation. This problem of post-operative oedema and exudation can be of major significance in those areas of the body which have an excess of submucous and subcutaneous areolar tissue. A notable example of this is the operations on the oropharynx, e.g., the removal of tonsils and adenoids. Invariably, the oedema and exudation following tonsillectomy is so severe as to interfere with the process of deglutition as well as of respiration. It is essential that these patients are helped not only with physical measures but also with drugs to reduce the exudation and oedema. Prophylactic measures would also help in this direction. To this end, Irgapyrin was tried as a prophylactic against post-operative complications.

Irgapyrin contains Amidopyrine and Butazolidin in equal parts and each tablet contains 125 mg. of each ingredient. Amidopyrine and Phenylbutazone possess important anti-inflammatory, antipyretic and analgesic properties. Moreover, the two components have a mutually additive and synergistic effect. As regards its anti-inflammatory properties, Prof. Domenjoz and Dr. G. Wilhelmi have shown that the prior administration of Butazolidin delays or inhibits the development of erythema produced by exposure to ultra-violet light. Irgapyrin not only relieves the pain by virtue of its potent analgesic action but its anti-inflammatory action acts as a causal agent towards therapy. In conditions accompanied by exudation and oedema, Irgapyrin reduces inflammation and inhibits the erythema; the cellular reaction and the reduction of exudation produced by it are unique. Clinically, these effects are expressed by the disappearance of swelling, redness and the associated pain.

*Specially contributed to the ANTISEPTIC.

Analgesia and antipyresis are also due to the control effect of the drug on the centres regulating these phenomena.

The drug was administered to 12 patients, 3 in the 1 to 10 age group; 7 in the 11 to 20 and 2 in persons over 20 years. Nine were males and 3 females.

Nature of operation:—Only 5 of these patients had their tonsils removed and the rest had both tonsils and adenoids removed under general anaesthesia in both cases.

Dosage:—The dose employed was slightly less than that recommended; 5 patients received 3 tablets per day, while the other 3 received 2 tablets per day. Children were given proportionately smaller doses. The treatment lasted for 3 days starting from the second day of the operation.

Good to very good and moderate results were obtained in 7 or 58.3 % of the patients. Only two of them did not show proper response. The drug was found to be tolerated very well by all and none had any major side-effects. Of course, important contra-indications were excluded before the drug was given. The urine showed no abnormality in any of the cases. In most patients the response was manifest in a few hours and recovery was made smoother and prompter thereby. *Subjectively*, the patients felt relieved of the pain and irritation in their oropharynx and *objectively*, there was a decrease in the 'local reactions' usually seen after tonsillectomies. Better results might perhaps have been obtained if the recommended dosage had been given and if the treatment had been started before the operation, instead of after it *i.e.*, if the medication had been used as a prophylactic as well.

Summary.—Irgapyrin (Amidopyrine + Butazolidin) was administered to 12 patients for its potent anti-inflammatory, analgesic and antipyretic action. The results obtained were encouraging as the patients were free from pain and other objective post-operative complications.

Acknowledgment.—Our thanks are due to M/s. Suhrid Geigy Trading Limited, for their generous supply of the drug for this clinical trial.

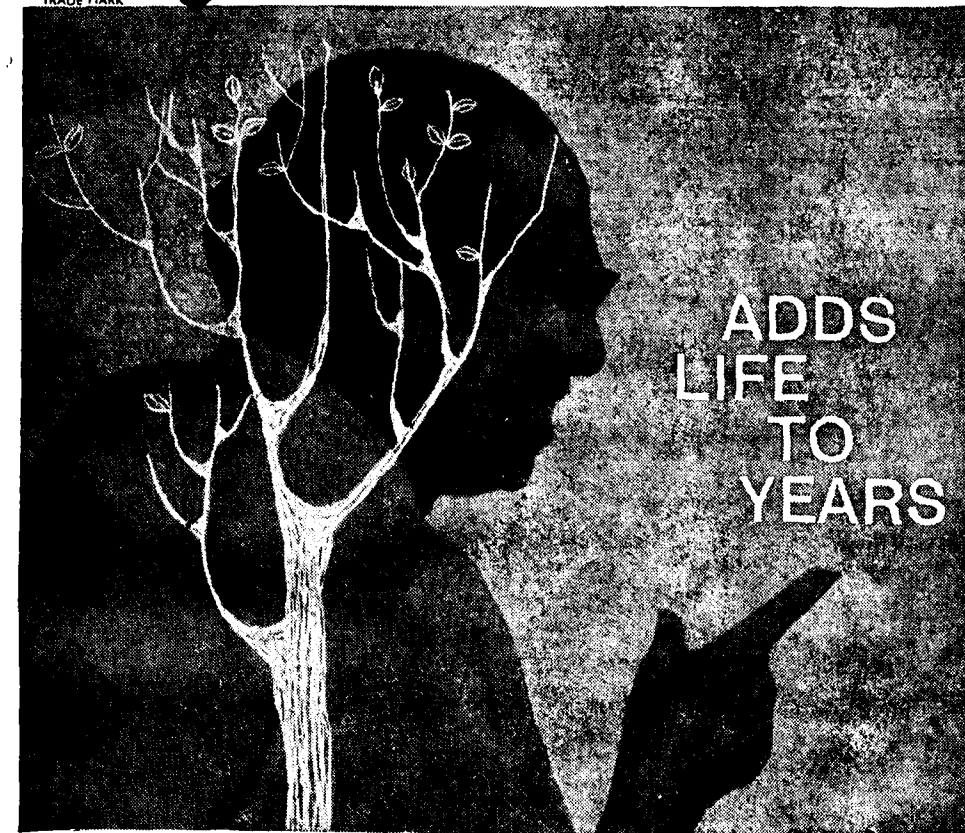
REFERENCES:

1. Hofig, H. W. (1957)—*Deutsches Med. J.*, 8: 81-86.
2. Kempf, H.J. (1953)—*Irgapyrin in Otorhinolaryngology*, H.N.O. (Berl). 4: 79-83.
3. Dr. Clemens Nartschik, (1952)—*Zentral Blatt für Chirurgie*, 77: p. 34. Jan.

PARENTERAL IRON THERAPY

Parenteral iron treatment has been of great value and has removed many patients from the group of refractory anæmias due to iron deficiency. The saccharated iron solution used for *i.v.* administration is strongly alkaline; hence great care is required to ensure that no solution escapes into the tissues.—(*Lancet*, 10-3-1962).

'Rovigon' Roche Vitamins A + E



'Rovigon' Roche is an excellent tonic for middle-aged and elderly people. It rejuvenates failing functions and combats degenerative changes. It may also be used in cases of male infertility and menopausal disorders.

Results show that "we must regard a high dosage of Vitamin A + E therapy as the most effective treatment for arteriosclerosis today".*

Vitamin A used in this product is manufactured by ROCHE in India.

Packings: Chewing tablets: bottles of 20 and 100



ROCHE PRODUCTS LIMITED

Medical Service Department, P.O. Box 4126, Bombay 7

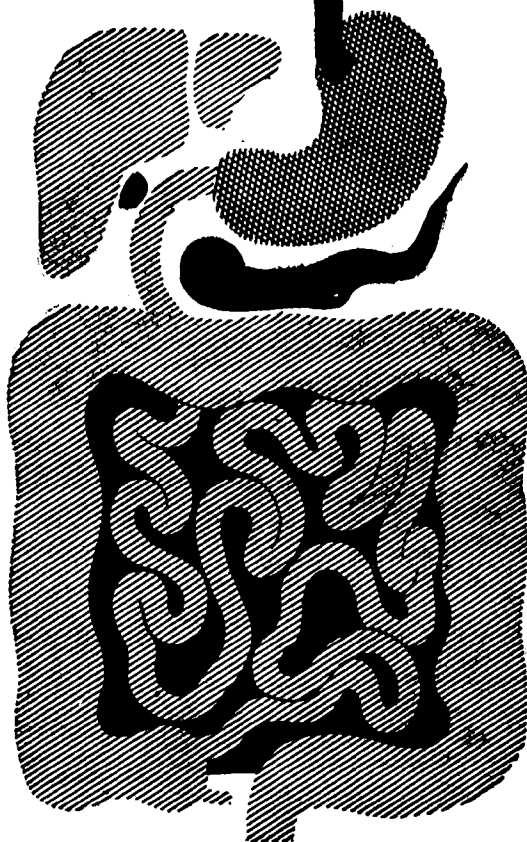
Sole Distributors: VOLTAS LIMITED

* *Dtsch. med. Wschr.* 83, No. 35, p. 1514 (1958)

JWT-VT 1608 (R)

"Wind", "distension", "feeling of fullness", "flatulence", are complaints often heard from patients, and are usually the result of improper digestion of food or avitaminosis B. T.C.F. DIGEPLEX promptly relieves these symptoms when occurring during or within 1 to 2 hours after meals. T.C.F. RALCRIZYME is more effective in complaints appearing in between meals.

DIGEPLEX & RALCRIZYME



Products of:
TEDDINGTON CHEMICAL FACTORY LTD.
Suren Road, Andheri, Bombay
Sole Distributors:
RALLIS INDIA LTD.
Pharmaceutical Division, Post Box 229, Bombay-1

PACKING:
T.C.F. DIGEPLEX in bottles of
100 ml., 170 ml. and 450 ml.

T.C.F. RALCRIZYME in bottles of
30, 100 and 500 enteric-coated
dragees.

Cases and Comments

FUNDAL FIBROMYOMA OF THE UTERUS CAUSING NON-PUERPERAL INVERSION

(Report of a Case)

A. SITARATNA, M.D.,

Additional Professor of Obstetrics and Gynaecology, Madras Medical College,

AND

VISHNU SARMA, M.A. (Oantab), M.D. (Oantab), B. Chir., M.B.C.S. (Eng.),
M.R.C.P. (Lond.), D.G.O. (Madras),

*Assistant Professor of Obstetrics and Gynaecology, Stanley Medical College,
(The Government R.S.R.M. Lying-in-Hospital), Madras*

NON-PUERPERAL inversion is extremely rare and invariably chronic. Upadhyay and Achari (1960) record having seen 6 cases of chronic inversion in 8 years of hospital practice at Patna. None of these cases were caused by uterine tumefaction. John (1959) reports having seen 3 cases in 10 years and of those fibromyoma was the cause of inversion in two. In almost every case it is caused by a tumour either benign or malignant. The case of Selkin Arnoson and Karen (1941) is unique in that there was no demonstrable cause for inversion in their 38 year old patient.

Inversion of the uterus is referred to as chronic if it occurs more than 30 days after the termination of pregnancy. It may be incomplete or complete. The complete variety may be associated with complete inversion of the vagina.

Das (1940) reviews 58 cases of non-puerperal inversion. The classification of 53 cases of his were as follows: incomplete 2, complete 49, complete inversion of both uterus and vagina 2. All were associated with uterine tumefaction and in 54 cases there were fibromyomas in 47, sarcomas in 4 and in the remaining 3 were endometrial carcinomas. The fibroids are usually sub-mucous, either sessile or with a short, thick pedicle. Jones (1951) records a non-puerperal inversion associated with endometrial sarcoma in an elderly patient which was treated by final removal by abdominal hysterectomy after an inadvertent fundectomy by the abdominal route. An instance of chronic inversion of the uterus with fibrosarcoma of the fundus is recorded by Reich and Nechtow (1946). Their patient was 76 years old and had a large necrotic friable hæmorrhagic mass and she was cured by vaginal hysterectomy. Webster (1960) records a patient who had inversion due to submucous fibromyoma, an unusual complication of the latter condition. She had profuse hæmorrhage and was treated by an emergency vaginal hysterectomy. Pathological study proved the tumour to be a rhabdomyosarcoma and subsequently the patient developed abdominal carcinomatosis. Partial

inversion of the uterus may occur with a submucous fibroid and a portion of the fundus of the uterus may be inadvertently removed during the removal of the tumour as in the case reported by Grayburn (1959).

The majority of non-puerperal inversions are associated with fibromyomatous tumours of the uterus. The tumour becomes submucous and distends the uterine cavity. As it grows uterine contractions endeavour to expel the tumour and the cervix dilates to make this possible. At the base of the tumour the uterine wall may be thin, weak and passive. The excited contractions of the surrounding normal musculature may lead to the expulsion of the passive portion of the uterus at the base of the tumour and thus cause inversion. Other factors such as the weight of the tumour, traction on it, raised intra-abdominal pressure as with coughing or straining and poor abdominal and pelvic musculature associated with general debility may all aggravate the condition and favour inversion.

Chronic vaginal discharge and irregular uterine bleeding may be the presenting symptoms. Acute hæmorrhage and shock is rare. Chronic loss of blood usually results in anæmia and debility. Pelvic discomfort aggravated by walking or standing is usual and sitting may be uncomfortable. Bearing down sensations as in labour pains may be experienced while the tumour is being expelled. Sooner or later the expulsion of the tumour and inversion of the uterus causes a mass to present itself at the vulval outlet or outside and this is brought dramatically to the patients notice. Necrosis and secondary infection of the tumour may produce systemic upset such as malaise anorexia and fever. Urinary disturbances and infection is not uncommon.

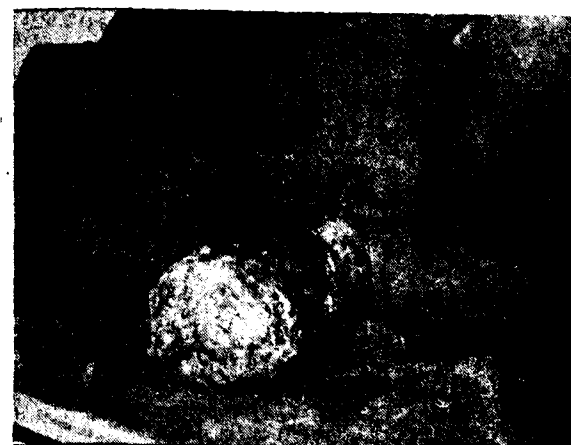
The diagnosis is really made on the history and physical findings. A mass may be present in the vagina or outside the vulval outlet. A cervical os and endometrial cavity is absent and a ring may or may not be palpable. Rectal examination usually reveals the uterus to be absent in the pelvis and a cup like depression may be recognized by digital palpation. The absence of a previously noted tumour in the pelvis is significant and careful digital examination enables the degree of inversion to be determined.

Chronic uterine inversion associated with a fundal fibromyoma may be dealt with by vaginal myomectomy and later spontaneous reinversion of the uterus if feasible but in the older patient where childbearing is a factor which needs no consideration, vaginal hysterectomy is the most satisfactory method of management.

Case report.—A 40 year old Hindu patient was admitted to hospital on 27-8-1959 with a complaint of something having fallen out through the vagina.



Fig. 1-a.



Figs. 1-a & 1-b. Shows the preoperative appearance of the fibromyomatous tumour which had caused inversion of the uterus.

was while waiting for a train in the platform that she suddenly felt something give way and since then had noticed the mass presenting at the vulval outlet. Associated with this she had vaginal bleeding for three days and since then a profuse offensive vaginal discharge. She had little in the way of bladder or rectal disturbances.

On admission she was anæmic and looked ill. She had slight fever. General examination and abdominal examination showed nothing amiss. Inspection of the external genitalia

Her gynæcological history was non-contributory except that she had difficulty with coitus for 6 months and had an incapacitating vaginal discharge for the past 3 months. Her last period had come 10 days prior to admission. There was nothing abnormal in her obstetric history. She had borne 4 children at term normally and her last childbirth had occurred 16 years previously and she had never aborted. Her present complaint had begun with an attack of severe lower abdominal pain 3 months previously. The pains came on and off and simulated labour pains. She consulted a local doctor who examined her and told her she had genital cancer and should travel to the city for a consultation. It

showed an infected necrotic mass about 6 cms. in diameter lying outside the vulval outlet (Figure 1a, b). Further digital exploration of the genital tract from below showed the mass to be a necrotic fundal tumour probably a fibromyoma and further that the uterus was completely inverted. In due course a biopsy was taken from the growth to establish its nature and to exclude malignancy. The report was that it was a cellular type of fibromyoma presenting areas of sclerosis. There was no evidence of malignancy.



FIG. 2. Shows the specimen obtained at operation. The tumour is attached to the fundus of the uterus. The left ovary and tube are shown. The right ovary and tube were removed separately.

After suitable preoperative build up with hæmatinics and control of infection with antibiotics the patient was operated upon on 6-11-1959. Under spinal (epidural) anaesthesia, a vaginal hysterectomy and bilateral salphingo-oophorectomy was easily performed. The right tube and ovary had to be removed after the rest of internal genitalia was removed (Fig. 2). The patient was given a bottle of A group blood for supportive therapy during operation. The post-operative course was uneventful and she made a most satisfactory recovery and was discharged on the 14th postoperative day. Subsequent follow up showed the result of operation to be satisfactory.

Comment.—A case of chronic non-puerperal inversion of the uterus due to fundal fibromyoma treated successfully by vaginal hysterectomy

is presented, and the literature briefly reviewed.

Acknowledgement.—We are grateful to the Dean, Stanley Medical College, and to the Superintendent, the Government R.S.R.M. Lying-in-Hospital for permitting us to report this case.

REFERENCES:

1. Das, P. (1940)—Inversion of the uterus, *J. Obstet. Gynec. Brit. Emp.*, 47: 525.
2. Fenton, A. N. and Singh B. P. (1950)—Acute puerperal inversion of the uterus, Review article, *Obstet. Gynec. Survey*, 5, 6: 781.
3. Grayburn, R. W. (1957)—Removal of a partially inverted uterus during removal per vaginum of a submucous fibroid, *J. Obstet. Gynec. Brit. Emp.*, LXIX, 6: 927.
4. John, M. P. (1959)—Report on three cases of chronic inversion of uterus, 56, 11: 841.
5. Jones, H. W. (1951)—Non-puerperal inversion of the uterus, *Amer. J. Surg.*, 81: 492, Abstract, *Amer. J. Obstet. Gynec.*, 1952, 63, 2: 475.
6. Nelson, J. H. and Sites, J. G. (1956)—Non puerperal inversion of the uterus, *Amer. J. Obstet. Gynec.*, 72, 3: 661.
7. Selkin-Arnson, E. and Karen, B. (1941)—Non puerperal inversion of the uterus, *Amer. J. Obstet. Gynec.*, 42: 540.
8. Upadhyay, S.N. (1960)—Mechanism and management of inversion the uterus, *J. Obstet. Gynec. India*, 10, 4: 447.

RECOVERY FROM A DEEP COMA

ABBAS UDDIN AHMED, L.M.F.,
P. O. Daudpur, Dt. Dinajpur, (East Pakistan)

Case report.—N. C. D., a married Hindu male, aged about 60, of moderate stature and robust health, fell down unconscious on his way back home from the fields at about 11-30 a.m. on 24-3-1961.

At the place of occurrence, he was examined by an allopath and a homœopath who treated him for four days without any improvement. His condition was deteriorating. Another senior physician then treated him for 2 days without appreciable improvement; I was called in on 31-3-1961, when I found him, in deep coma with the following signs and symptoms:—Breathing was stertorous; cheeks blowing in and out on the paralysed side; alæ nasi moving; eye half-open and fixed; deviation of the left angle of the mouth and involuntary passing of urine only. The pupil of the right eye was slightly dilated; light reflex was present. Right angle of mouth was flaccid and deviated to the left side. Temporal and frontal veins were engorged. The tongue was deviated to the left side.

Heart:—Loaded and hæmic murmur present with rambling first sound. **Lungs:** bases congested on both sides. **Liver:** palpable; **Spleen:** nothing abnormal. **Abdomen:** distended with gas. **Knee-jerk:** absent on the right side but present on the left. **Biceps and triceps:** Jerks absent on the right side. **Plantar reflex:** extensor type on the right side but flexor on the left. **Babinski's sign:** present. **Tendo achillis jerk:** absent on the right but present on the left side. **Pharynx:** N.A.D. **Dermatoses:** present all over the body. **Temperature—**99°F. **Pulse—**68 p/m. **Respiration—**16 p/m. **Constipation—**severe. **Urine—**albumin ++; sugar nil; bile +. **Blood-pressure:** 215 mm. Hg.

Past history: He had had occasional eczematous eruptions all over the body with itching and subsequent scaling and scabbing for the past few years.

The patient was not given to alcohol or opium and so there was no evidence of poisoning by either drug. There was no familial history of epilepsy; nor was there any history of trauma or fall with injury to the head.

He had not suffered from renal, post-renal or extra renal uræmia at any time nor had he been taking large doses of alkali in connexion with gastro-intestinal or kidney troubles. There was no history of any genito-urinary tract infection or trauma or growths of any kind. No familial or individual history of diabetes was obtained.

Apoplexy is characterized by a sudden loss of consciousness due to either thrombosis, embolism or hæmorrhage of the cerebral blood vessels involving a sufficiently large area. The history

signs/symptoms in the patient aged about 60, who had a sudden onset of unconsciousness and in whom a previous history of insomnia, occasional headache and giddiness was elicited and whose blood-pressure was 215 mm. Hg. coupled with the threatened hemiplegia of the right side of the body pointed to cerebral hæmorrhage.

Malignant malaria was eliminated and confirmed by a blood examination which showed the absence of malarial parasites.

(b) *Meningitis* was excluded as there was no high fever nor any of the cardinal signs of Kernig's, Brudzinski's and Bikele's.

With an almost positive conviction (from the above eliminations in differential diagnosis) that this was a case of cerebral hæmorrhage, I proceeded to treat him for that condition.

Blood-letting or lumbar puncture could not be tried owing to stout opposition from the patient's people, and to the absence of necessary facilities in the patient's home. Therefore I had to resort to conventional treatment as under:—(1) A soap-water enema with glycerin was given to evacuate the bowels; (2) ice-cap was applied to the head; (3) Serpasil (Ciba) one tablet three times a day; (4) Dihydrogen sodium citrate $1\frac{1}{2}$ teaspoonfuls in water *t.d.s.*; (5) Sedophyll or luminal $\frac{1}{2}$ grain H.S.; (6) injectio Durycin (Lilly) one everyday intramuscularly for 8 days; (7) hypertonic glucose 50% solution 50 cc. intravenously twice a day; (8) Celin 100 mg. Kapilin 10 mg., one of each *b.d.*; (9) Vit. B complex 2 teaspoonfuls in water *b.d.*; (10) Benerva 100 mg. (Roche) Cytamen 250 mg. (Glaxo) 1 cc. mixed and injected *i.m.*, every other day. Also the following mixture:

R Pot. Brom.	..	gr.	v	Liqr. ammon. citratis	..	℥	xx
Pot. Citras	..	gr.	xv	Spts. Chloroform	..	℥	xv
Pot. Acetatis	...	grs.	xx	Glycothymoline	..	℥	xx
Pot. Iodide	...	grs.	iii	Syrup aurantii	..	3	gs.
Spts. ammn. arom.	..	℥	x	Aqua ad.	...	3	i
Tr. nucis vom.	..	℥	x	<i>f.m.</i> , send 8 such doses one <i>t.d.s</i>			

Good massage of the limbs was advised.

On 25-3-1961 the blood-pressure came down to 172 mm. Hg. Serpasil was continued as before. And then the pressure came down further to 130 mm. Hg. within the next 3 days. I then reduced the dose to 1 tablet twice daily which later on, failed to sustain the desired peak-level of 130 mm. Hg. and the B.P. rose to 170 mm. Hg. during the next two days. The dose was therefore increased to 4 tablets a day which did not give me the desired effect. I, then, switched over to *Perolysen* (M & B) beginning with one tablet twice daily which dose was not effective as expected and then one tablet thrice daily which brought down the peak level to 110 mm. Hg. with a diminished volume and

tension of pulse. The drug was stopped for two days by which time the pressure rose upto 135 mm. Hg. At this stage only one tablet was given twice daily which maintained the B.P. level constant. With this adjustment of *Perolysen* and the accessory treatment and measures, like proper nursing and care, the patient progressed steadily and within a month's time he was able to get up and walk about with a full sense of well-being. After this one tablet of Serpasil was given twice daily. Largactil (M & B) 1 tablet of 25 mg. was given at bed-time. Vitamin E (Ephynal-Roche) 100 mg. one tablet was given *t.d.s.*; also. Vit. B complex 2 teaspoonfuls with water twice daily after meals.

THERAPEUTIC MISADVENTURES

The Registrar-General's Statistical Review of England and Wales for the year 1958 (Part III Commentary) includes a section entitled: '*Fatal therapeutic misadventures due to adverse reaction to drug therapy.*' It covers the year 1957 and 1958 and records a total of 265 deaths, in which about 100 drugs are tabulated. Each drug is described as it appears on the Coroner's report, and, for this reason, there is some duplication of entries; for example, a group term such as 'anticoagulants' is used, but in other parts of the table, there are separate entries for anticoagulants under proprietary or generic names. Nevertheless, the table merits careful study. It shows that during the time under review, 13 deaths were caused by administration of chloramphenicol (12 from blood dyscrasias, one from hypersensitivity). Of the antibiotics, penicillin has the next highest number of deaths (eight, all attributed to hypersensitivity); the tetracycline group had a total of seven deaths. Of the other chemotherapeutic agents, the sulphonamides had a total of 10 deaths attributed to them.

In seven instances, death followed the administration of the anti-rheumatic compound phenylbutazone, five when it was given alone, and two in conjunction with other drugs (meprobamate, one; gold, one), blood dyscrasias being the cause in all cases. The tranquillizers appear separately as chlorpromazine (nine deaths), pectazine (three) and those two drugs appear together as the cause of one death. Other tranquillizers recorded include meprobamate (one) and promazine (one). The number recorded against anticoagulants is nine; antithyroid drugs, six; corticosteroids, seven. Among the other drugs which have one or two deaths attributed to them are aspirin (agranulocytosis in one instance and hypersensitivity in the other), amidopyrine (one), mecamlamine (two).—(*Pharmaceutical Journal*, 184: 581, via *Medical Digest*, 6: 8, August, 1961).

PHLEGMASIA CERULEA DOLENS

Two cases (one with involvement of the upper extremity) of Phlegmasia cerulea dolens with acute venous obstruction, arterial spasm, and impaired circulation to the extremity are reported. Of the 73 cases of phlegmasia cerulea dolens reported from 1949 to 1960, 9 died during the acute episode, 17 developed gangrene, and 13 had a pulmonary embolus. The incidence of mortality and pulmonary embolus was higher in those cases which progressed to gangrene. Recognition of gangrene due to venous occlusion is important since it is usually superficial or limited to the digits and in contrast to gangrene from arterial occlusion, the treatment is conservative.—(*Circulation*, 25: 39, Jan. 1962, via *J.A.M.A.*, 20-1-1962).

ANAPHYLACTIC SHOCK FOLLOWING PARENTERAL ANTI-HISTAMINIC

G. G. PADMA RAO, M.B., B.S. (Osm.), Hyderabad (Andhra State)

ANAPHYLACTIC shock following penicillin therapy is now of common occurrence. It is however, very regrettable that an antihistaminic should give rise to an anaphylactic shock, when administered to counteract or to prevent untoward reactions.

Case report.—A woman, aged 55, consulted me for allergic manifestations like urticarial rash, and itching all over the body, for two days, probably due to food-allergy. I gave her Synopen 2 ml. (Suhrid Geigy) parenterally and advised her to call on the following day. I was surprised to see her after a few hours in a state of anaphylactic shock. She had severe dyspnoea, her blood-pressure was below normal, and her pulse was feeble. Adrenaline (1 : 1000) $\frac{1}{2}$ cc. and Coramine 2 cc. were given intramuscularly and other anti-shock therapy was also given. The patient gradually improved.

Another incident of interest in this connection relates to a patient who was getting normal saline intravenous drip with the addition of 2 cc. of Synopen. After a few hours, the patient started getting rigors, which were however, controlled by administering Synopen parenterally. It is difficult to assess, why Synopen was unable to control the rigors initially when mixed with the normal saline drip. Could the rigors have been due to the Synopen itself? If so it should have aggravated the rigors (is it necessary?) when given parenterally. The other possibility is that the rigors were due to Synopen, but given parenterally it has shown its real action as an anti-histaminic. I leave this as a problem for the readers to express their views.

Till recently doctors used to heave a sigh of relief, after the first injection of Penicillin or other such drug was safely administered, after testing skin sensitivity. Today it appears to be risky to hold this same opinion for certain, as several cases have been reported in which various and different drugs have been giving rise to unwanted reactions, irrespective of previous use; they may occur during the use of the drug itself, as reported by Kamdar, where a patient who was taking Soventol (Knoll) anti-histaminic tablets for a year without any side-reaction, but suddenly developed one day the signs of anaphylactic shock after taking the tablets.

Cases have been reported where a drug was tolerated for a few days but suddenly gave rise to side-effects. In all such cases, the skin sensitivity tests were usually negative.

REFERENCE: Kamdar, K. R. (1960)—Journal of Indian Medicine, June.

Meher Manzil,
Humam Taikddi,
Hyderabad, India.

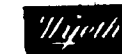
MEN PAST FORTY



need the "care" Geriatone offers. In the pattern of life ageing is inevitable. However, appreciation of the process of ageing and its relationship to metabolism has enabled the physician to prevent premature senility and loss of vigour by harnessing appropriate hormones and nutritional factors. Geriatone has been developed to serve precisely this purpose.

Administered in a dose of one capsule a day, with breakfast or lunch, Geriatone provides a useful aid for the preservation of health and vigour in advancing years.

GERIATONE*
Steroid-Nutritional Compound



JOHN WYETH & BROTHER LIMITED, LONDON
(Incorporated in England with Limited Liability)

Indian Branch: Steelcrete House, Dinshaw Wacha Road, Bombay 1

*Trade Mark

The Antiseptic

Vol. 59

MAY, 1962

No. 5

Editorials

MANUFACTURE OF DRUGS AND CHEMICALS IN INDIA

(Pioneering Role of Hindusthan Antibiotics)

MOULDs, yeasts, and fungi have been used in the treatment of infectious diseases in various countries of the world from very ancient times as stated in the history of medicine and the folklore of different countries like India, China, Indonesia, Persia, Italy, Greece, etc. The treatment of disease with chemicals was rationalized by Paul Ehrlich who was the first to postulate the concept of differential toxicity of a substance to the disease-producing organism and the infected host. This concept of antibiosis or antagonism amongst microbes, was the basis for the application of microbial products in the management of human infections. The antibiotic era was thus ushered in.

The pharmaceutical industry has successfully mobilized all scientific resources following the numerous scientific discoveries, on the side of "civilization's most humanitarian aspiration to establish an era of health and material all round well being." The impact of the various new drugs that have been added to the physicians' armamentarium, has indeed been stupendous as the Union Minister of Industry stated in a recent press release. The progress made by our country as a manufacturer of modern drugs must be considered phenomenal, particularly in view of India's very recent entry into this field.

The Streptomycin plant recently inaugurated at Pimpri by Prime Minister NEHRU constitutes another important milestone in India's march towards the goal of self sufficiency in a vital field. The 'HINDUSTAN ANTIBIOTICS' is a pioneering venture with a determination to manufacture in our own country all the important drugs including the broad-spectrum antibiotics (which till now had to be imported and made available to the people, usually at very high prices) with the valuable technical and other aids from the UNICEF and WHO. From small beginnings the output of penicillin has now reached 50 million mega units, which represents one half of the country's total needs of penicillin. Although the manufacture of streptomycin, an invaluable drug with a specific action against tuberculosis amongst other diseases, had been strongly recommended 16 years ago by the Bhor Committee, it has become a *fait accompli* only now. A

SANGOBION
Polyvalent antianemole

Ehrlich
DARMSTADT, GERMANY

For comprehensive treatment of various types of anemia.
Packing:
Tablets (sugar-coated);
Bottle of 30

EMEDIA EXPORT COMPANY, m.b.H., P.O. Box No. 1313, Bombay-1

still more valuable gift to the nation by the workers in this public sector project is the enormous progress made in the indigenous fabrication of the chemical plant and equipment. This has been greatly facilitated by the foreign collaboration, which we think will still be necessary for some more time before many other vital drugs involving intricate processes and demanding impeccable standards can be produced here in adequate quantities and the drug industry can be considered to have become self-sufficient and self-reliant.

Even now, there has been careful planning for doubling the capacity of the output of streptomycin, to meet the large demands for the war against tuberculosis, and this expansion will, we are sure, bring down the unit capital cost and serve to make the drug available to the needy at a much lower price.

We learn with great pleasure that it is under contemplation to set up another plant in the private sector at Baroda and yet another in the public sector to be located at Rishikesh with a capacity of 85 tons of Streptomycin and Dihydrostreptomycin.

It is very important in this context that systematic and sustained research should play a vital role in the work of every one of these new manufacturing concerns, if only to prevent errors and mishaps, to solve difficulties that may and do arise and to provide suitable recipes for other and more efficient drugs for different diseases. There can be no two opinions about much leeway having to be made in many other directions like hormones, vitamins and enzymes.

The Bhore Committee strongly recommended 16 years ago that Brewer's yeast (Vit. B of a potent nature) should be manufactured at once on a large scale as it is a most essential supplement to the Indian diet which was woefully deficient in it, but it is only just now that the manufacture of yeast and vitamin C has been attempted at Pimpri. In his somewhat elaborate statement relating to the present position of the manufacture of pharmaceutical drugs and antibiotics in India, Sri MANUBHAI DESAI has elaborated on the activities of several other manufacturing concerns in the private and public sectors in Bombay, Delhi, West Bengal, Gujarat, and Baroda, besides the Hindusthan Antibiotics. It is a happy augury that good progress is being made towards achieving self-sufficiency also in this, among various other directions.

THE NATION'S NUTRITION

THE establishment of a Nutrition Division and the formation of a Food and Nutrition Board or a Nutrition Advisory Committee in each State have been recommended by the National Nutrition Advisory Committee which concluded its deliberations

on the 17th March 1962 under the chairmanship of Mr. D. P. KARMARKAR, Union Minister of Health. Its deliberations have served to draw attention to the crucial role of better nutrition in efforts to improve the nation's health. It is well known that large sections of the population are not only underfed quantitatively but also take an ill-balanced diet, lacking in the factors that promote healthy growth, sustain vital bodily functions and protect them from various deficiency diseases. But in the pre-occupation with meeting basic shortages of cereals, not much attention has been given to this problem of the right kind of food in the first two Plans.

It will be remembered that in 1959 the Indian Council of Medical Research caused nutrition surveys to be carried out in various parts of India. These surveys forcibly confirmed the lack of vital elements in the average Indian diet, particularly in the Southern States, of body-building proteins and essential vitamins, like vitamins A, C and B complex group and minerals, leading to the prevalence of deficiency diseases and poor growth. The Committee has endorsed the working group's recommendations that milk-supply schemes should be started in every city and town with a population of more than one lakh and has recommended that State Governments might be again addressed in regard to the prohibition of the use of milk in the preparation of sweetmeats.

We have however, our own doubts if this will be a workable suggestion, particularly when such sweetmeats are the craze of young and old in this, as in all other countries. Also we would ask why the milk used in sweetmeats cannot be relied upon to provide atleast some of the food factors and calories required by many of the children. Perhaps the Committee expects that the wholesale use of milk for sweetmeats should be restricted. The more urgent task before food reformers including Governmental agencies would appear to us to lie in the direction of making people conscious of the deficiencies so that an attempt at balancing the diet better, will be successful. The next step would be to tackle the problem as it relates to the deficient elements in the highly vulnerable groups, like expectant mothers, growing children and undernourished workers. "The big project" to which Mr. S. K. PATIL, the Union Minister for Food, referred at the Delhi meeting, "for the search for vegetable proteins and the production of edible groundnut flour, is, as one of our distinguished contemporaries pointed out the other day, a useful beginning but not big enough in the context of the number of children in need of more protein-rich foods." The free midday meals idea is catching on, all over the country and provides a convenient means of serving at least one balanced meal for this group. The need for a cheap source of the essential elements is

obvious in the background of the prevailing poverty of the people.

In this connection, we heartily commend the suggestion of the Committee that the highest priority should be given for controlling the three major nutritional problems of pre-school children and expectant and nursing mothers, viz., protein malnutrition, vitamin A deficiency and anaemia, through the distribution of protein-rich foods, vitamin A and iron tablets at maternity and child health centres in urban areas and primary health centres in rural areas. It has also urged that in every State intensive nutritional programmes involving the distribution of nutrient supplements through primary health centres in "model districts" should be started.

Noting the calorie-requirement of 2,500 calories per capita per day in the modified dietary schedule suggested by the working groups, the Committee has observed that on the basis of this modified requirement, the target of production of nutritional foods could be achieved within the next five to ten years. It agrees with the working group that the protein and fat content may be reduced to 70 grams and 50 grams respectively and that urgent steps should be taken to prevent spoilage of cereals and pulses. We are glad that the Committee is seized of the fact that such avoidable spoilage of cereals and pulses is occurring everywhere and in some places to a very alarming extent, due, in our opinion, to lack of proper control and supervision over the storage. We therefore, welcome this most valuable suggestion and urge its urgent implementation without fear or favour.

EXPANSION OF SCHOOL HEALTH WORK URGED

(Third Plan Allocation Inadequate)

SRI DR. SHANTILAL C. SHETH presiding over the joint annual conference of the Association of Pædiatricians of India earlier this year called upon the pædiatricians in India to pursue their attempts to evolve new values and new standards for the improvement of children's health, so that they could live their rich and full life, guaranteed to them by the Constitution.

Child-care and training are social problems of vital importance, extensive in their scope, requiring the serious and earnest attention of all concerned, 'if the nation should prosper along right lines and be saved from possible disaster.'

'It is not the problem of the sick or diseased child only,' said Dr. SHETH, 'but it is the central core in the maintenance and promotion of a positive state of health.' It is a well known but deplorable fact that most of the children whether in cities or

in villages, suffer from malnutrition and under-nutrition, thereby making them "pathetic specimens of humanity, feeble, under-nourished and poorly developed. If these are the children that we depend upon for posterity, it is likely that we would efface ourselves in the struggle for existence."

There can be no gainsaying the fact that the health of children ought to be the primary and serious concern of the elders and a matter for tender solicitude. Education of parents, school teachers, school children and the masses in general, on the preservation of child health is, therefore, very much needed. It is necessary to impress upon parents the importance and advantages of periodical health check-ups, the value of balanced food and timely immunization against infectious diseases.

Pleading for the expansion of school health services, Dr. SHETH said it will facilitate regular medical examination of all school children. There are 44 million school children now, and at the end of the Third Plan the number would rise to 64 million. "It is disheartening to note that in the Third Plan, no funds have been set apart for school health work: it has been left to the mercy of philanthropy of the local communities."

Children's councils should therefore, be established in every State to help in the improvement of child-health. In medical education, pædiatrics should receive more attention in undergraduate teaching and the entire undergraduate curriculum in our considered opinion, calls for a thorough revision on a rational basis. As Dr. SHETH has rightly pointed out, the aim shall be to work assiduously for the gradual and ultimate total elimination from Indian Society the currently predominant categories of 'the mentally retarded, the juvenile delinquents, the dependants, the neglected and the physically handicapped and legislate for the creation of a realm of mentally and physically alert individuals with a sense of security.' We should plan to move towards the day when the physical, social and emotional needs of children would be viewed with sympathy by the community at large.

In this context two of the chief recommendations of the School Health Committee presided over by Mrs. RENUKA RAY, serve to pin-point the immediate lines of prospecting for child health; these are:—The standards of health of primary school children should be improved immediately by providing midday meals in schools to all the 40 million primary school children in the 6 to 11 age group. It has urged the creation of a National School Health Council, State Councils, and School Health Committees at the district, block and village levels. We sincerely hope that these recommendations will receive prompt and favourable consideration and acceptance by Government,

TREATMENT OF GONORRHOEA

Oral phenethicillin (Syncillin of Bristol Laboratories) was used in the treatment of 109 male clinic patients with gonorrhœa, as reported by Milton Marmell and Dr. Aaron Prigot (*New York State Journal of Medicine*, 61: 2609, 1961). There were 74 patients in the 21 to 30-year age-group which comprised 69% of the total number of patients. The teen-age group accounted for 19%.

Results:—Syncillin, 3 g. given in 6 equally divided doses over a period of 48 hours, resulted in a cure-rate of 96% in 50 patients. When the dosage was increased to 4 g., 16 patients were cured in 16 trials.

Syncillin, in total dosages of less than 3 g., produced less satisfactory results. The administration of 1½ and 2 g. of the antibiotic resulted in about 80% cures.

In all patients who responded favourably to the medication, the purulent urethral discharge generally disappeared within 24 hours, to be followed in most cases by a thin, watery discharge, which yielded negative findings for gonococci by smear and culture. In no instance did a discharge indicating positive findings for gonococci recur during the observation period, if it had disappeared within the first 48 hours after treatment.

Three patients with histories of penicillin-sensitivity showed no untoward effects after oral intake of Syncillin. One patient who had previously taken penicillin without any side-effects had a mild reaction to the oral form.

None of the other patients demonstrated or complained of any untoward reactions.—(C.M.D., October 1961).

PREVENTIVE EFFECTS OF ISONIAZID

In 1957 the United States Public Health Service reported the short-term results of a trial involving 2750 children with asymptomatic primary tuberculosis, half of whom received isoniazid for up to a year and the other half a placebo. A further instalment of this study gives the results of three years' observation of 2571 of the 2750 originally admitted to the trial. During the year of treatment, adverse pulmonary changes occurred in 36 of those receiving isoniazid, compared with 52 of those receiving a placebo. Even more striking are the figures for extrapulmonary changes, which developed in 6 of those receiving isoniazid, compared with 33 of those receiving a placebo.

These findings confirm those described in France by Lotte and Rouillon. These workers, however, used isoniazid combined with p-aminosalicylic acid (P.A.S.). In 59 infants with primary tuberculosis half of whom were treated with this combination of drugs, Lorber failed to find any benefit. Follow-up studies are planned both in France and in the U.S.A. to determine the ability of isoniazid alone or in combination with P.A.S. to prevent reactivation of the disease. Findings in one country or community may not apply to another. Possibly, for example, in an area where primary resistance to isoniazid is highly prevalent in adults, the results of giving isoniazid alone may be relatively unsatisfactory. Meanwhile an important advance has been made. As lately as 1956 Debre said: "The important problem is whether all cases of primary tuberculosis—whether latent or not—should be treated as soon as they are recognized." This problem seems to have been clearly resolved.—(Editorial Annotation, *The Lancet*, 27-1-1962).

MIVETS

(A Comprehensive Vitamin—Mineral Preparation)

Even with the "right" diet few people can be certain of getting all the vitamins and minerals they need. Mivets provide in one tablet vitamin-mineral supplementation of essential nutrients—basic vitamins and minerals, each of which is important for perfect health.

COMPOSITION

Each tablet contains:

Vitamin A	2000 I.U.
Vitamin D ₂ B.P.	200 I.U.
Vitamin B ₁ B.P.	2 mg.
Vitamin B ₂ (Riboflavin B.P.)	1.5 mg.
Vitamin B ₆ B.P.C.	0.15 mg.
Niacinamide B.P.	10 mg.
Calcium Pantothenate U.S.P.	0.3 mg.
Folic Acid B.P.	0.5 mg.
Vitamin B ₁₂ B.P.	2 mcg.
Vitamin C B.P.	25 mg.
Tocopheryl Acetate B.P.C.	0.2 mg.
Dibasic Calcium Phosphate (Hydrous) U.S.P.	0.15 Gm.
Ferrous Sulphate B.P.	20 mg.
Copper Sulphate B.P.	0.1 mg.
Manganese Sulphate	0.05 mg.
Sodium Molybdate B.P.	0.15 mg.
Potassium Iodide B.P.	0.01 mg.
Zinc Sulphate B.P.	0.05 mg.
Magnesium Sulphate B.P.	2 mg.
Cobalt Sulphate	0.1 mg.

ALEMBIC CHEMICAL WORKS CO. LTD., BARODA-3

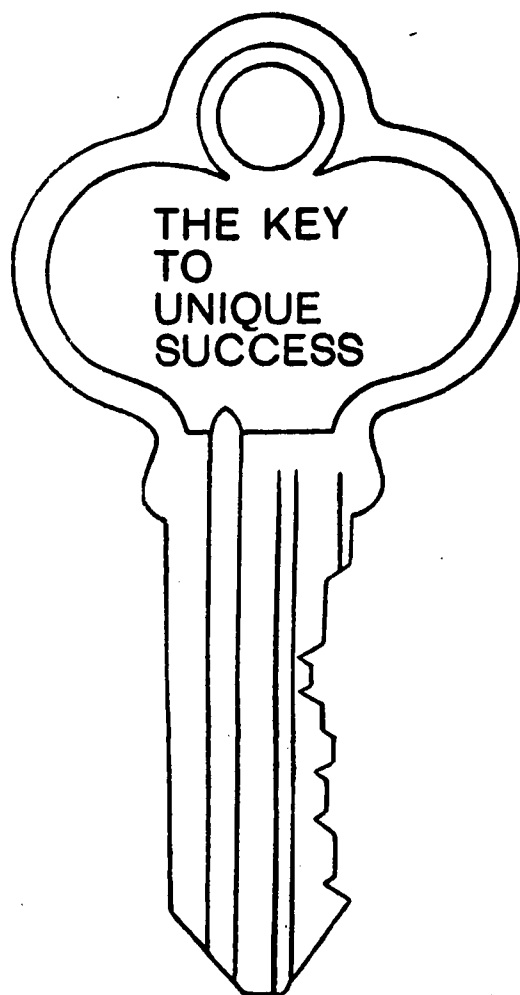
You can put your
confidence in Alembic

IN TREATING ■ RESPIRATORY TRACT INFECTIONS

■ STAPHYLOCOCCAL INFECTIONS

■ SOFT TISSUE, SKIN & BONE INFECTIONS

■ OTHER SERIOUS & DIFFICULT-TO-TREAT INFECTIONS



SYNERMYCIN®

(triacetyl oleandomycin + tetracycline)

SYNERMYCIN is the matchless broad spectrum antibiotic combination with the widest therapeutic spectrum.



Science for the world's well being

PFIZER PRIVATE LTD 163, Backbay Reclamation, Bombay 1

1WT PF 3455

* Trade mark of Chas. Pfizer & Co., Inc.

GLEANINGS

MEDICINE AND THERAPEUTICS

A comparison of the *in-vitro* effectiveness of Nitrofurantoin and five antibiotics against bacteria from urinary tract infections.—(*Am. J. Med. Technology*, 27: 5, 1961).

In recent years, it has been observed that antibiotics and sulphonamides were not controlling urinary tract infections so effectively as before and were ineffective, either because of development of bacterial resistance or because their use is restricted due to patient sensitization. Because of the decreasing efficacy of these antibacterials, a search was made for an agent that would have neither of these disadvantages and have a broad antibacterial spectrum.

Experiments resulted in the development of another compound *nitrofurantoin*, a synthetic antibacterial, which is different from antibiotics and sulphonamides in that it affects bacterial enzymes, slows or stops bacterial multiplication, and is bactericidal in higher concentrations. Side-effects, mainly nausea and vomiting, are minimal and easily controlled by reduction of the dosage. Animal studies showed a wide margin of safety, little or no toxicity, and no significant changes in the haematopoietic system. Bacterial resistance to the drug is slow and limited even after prolonged administration. No cross-resistance with penicillin, streptomycin, or sulphonamides has been reported, and it proved effective where the tetracyclines and streptomycin were ineffective. The drug has proved specifically effective in the treatment of urinary tract infections.

The antibacterial effectiveness of nitrofurantoin (Furadantin®) a chemotherapeutic agent, was compared to the more commonly used antibiotics, e.g. chloramphenicol, streptomycin, penicillin, chlortetracycline and oxytetracycline, in urologic infections.

In this series, 201 urine specimens obtained by catheterization and cystoscopy, were used. Bacteria were identified by their morphologic char-

acteristic and their reaction to the culture media.

Sensitivity tests showed that nitrofurantoin inhibited bacterial growth in 177 of 201 (88%) urine cultures. Bacterial resistance to antibiotics did not affect the effectiveness of nitrofurantoin. The nitrofurantoin did not cause any apparent development of resistant strains. Good *in-vitro* antibacterial results with nitrofurantoin were observed on most strains of *Proteus*, *Pseudomonas*, *Escherichia*, *Alkaligenes* and *Aerobacter* sp. This seems conclusive and significant when compared with the limited results obtained with the 5 antibiotics used in this study. Although limited, the present investigation has demonstrated the value of nitrofurantoin in combating the most common organisms found in urinary tract infections.

Severe allergic reaction after ingestion of acetylsalicylic acid compounds.—(*Jour. Louisiana St. Med. Soc.*, July 1961).

Salvaggio and Crane of New Orleans report a case of anaphylactic shock in an apparently nonatopic individual. Allergic reactions in atopic individuals after ingestion of compounds containing acetylsalicylic acid have been substantiated on numerous occasions. The incidence among such patients has been reported to range from 0.2 per cent to 10 per cent and the severity of the reactions at times is well known. Several deaths from hypersensitivity to aspirin have been noted in the past. The most frequent reactions according to Matthews *et al.* include the following:—(1) Asthma, (2) urticaria, (3) angioneurotic oedema, (4) other skin eruptions, (5) rhinitis, (6) gastrointestinal disturbances and (7) purpura. In addition, several reports of cardiac abnormalities have appeared in the literature.

In this paper, report is made of a case of anaphylactic shock in an apparently non-atopic individual after ingestion of Bufferin (acetyl-

salicylic acid 5 grains, aluminum glycinate, and magnesium carbonate) and Alka-Selzer dissolved in water (sodium acetyl salicylate, calcium sodium phosphate, sodium bicarbonate, and sodium citrate).

The patient, E.P., was a 15-year-old married white female who stated that she awoke on the morning of August 17, 1960, and noted a mild frontal headache.

About an hour later, one Bufferin tablet was taken. After obtaining no relief in twenty minutes, an Alka-Selzer tablet dissolved in water followed by a second Bufferin tablet in fifteen minutes were taken.

Approximately ten minutes later, she suddenly became very weak and dizzy. This was followed by syncope for an unknown length of time. Upon regaining consciousness, the patient noted generalized giant urticaria and pruritus. She also vomited once. Nothing had been taken orally except the tablets.

It is of significance that this patient gave a negative past history and family history for allergic disease because reactions of this nature are very rare in nonatopic individuals.

Both Prausnitz-Kustner and reverse passive transfer studies demonstrated a +++ reaction for Bufferin and + reaction for Alka-Selzer and plain aspirin with negative controls.

The palliation of malignant ascites with "Nitromin."—(*Med. Jour. Australia*, 6-1-1962).

Dr. John McCaffrey, Surgeon of the University of Queensland, states in an interesting article:—"Nitromin" was discovered in Japan in 1949 and has been used extensively since then in that country. It is a polyfunctional alkylating agent closely related to nitrogen mustard. It is thought that "Nitromin" acts by being taken selectively into proliferating cells and reduced to nitrogen mustard, and that the effect of "Nitromin" on the tumour cell is due to the release of this drug. Like all other compounds of this nature, it has a depressant effect on the white-cell population,

causing a transitory neutropenia. The drug is supplied in ampoules containing 50 mg. and this quantity was dissolved in 20 ml. of normal saline for intravenous administration.

At the beginning of this study we thought that intraperitoneal administration of the drug was the preferred method. However, we quickly realized there must be a rapid turnover of fluid in malignant ascites and that intraperitoneal therapy could be well supplemented with intravenous therapy. On this basis we developed our present method of treatment, which consists of both intraperitoneal and intravenous injections of "Nitromin."

Fifteen patients with ascites due to intraperitoneal malignant processes have been treated in the surgical professorial unit by a combination of intraperitoneal and intravenous "Nitromin" therapy. In broad outline our results are as follows. Six out of these 15 patients are still alive and reasonably well. The longest survivor among these five has now been well for 10 months since his therapy, and the shortest survivor in this group has been alive and well for three months since the cessation of therapy. The longest survivor in the series was the subject in Case II, who survived for 18 months following treatment.

Our other results can be summarized as follows:—Three patients had an excellent response, with no further accumulation of ascitic fluid and with a considerable improvement in the patients' general health and well-being. These patients were discharged from hospital and did not need further admission. Five patients had a good result, two of these requiring one further paracentesis. Four patients had a fair result, two of these having to be admitted to a hospital for chronic illnesses elsewhere before death. One patient had a poor result, with only a temporary remission of the ascites. In general, the white-cell count was rarely greatly affected, with the lowest count being 3200 per cm; this was observed in four patients. The rapidity with which the white-cell

count fell bore no relationship whatsoever to the effectiveness of the drug on the ascites. The white-cell count in those three patients with excellent results remained about 6000 per cm. In those patients in whom a tumour mass was palpable after paracentesis no great alteration was noticed in the size of this tumour with the use of "Nitromin" therapy. Because of this, it is thought that the "Nitromin" in some way prevents the formation of the protein-rich exudate which is characteristic of certain intraperitoneal malignant processes.

Corticosteroid hormones in the treatment of tuberculosis.—(B. M. J., December, 1961).

In 1952 the corticosteroid hormones were definitely considered contraindicated in patients with tuberculosis and their use was advised against. This opinion was based on previous reports and experience with patients who had active tuberculosis and who developed widespread uncontrollable lesions as a result of taking these hormones. In patients with healed or quiescent foci, the lesions became reactivated. In later clinical studies, combining the hormones with adequate antituberculous agents gave encouraging results. This was especially evident for patients with tuberculous meningitis, pleuritis, and pericarditis. The most common cause of failure was infection with a drug-resistant organism. Matched control studies were required to determine how corticosteroids might benefit tuberculous patients, and what type of tuberculous patient should receive this form of treatment. Angel, Chu, and Lyons cite 3 such studies and add 1 of their own. Additional studies have been made by Horne and by Bell, Brown, and Horn. These were all trials in which control patients were treated with standardized antituberculosis regimens, and a comparable group of patients was treated in a similar manner, but with addition of corticosteroids.

Bell and his group found that by the end of the first month, the severely ill patients treated with steroids had improved, whereas the controls had

not. No significant difference in temperature and general condition was present after 3 months of treatment. Angel and his associates observed a prompt and marked improvement in the general condition of the trial group, 90% of whom became afebrile within 3 days, and 100% within 5 days in contrast to an average of 19.4 days in the controls. The patients in the ACTH-treated group were in the poorest condition. The trial group also gained more weight and at a greater rate. In Horne's series, a rapid return of the sedimentation rate to normal resulted in the trial group, followed by a slight rise on withdrawal of prednisolone. The return to normal in the controls was gradual. Sputum conversion was more rapid in the trial groups of patients in the first 4 months, but any appreciable difference with the control group was lost within 6 months. Angel and associates noted only minimal differences between the 2 groups.

Serial roentgenograms showed complete clearing or marked improvement in a large percentage of the steroid-treated group, especially for the first 3 to 6 months. Thereafter, the difference was less significant. The rate of clearing was rapid in the trial group. Cavity closure showed a similar pattern.

Corticosteroids should *not* be given routinely in the treatment of tuberculosis, but may be beneficial in effecting a more rapid reversal of various clinical manifestations in severely ill patients. Infection with resistant tubercle bacilli contraindicates the use of corticosteroids. The organisms should be sensitive to at least 2 of the major antituberculous drugs. The best results from the use of steroid therapy occur in younger patients and in non-alcoholics.

Stephanopoulos reported a series of 5 patients in whom there was no history of tuberculosis, who were given corticosteroids for another condition. In all 5, fulminating tuberculosis occurred and 2 of them died. The elapsed time between the start of corticosteroid treatment and the appearance of active tuberculosis

ranged from 1 to 12 months. The experience of this and other authors led them to advise caution and to recommend that tuberculostatic drugs be given with any prolonged use of corticosteroids. This recommendation should be followed even in the absence of signs of tuberculosis, especially if the tuberculin skin reaction is positive. Otherwise, frequent roentgenograms of the chest must be taken. As is the case with any drug, corticosteroids should not be given unless definite indications are present.

A simple test for the diagnosis of diabetes insipidus.—(*Lancet*, 24-2-1962).

An objective method for distinguishing diabetes insipidus from psychogenic polydipsia has been available since Hicky and Hare (1944) demonstrated that, in laboratory animals and normal men, infusion of

a saline solution reduces urine flow. It does not do this in diabetes insipidus.

A new simple test for the diagnosis of diabetes insipidus is proposed. The amount of urine passed in the two hours following ingestion of 1000 ml. of 1% sodium-chloride solution is expressed as a percentage of the volume ingested.

In 20 normal subjects and 1 patient with psychogenic polydipsia the excretion was below 25%. In 7 cases of diabetes insipidus it was over 65%. In most of the patients with diabetes insipidus excretion was much the same after a litre of sodium-chloride solution as after a litre of water. In subjects with a normal water diuresis, as shown by a standard water-loading test, excretion of less than 25% of the saline load described in conclusive evidence against diabetes insipidus.

OPHTHALMOLOGY

Treatment of hypopyon ulcers.—(*The Practitioner*, April, 1961).

Results with the use of gelatin discs containing penicillin and streptomycin in cases of hypopyon ulcers were compared with those in similar cases treated with these drugs by subconjunctival injection by A. D. Grover (*British Journal of Ophthalmology*, January 1961, 45: 27). In a series of 32 patients, 17 were treated with the discs and 14 responded well. The average time for disappearance of the hypopyon was 3.61 days and for corneal staining 10.8 days, the mean visual acuity at the time of discharge being 3.8/60. Of the 15 patients treated by subconjunctival injection, 10 responded well but, although the average time for disappearance of the hypopyon was only 3.11 days, that for corneal staining was 11.66 days and the mean visual acuity at the time of discharge was only 3.33/60. In severe cases the response to the discs was satisfactory, but the injections failed, 'thus the over-all results with the disc treatment were slightly better'. The 30% solution of gelatin used to make the discs contained 20 g. of streptomycin and 20

mega units of penicillin in each 100 ml., and the discs were not spoiled by storage for seven to 10 days. They were applied thrice daily by slipping them under the eyelids which were then bandaged. The injections consisted of 0.5 g. of streptomycin and 250,000 units of penicillin with a few drops of mydracaine and were given on alternate days. All patients were also treated with hot fomentations twice daily and 1% atropine ointment thrice daily. Another point in favour of the discs was that they were well tolerated 'even by acutely inflamed eyes' whereas, in spite of the mydracaine, the injections are painful—the greater the inflammation the greater the pain. The only difficulty with the discs was that in hot weather they tended to melt too quickly.

Acute glaucoma after general surgery.—(*J.A.M.A.*, 15-7-1961).

Glaucoma is a major cause of visual loss in America. The acute congestive, or angle-closure form comprises from 10% to 30% of all primary glaucoma cases. Acute glaucoma following general surgery, with or without

general anaesthesia, is not common. One report, for example, cites 4 cases among a series of 3,500 surgical procedures. Physicians initiating surgery or anaesthesia should realize, nevertheless, that acute glaucoma can occur in the immediate postoperative period.

University Hospital is a 390-bed general hospital in which approximately 5,000 major surgical procedures are performed each year. All major surgery cases during a recent 5-year period were reviewed. Five instances of acute glaucoma arising within 72 hours after surgery were found.

The possible aetiological factors considered include (1) a pre-existing narrow ocular filtration angle; (2) mydriasis induced by stress through endogenous catecholamine; (3) elevation of intraocular tension from succinylcholine; and (4) pupillary dilatation caused by scopolamine. An adequate history regarding prior eye disease and evaluation of anterior chamber depth pre-operatively are advisable. Where shallow chambers are present, 2% pilocarpine eye drops should be used before operation. Scopolamine and succinylcholine are best avoided in these cases. In the early postoperative period, proper attention should be paid to the eyes for the symptoms and signs of acute glaucoma, i.e., ocular pain, dilated pupil, cloudy cornea, pericorneal vascular congestion, and blurred vision.

Intraocular acrylic lenses.—(Harold Ridley, M.D., F.R.C.S., *Practitioner*, May 1961).

The present position regarding intraocular lens implants following cataract extraction is:—Intraocular acrylic lenses, a British innovation, have now been in use for thirteen years. By replacing that portion of the optical system of the eye which required removal they restore far more natural sight than is provided by plain cataract extraction in conjunction with a powerful convex spectacle lens. On the other hand, a double operation involving first removal of defective tissue, followed by replacement by a prosthesis, is more complex than a simple extraction and special atten-

tion to surgical detail is necessary. Modern developments, particularly with two-stage technique, achieve an acceptable standard of reliability in the hands of surgeons who have special experience of the technique.

The principal indication for intraocular acrylic lenses is monocular cataract, due to trauma or other causes, for the absence of disparity in the size of the retinal images enables the two eyes to be used together and binocular vision to be restored. The extra complexity of intraocular lenses does not justify their use in cases of bilateral cataract, at least until more time has been allowed for the long-term results to be fully assessed. Many cataract patients, however, whose second eye became affected at a later date, now have two successful intraocular lenses and can see quite well without the aid of spectacles.

Contact lenses: Their use and misuse.—(*Editorial: E. E. N. T. Monthly*, Oct. 1961).

The recent enthusiasm for contact lenses should be guardedly accepted. Although the campaign in the newspapers and magazines has been responsible for the increasing demand of persons who have to wear glasses, it is questionable whether the enthusiasm will endure. It is high time that ophthalmologists familiarize themselves with the facts. There are definite indications and contraindications, and also certain dangers and hazards. One of the more important dangers is entailed in fitting because many technicians are ill-trained and as a consequence, show little regard for the integrity of human tissues.

Despite arguments to the contrary, most contact lenses are demanded by people who are overconscious of their appearance. Thus, the indication is provided or 'established' by the patient and not by the ophthalmologist. No one will dispute the fact that certain therapeutic indications exist, and that under special circumstances, vision, is better with contact lenses than with glasses. It should be stressed, however, that contact lenses

are not the answer to all spectacle problems, and as Vanzant emphasized in a recent issue of the *Texas S.J.M.*, they are not a universal replacement for all spectacle problems. They are not helpful for the wearer of glasses who needs correction only for reading or occasional precise vision. Vanzant correctly concluded: "The purchase of contact lenses from advertising establishments without proper medical supervision is in the same category as the promiscuous treatment of various ailments by means of patent medicines obtained from a corner drug store."

Epidemic kerato-conjunctivitis.—(*Practitioner*, London, January, 1962),

This disease is due to an adenovirus. Clinically it presents as an acute follicular conjunctivitis and enlargement of the pre-auricular and sub-maxillary lymph glands. The corneal infiltrates are about one millimetre in diameter. They are mostly subepithelial, although some may erode the corneal surface leading to little ulcers. Chloramphenicol appears to be the most useful antibiotic in the treatment of epidemic kerato-conjunctivitis and drops should be applied to the conjunctival sac every hour during the day and ointment each evening. Epidemic kerato conjunctivitis is naturally a self-limiting disease, but if untreated it will take about eight weeks to subside. Chloramphenicol treatment shortens the course of the disease and sometimes a cure may be achieved in as little as two weeks. The results of treatment are better if, in addition to local treatment, chloramphenicol is also administered systemically.

Herpes corneae (dendritic ulcer) is due to a virus infection of the corneal epithelium. The causative virus is unaffected by any antibiotic and treatment depends upon the complete destruction of the infected epithelial cells by the application of a caustic such as carbolic acid. Chemical cauterization is only effective so long as the infection is still superficial and all the cells containing the virus can be destroyed. Such cauterization is usually unsuccessful if the infection

has extended to involve the substantia propria to cause a disciform keratitis.

Bacterial infections of the eyelids.—(*Practitioner*, January, 1962).

Blepharitis.—Squamous blepharitis is the mildest form and is merely a dandruff of the eyelashes. It is usually associated with a generalized seborrhoea, which must be treated also. Squamous blepharitis itself is not serious but if neglected it may develop into the more severe condition of ulcerative blepharitis, where pyogenic infection of the skin of the lid margins has supervened. Ulcerative blepharitis is serious, for if not cured at an early stage it will become chronic and lead to a deep folliculitis. Once this has happened, even the most assiduous treatment may fail to eradicate the infection and scarring of the lid margins will lead to trichiasis. Antibiotics are not indicated in the treatment of squamous blepharitis but they are the only effective means of controlling the ulcerative form. The inflammations of the lid margins which occurs in ulcerative blepharitis is predominantly the result of infection but part, at least of the inflammation is due to allergy. Since patients with blepharitis are of the seborrhoeic eczematous type, they are very liable to allergic manifestations and, in addition, to being infected by the organisms to which they develop allergy.

The results of using sulphacetamide and antibiotics in the treatment of blepharitis have been reasonably satisfactory but better results can be obtained by treating not only the infection but also the allergy. This may be done by using an ointment containing corticosteroid in addition to the antibiotic. Corticosteroids alone should never be used, as they are purely palliative and do not deal with the infection. The use of an antibiotic-steroid mixture brings about not only a more rapid but a more permanent relief of symptoms. The choice of antibiotic and corticosteroid must be made after a consideration of each individual case. It is important,

however, that any agent used in the treatment of blepharitis be as non-irritant as possible. A mixture of neomycin and hydrocortisone or prednisolone is usually satisfactory. A framycetin and dexamethasone mixture is also very effective, as it is highly active and unlikely to cause irritation.

Scheme of treatment.—It is essential that crusts and scales should be removed from the lid margins before treatment is started. The antibiotic is applied in the form of ointment, and crusts which could not be removed initially usually come away quite easily after the first few applications of ointment. The ointment must be rubbed firmly into the lid margins and worked into the bases of the eyelashes. For the first three days applications should be made at least four times a day, after which the frequency may be reduced to three times a day. At the end of a week, provided a satisfactory antibiotic has been chosen, the condition of the eyelids will be much improved or they may even appear normal. Treatment, however, must not be stopped at this stage: the ointment must be applied twice daily for a further two weeks and then each night for at least three more weeks. In heavily infected cases it is advisable to start treatment with an ointment containing the antibiotic alone but in chronic cases, or after the initial severe infection has been overcome, corticosteroid should be added to the ointment.

Hordeola and infected chalazia.—Acute infections of the eyelash follicles (hordeola) and of the meibomian glands (acute chalazia) are not amenable to local antibiotic treatment. If the infection is severe, antibio-

tics should be administered systemically.

Kerato-conjunctivitis from print-room equipment.—(*Practitioner*, March, 1962).

It has been known for many years that the mercury arc is capable of producing kerato-conjunctivitis due to ultra-violet radiation. 'Arc eye' was a common occurrence in the cinema industry until 1920, when filters were put in front of the banks of 'soft lighting'. Mercury vapour tubes have been used extensively to produce ultra-violet light for experiments on animals. Kerato-conjunctivitis has been reported following exposure to a bactericidal lamp in hospital and to a 'germ killing' lamp used in an inn. Two cases of kerato-conjunctivitis, which resulted while tracing a fault on a power printer are described.

The power printer is designed to reproduce copies from a transparent master drawing. This is done by projecting light through the transparent drawing on to sensitized paper which, after processing, gives a copy with black lines on a white background. The light is produced by mercury arc tubes of 3 kilowatt capacity sealed in vycor, glass.

Duke-Elder (1926) considers that for all practical purposes it is the rays between 3000 and 2,500 Angstrom units that are responsible for producing kerato-conjunctivitis, and this was confirmed by Cogan and Kinsey (1946), who showed that the most potent wave-length was 2,800 Angstrom units. The dramatic response to the neomycin and hydrocortisone eye-drops has been confirmed in further cases of 'arc eye' from welding, and has become the treatment for arc eye at these steelworks.

DERMATOLOGY

Interdigital psoriasis. ("White psoriasis")—(M. Waisman, *Arch. Derm.*, Vol. 84: 733, Nov. 1961, via *J.A.M.A.*, 18-11-1961).

A white hyperkeratotic dermatosis between the toes and on the adjoining

area of the soles, in which fungi are not demonstrable, is occasionally observed as an isolated eruption; but in most instances lesions of psoriasis are found elsewhere on the body. The opaque white patches offer a sodden appearance and leathery feel, and

they are moderately well demarcated on the sides of the toes and on the plantar surface adjoining the base of the toes. Often supervening, are painless, erosive and denuded areas on the sides of the toes as well as fissures between them. Rarely the condition evolves on the fingers. The lesions uniformly resist topical treatment, but in time they may subside spontaneously. Histopathologically, the changes are those of ordinary psoriasis, except that the stratum corneum is thickened and compact, and parakeratosis is atypical or incomplete. Interdigital white, or hyperkeratotic, psoriasis, a form of intertriginous psoriasis, occurs in approximately 5% of psoriatics, most of them in the sixth and seventh decades of life.

The synergism of salicylates and steroids.—(T. Butterworth and L. B. Streat, *Arch. Derm.*, 84: 964, Dec. 1961, via *J.A.M.A.*, 16-12-1961).

Cases of alopecia areata and totalis of more than one year's duration were treated with various combinations of steroids, salicylates, and ascorbic acid in different sequences. It was shown that salicylates may produce regrowth of hair in certain cases of alopecia areata. That steroids have the same capability is a well-known fact. When the two were administered together, a synergistic effect was observed in that more hair was grown than the sum of the effects of the two drugs when used separately.

Use of new adhesive power vehicle (orahesive) for the application of drugs to lesions of the mouth.—(A.H. Kutscher and E. V. Zegarelli, *Arch. Derm.*, 84: 1033, Dec., 1961, via *J.A.M.A.*, 16-12-1961).

Studies undertaken in 125 patients using a new adhesive powder formulation, Orahesive (containing gelatin, pectin, and carboxymethylcellulose), indicate that it possesses a number of desirable quantities useful in the treatment of oral lesions. When it is dispensed from a powder insufflator as a vehicle, (1) there is prolonged contact of an active medication with oral

tissues, (2) there is increased effectiveness of the active components as the result of maintenance of higher concentrations at the desired sites, and (3) the amount of active medication used can be minimized since the preparation adheres more efficiently to the specific site. This formulation was also found useful for protecting oral lesions from external environmental irritants, thus permitting more rapid healing and concomitant relief of symptomatic discomfort. Use of the powder formulation was found to be of particular value (1) in the management of oral mucosal lesions 2 cm. or more in size; (2) where lesions were located in relatively inaccessible regions of the mouth; and (3) in minimizing total dosages of drugs applied.

Acne.—(*J.A.M.A.*, 16-12-1961).

In answer to the question from C. Martin Wood, M.D., of Illinois "A 20-year-old woman has persistent acne on her face. In spite of all usual treatments, it has not improved. It disappeared during her 2 pregnancies. Does this suggest possible use of some hormone in treatment?" Dr. Louis A. Brunsting, M.D., of the *A.M.A.*, writes: Hormonal influences in acne are well recognized, although the exact mechanism is not understood. To say that acne results from an imbalanced oestrogen-androgen ratio is to repeat an unproved over-simplification, which overlooks the probable role of the anterior pituitary and the adrenals in the cycle. An excess of androgens will stimulate pilosebaceous activity, while an excess of oestrogen will suppress it. From a practical standpoint, however, the results of oestrogenic therapy in acne have been disappointing. Young women with cystic acne who also have some menstrual irregularity or dysmenorrhoea may be benefited, although most are not affected; in young men, a dose large enough to be effective will be feminizing. At present there is no good endocrine treatment for acne. In the patient referred to, a further trial of conventional treatment under expert supervision should be made.



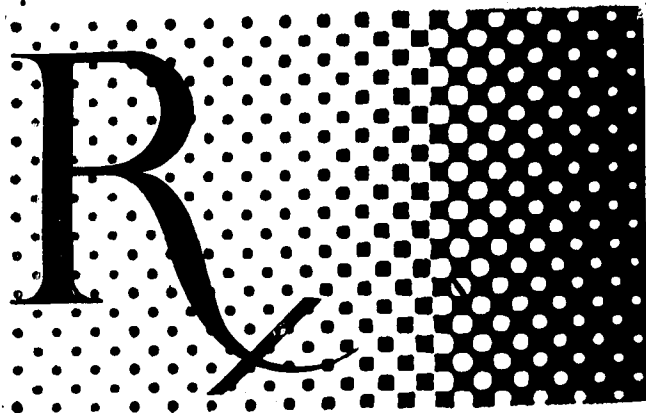
Horlicks provides cent per cent nourishment

The standards laid down by dietitians and nutritionists are in close proportion to the tissue-building and energy-giving elements in HORLICKS. The rich creamy milk, wheat flour and malted barley contained in HORLICKS, make it a well-balanced food with high caloric values for the sick, convalescent, tired and rundown.

HORLICKS does not contain any starch. It is predigested in manufacture; as a result, HORLICKS is easily digested and absorbed by even the weakest systems. HORLICKS shortens convalescence—builds up strength and energy rapidly. Doctors have been recommending HORLICKS to the sick and convalescent for over 75 years!

HORLICKS—now available everywhere!

When
calcium
is
indicated...



**CALCIUM
SANDOZ**

Highest calcium content
Highly soluble
Rapidly absorbed
Efficiently utilized

AVAILABLE IN A WIDE RANGE TO MEET ALL NEEDS

**CALCIUM
SANDOZ**

Chocolate Tablets, Granules and Syrup for oral use

Calcium-Sandoz 10% Sol. 5 ml. and 10 ml. ampoules for intramuscular and intravenous injections

Calcium-Sandoz with Vitamin C 5 ml. and 10 ml. ampoules for intramuscular or intravenous injections

Calcium-Sandoz with Vitamin C & D flavoured tablets for oral administration



SANDOZ (INDIA) LIMITED
3, Wiltet Road, Ballard Estate, BOMBAY 1

RADIOLOGY

Infra-red thermometry.—(Annotation, *Lancet*, 23-12-1961).

All objects with a temperature above absolute zero radiate infra-red rays. The warmer they are the shorter the waves generated and the greater their quantity. Very hot objects emit waves so short that they begin to enter the visible spectrum and are recognized by the eye as red hot. Those of us who still retain a few rags of our 1st M.B. physics will recollect that surfaces vary in the efficiency with which they radiate heat, the most effective being a dull black surface. The radiation of infra-red waves (*i.e.*, radiated heat) from an efficient radiating surface is in direct proportion to its temperature, and infra-red detectors can therefore, be used as thermometers for estimating the temperature of such surfaces at a distance. The skin radiates heat with an efficiency close to that of a black-body radiator, and its surface temperature can therefore be measured, by suitable infra-red detectors, with great speed and without the need for contact between the skin and the instrument.

Because of the importance of infra-red detection in Defence, much of what is known about it is secret, and the top soil of its application in medicine has hardly yet been scratched. Lawson seems to have been the first to point out that infra-red measurements can be used to detect superficial carcinomata, and Mr. Lloyd Williams and his colleagues report on their infra-red investigation of lumps in the breast. They found that, abscesses, some fibroadenomas, and nearly all carcinomas in the breast give rise to a localized "hot spot" over the lumps they form, whereas cysts do not show a significant rise of skin temperature.

Though most of their work so far has been done with a detector manipulated by hand, they are now working with a heat-scanning device which will produce a crude picture of the body surface in terms of its radiated heat and not its reflected light. If this device can be rendered more

sensitive and more rapid, it might have many applications besides that of distinguishing a breast cyst from a breast carcinoma.

Contrast examination of larynx and pharynx: Accuracy and value in diagnosis.—(*Amer. J. Roentgenol*, 86: 651, 1961, via *J.A.M.A.*, 9-12-1961).

The authors appraised the diagnostic accuracy of laryngography in 99 patients with all forms of laryngeal cancer. Laryngography, while not a screening procedure, proved to be an accurate diagnostic technique in lesions of the larynx and pharynx. The size and location of the lesion was determined accurately in 92% of the cases as contrasted to 78% by conventional clinical appraisal. Laryngography is a safe, simple, direct, rapid, and accurate procedure. An analysis of data obtained from a study by McGavran *et al* of 96 cases of laryngeal carcinoma treated by en-block laryngectomy and radical neck dissection gave very valuable information as to certain characteristics of the primary lesion. The size of the tumour, degree of differentiation and the location have a relationship to clinically apparent and inapparent cervical metastatic spread. An accurate clinical classification of cancer of the larynx is necessary since the choice of therapy is governed by the probability or location of metastases. A pathological classification based on the location of the primary lesion is suggested for laryngoscopic and clinical use. Since the proposed classification indicates that there is a progressive increase in metastatic rate from glottic to infraglottic, to supraglottic, to transglottic cancers, the type of treatment to be administered can be determined. By laryngography a base-line for future follow-up examinations can be established from which the response of the tumour of irradiation can be ascertained.

Treatment of cancer of anus.—(*Radio-logy*, 77: 783, Nov. 1961, via *J.A.M.A.*, 30-12-1961).

A series of cases of anal carcinoma treated by radium implantation is

reported. The cases were relatively early, and in none did infiltration extend into the rectum. Four of 6 patients remained well 8 to 10 years after treatment; 1 died of other causes 4 years and 10 months after treatment with no evidence of residual, recurrent, or metastatic cancer. In only 1 metastasis to the inguinal nodes developed 4 months after radium implantation, requiring block dissection. In this case the nodes subsequently recurred and were treated by radium; the anus became fissured and ulcerated, and colostomy was required. *Postmortem*, no tumour was found in the anus, groins, or elsewhere. All 6 cases in this series were treated by a 2-plane radium implant. Usually needles of an overall length of 5.7 cm. with an active length of 4.5 cm. were used. The dose at 0.5 cm. from either plane ranged from 4,500r in 79 hours 6,000r in 162 hours. The separation varied from 1.25 to 3.0 cm. With one exception there were no significant reactions to treatment. Inguinal block dissection was not prejudiced by radium therapy of the primary tumour.

Creatinuria and fatigue in patients undergoing radiation therapy.—(*Radiology*, 77: 804, Nov. 1961, via *J.A.M.A.*, 30-12-1961).

The 24-hour urinary creatine levels were measured at daily to weekly intervals in 35 patients who were treated for various types of malignant disease. The degree of creatinuria appeared related to the severity of fatigue, tissue integral dose, sex of the patient, and the anatomical site of irradiation. The greatest increases in the creatine coefficient values were found during treatment in women who received pelvic irradiation. This seemed related to the integral dose and the treatment time in which the radiation was absorbed. Male patients who received pelvic irradiation did not show significant creatinuria or fatigue symptoms. The patients who received relatively large doses to the thorax showed a significant degree of creatinuria and fatigue. The fatigue symptoms and the degree of creatinuria appeared to parallel each other. The

most severe fatigue symptoms occurred at the height of creatinuria or just following it. *The female patients* who received radiation to the pelvis *suffered from fatigue* than the patients who received radiation to the abdomen, thorax, or head and neck region.

Steroids and the skeleton.—(*Radiology*, 77: 729, Nov. 1961, via *J.A.M.A.*, 30-12-1961).

Cushing's syndrome of obesity, hypertension, weakness, and depression of sexual function is associated with overproduction of the adrenocortical steroids, particularly cortisone and hydrocortisone. Radiological changes include widespread osteoporosis, pathological fractures, pseudocallus formation of a cotton-wool appearance around the fractures, and delay in skeletal development. Clinical aspects are the suppression of pain in association with the pathological fractures and the frequently fatal outcome due to infection. Steroid therapy, used for the most part for rheumatoid arthritis, may produce the skeletal changes which have been recognized in connection with Cushing's syndrome, which cannot be distinguished radiologically from the natural form of the disease, liable to occur with a cortisone or cortisone-equivalent dosage of 50 to 100 mg. daily for 6 months to 3 years; (2) osteoporosis, fractures, and joint degeneration, following shorter periods of steroid therapy, with suppression of associated pain; (3) development and rapid spread of bone and joint infections in the absence of a normal pain sense and failure of the usual response of the body to inflammation; (4) delay in skeletal development in children. Many of these complications can be overcome by other protective hormones and antibiotic drugs.

Dosimetry for a total-body irradiation chamber.—(*Radiology*, 77: 788, Nov. 1961, via *J.A.M.A.*, 30-12-1961).

One of the problems in evaluating the efficacy of total body irradiation of man has been the difficulty of obtaining a fairly uniform dose of radiation throughout the entire patient.

In this paper, a physical system is described which was designed to provide a uniform energy deposition, and the initial results of the dosimetry connected with it, as well as the problems encountered, are reported. The radiation is produced by 8 cesium sources with an initial strength of 300 curies each. When in treatment position, the sources are housed in 4 upright posts located in the corners of the treatment area; 4 form a plane 3

feet above, and 4 form a plane 3 feet below the treatment area. The phantom is a full-sized mannequin constructed of Fiberglas with Lucite tubes inserted at suitable intervals to provide channels for the dosimeters throughout the extent of the phantom. Initial dosimetry studies indicate the degree of field uniformity obtainable, but significant studies are still to be made, especially in relation to integral dose.

OBSTETRICS AND GYNÆCOLOGY

Norethisterone in the control of menopausal symptoms.—(*Lancet*, 24-2-1961).

Authorities differ on the definition, and accordingly on the prevalence, of menopausal symptoms; but most general practitioners recognize a group of symptoms that are characteristic of the menopause, although they may not all be directly due to the changes associated with cessation of the menses. Perhaps the only symptom essential for the clinical diagnosis is the "hot flush."

Many other symptoms are also so common that they have come to be regarded as parts of the complete menopausal picture. They include lethargy, irritability, headaches, and insomnia.

In 36 menopausal patients, norethisterone controlled hot flushes as well as other symptoms—insomnia, irritability, lethargy and headaches. The only side-effect was uterine bleeding, which occurred in nearly two-thirds of the patients who had not had hysterectomy.

The most likely explanation of these effects is that norethisterone inhibits the secretion of gonadotrophin by the pituitary. Their inhibition could be either direct or due to a weak oestrogenic action.

Norethisterone appears to be useful in the treatment of menopausal symptoms in patients for whom oestrogens are contraindicated. But, since it often causes break-through bleeding,

it is best reserved for those who have undergone hysterectomy.

Missed abortion: The aetiology, endocrinology, and treatment.—(*Lancet*, 7-2-1962).

Dr. Lars Ph. Bengtsson of Sweden writes:—Intrauterine death of the foetus usually leads to the onset of uterine contractions, and abortion; but sometimes the dead foetus and the placenta are retained. From a clinical point of view such a retention is regarded as a "missed abortion" only when a certain time has elapsed after foetal death—e.g., 8 weeks (Litzenberg 1921). But as regards the aetiology of missed abortion the duration of retention is not important.

A concept of the aetiology of missed abortion is based on the extensive studies of Csapo and his group on the hormonal control of myometrial activity, on Cassmer's investigation of hormone excretion after foetal death, and on laboratory and clinical findings.

Missed abortion occurs only when the foetus dies while the placental function is maintained. In these cases the oestrogen effect on the myometrium is withdrawn before the progesterone effect.

In the first period after foetal death the myometrium remains progesterone-dominated and unable to produce effective contractions (stage I). Later, when the hormonal production of the placenta is extinguished, the myometrium is unable to work effectively, and

from an endocrine point of view it is "castrated" (stage II).

The treatment of missed abortion should be as follows: if the myometrium is progesterone-dominated, the placental function should be destroyed (e.g., by an intrauterine injection of hypertonic solution). When the myometrium is "castrated" oestrogen should be given. Thus, effective treatment should be possible in all cases. As a rule, no surgical intervention should be necessary to start abortion.

Menstruation and crime.—(B. M. J., 30-12-1961).

It has been shown that during menstruation a deterioration occurs both in a schoolgirl's work and in her behaviour (Dalton, 1960), and it is also at this time that women are most liable to be involved in accidents (Dalton, 1960) or to be admitted to hospital with an acute psychiatric illness (Dalton, 1959). This gradual recognition of the social significance of menstruation in the various aspects of a woman's life has led to an investigation of the importance of the menstrual factor in crime.

Over a period of six months in one of H.M. Prisons Dr. Katharina Dalton interviewed all newly convicted women below the age of 55 on the first weekday after their sentence. The prisoners were asked their age, parity, duration of menstruation, length of cycle, date of last menstruation, and whether they observed any symptoms before or during menstruation. A similar interview was arranged for all prisoners who had been reported to the governor for bad behaviour while serving their sentence.

Of the 386 newly convicted prisoners, 284 (74%) were menstruating regularly and 156 (41%) had committed their offence during the previous 28 days.

"Premenstrual tension" was defined as mood changes, headaches, tiredness, bloatedness, or mastitis during the premenstruum, and "dysmenorrhœa" was defined as pain during menstruation. Premenstrual tension

was present among 43 (27%) of the 156 prisoners whose offences had occurred during the previous menstrual cycle, and 27 (63%) of these 43 women had committed their crime during the time of their symptoms. Premenstrual tension was more common among those sentenced for theft (29%) than among the prostitutes (19%); in fact, the incidence of premenstrual tension among prostitutes is probably below that for women generally. Dysmenorrhœa was present in only 22 of the 156 prisoners (14%) who had committed their crime during the previous menstrual cycle, and these 22 prisoners had a normal distribution of crime throughout the menstrual cycle.

Premenstrual tension appears to be an important factor, and 63% of the sufferers committed their crime at the time of their symptoms.

Study of sterility and microcurettage.—(Ned. T. Geneesk., 105: 1870, 23-9-1961, via J.A.M.A., 30-12-1961).

The author points out that microcurettage along with anamnesis, analysis of the sperm, perturbation, and examination of the cervical fluid is regarded as one of the minimal procedures for the investigation of sterility. In order to ascertain whether a useful purpose is served by microcurettage the author made follow-up studies on 100 sterile women who underwent microcurettage. The results of his studies convinced him that ovulation takes place in a woman who menstruates regularly and that her sterility is not caused by lack of ovulation. Therefore, microcurettage serves no useful purpose when menses are regular and menstrual blood is negative for tuberculosis, i.e., in more than 90% of all infertility cases. Microcurettage should be performed only on certain indications, such as in the presence of irregular or rare menstruation accompanied by an abnormal temperature curve, in the presence of amenorrhœa, and to rule out genital tuberculosis more definitely than only by the negative results of examination of the menstrual blood.

REVIEWS OF BOOKS

Notes on Medical Jurisprudence and Toxicology—By an Experienced Teacher. 1962. Published by S. Bhattacharya & Co., 49, Dharmatala Street, Calcutta-13.

[Price Rs. 10/-]

This small booklet on Medical Jurisprudence is really an accomplishment by the author. There have been other books on the same subject by Indian authors which however have been very elaborate. The book under review is of immense value to the reader because of its concise nature.

The book consists of XVII chapters each chapter dealing with a different aspect of medical jurisprudence. In addition to the usual description of wounds, deaths from starvation, cold and heat, death from asphyxia, sexual offences, infanticide and poison, there is a description of criminal procedures which is one of the most interesting chapters in his book. Medico-legal aspects of insanity, identification of dead bodies and state medicine are all described in separate chapters.

The book is fairly well got-up and should be of immense use to the average general practitioner especially to those practising in the rural areas.

U.V.R.

Notes on Pathology, Bacteriology, and Parasitology—By an Experienced Teacher. 1962. Published by S. Bhattacharya & Co., 49, Dharmatala Street, Calcutta-13.

[Price Rs. 14/-]

This small book deals in a very concise manner with the essentials of Pathology, Bacteriology and Parasitology. The section on Pathology is divided into two portions, a short one describing general Pathology, followed by the major portion which describes the pathology of various diseases. Following this section on Pathology is an equally interesting portion on Bacteriology in which the morphology of the various bacteria and viruses have been described. The book has also a small section on Parasitology where the various types of Protozoa

and helminths are described. The last section of the book is on clinical Pathology where the description of the normal and abnormal findings in such every-day laboratory investigations as stool, blood, and urine examinations have been described. This is a very useful hand-book, the emphasis of which is on brevity and it should be extremely useful to every medical student preparing for his examination.

Essentials of Electrocardiography—Lt. Col. N. S. VARIAVA, M.D., M.S. Sole selling Agents in India:—Current Technical Literature Co., Pvt. Ltd., India House, Opp. G.P.O., P.O. Box 1374, Bombay-1. [Price Rs. 10/-]

This small monograph attempts to lay out the essential details of Electrocardiography in a concise manner. The author has succeeded in avoiding technical details which the average general practitioner has neither the time to study nor the technical know-how to understand with their full implications. The book gives a description of the mechanism of production of these waves which are recorded on the special type of paper to give us an indication of the condition of the myocardium and its working capacity. There is a description of the normal curve together with all its variation in different cardiac abnormalities. The book is printed in clear type, easy to read and should be very useful to all doctors.

Tidy's Massage and Remedial Exercises 10th Edition—Edited and revised by J. O. WALE, C.S.M.M.G., M.E., L.E.T., Teacher's Certificate. Published by John Wright and Sons Limited, Stonebridge Press, Bath Road, Bristol-4. [Price 42s.]

This well-known book which is now in its 10th edition has been revised by Mrs. Wale who has received her training and experience in post-war physiotherapy. The author of the book, Miss Tidy has always had a large following of students and admirers and this new edition in its revised form provides the students with the latest

knowledge relating to physiotherapy and neuromuscular physiology. Wherever essential, electric methods of physiotherapy have been described. The treatment of the subject itself is very thorough. Injuries and deformities of each system have been well described, and the relevant methods of treatment by physiotherapy have been described. The large group of neuro-muscular disorders including such widespread conditions as cerebral paralysis and the paralysis following acute anterior poliomyelitis are all very well dealt with. Certain systemic diseases which have co-existing physiological changes and which require physiotherapy in the form of massage and electric treatment are clearly discussed and the treatment employed is also fully described.

The book is very well got-up and we recommend it to all students of physiotherapy.

Bone Changes in Leprosy—By VILH. MOLLER-CHRISTENSEN, M.D., Published by M/s. John Wright & Sons Ltd., Bristol-4. [Price 35s. 0d.]

This book is remarkable for its many unusual features. The *first* is the fact that the author with the help of certain selfless workers has succeeded in excavating skeletons of about 350 cases of leprosy that lay in the graveyard in the Leprosarium in the

St. George's at Aaderup near Naestved. The *second* feature is that the author has shown and described in detail certain cranial bone changes which have proved to be of the highest diagnostic value in modern leprosy treatment. The *third* feature is a separate section in the book containing photographs of many of these bony changes that the author was able to find in the skeletons that were removed from their graves. Photographs are not only remarkable for the changes that they reveal in the bones but also for the clarity with which they have been presented. By and large, it is a remarkable piece of work but useful only to those who are specializing in Leprosy work.

BOOKS RECEIVED

Modern Treatment Yearbook 1962—By Sir CECIL WAKELY, Bt. K.B.E., C.B., LL.D.M.Ch., D.Sc., F.R.O.S., F.R.S.E., F.R.S.A., F.A.C.S., F.R.A.S. M/s. Bailliere Tindall and Cox Ltd., 7 and 8, Henrietta Street, London, W.C.2. Price 35s.

Elementary Cardiography—By E. NOBLE CHAMBERLAIN, NORMAN COULSHED and E. L. RUBIN. M/s. John Wright and Sons Ltd., The Stonebridge Press, Bath Road, Bristol-4.

PREPARATIONS AND INVENTIONS

Betnelan—BETNELAN is a potent anti-inflammatory steroid developed by Glaxo Laboratories. Its pharmacopoeial approved name is betamethasone. Clinical and experimental trials have shown it to have little sodium and water retaining action, thus being free from the risk of causing oedema and hypertension. It is also known to elevate the mood of the patient. Betnelan is indicated in all conditions requiring corticosteroid therapy.

Products developed by the Crookes Laboratories (India) Private Ltd., Bombay.

1. **Collofac**—The principal consti-

tuent of Collofac is safflower oil which contains more linoleic acid (active essential fatty acid) than any other fat which is readily available. Nicotinic acid is added to Collofac for its vasodilatory and serum cholesterol lowering properties. Collofac also contains pyridoxine hydrochloride which is necessary for the conversion of linoleic acid into arachidonic acid—the primary essential fatty acid. Tocopheryl acetate which is included in the Collofac formula is intended to protect linoleic acid from oxidation.

Collofac is a palatable emulsion and is indicated whenever it is desired to reduce the level of the serum cholesterol.

2. **Dermasulf**—DERMASULF is a stable aqueous solution of complex polythionic acids and their salts. There is no free sulphur to cause reaction. It is odourless and colourless and can be applied to any part of the body including the face and scalp. It leaves no visible residue subsequent to application, causes no discolouration of hair and does not soil clothing. Because of these features, Dermasulf is cosmetically acceptable to patients.

Dermasulf is particularly indicated in acne vulgaris and seborrhoeic conditions. Available in 28 ml. bottles.

3. **Parabal**—PARABAL is detoxicated phenobarbitone and offers to the profession a completely new form of phenobarbitone therapy. Each tablet contains 260 mg. of phenobarbitone sodium dihydroxyaluminium-aminoacetate. The active principle in each tablet consists of 1/6 gr. sodium phenobarbitone combined with a glycine derivative.

Parabal is indicated in a wide range of medical and psychiatric disorders;

to mention a few, emotional instability, premenstrual tension, menopausal disorders of the psyche, insomnia and hypertension.

4. **Proladone**—PROLADONE, dihydrohydroxycodone pectinate, is a potent analgesic with prolonged duration of action, producing no habituation or sensitization and having a high therapeutic ratio.

Proladone is a viscous aqueous solution, each ml. containing 10 mg. dihydrohydroxycodone as pectinate.

Available in boxes of 6 ampoules.

The sale and use of Proladone is subject to D.D.A. regulations.

5. **Sedasma**—SEDASMA tablets have been formulated for use in diseases of the respiratory system characterized by cough, sputum, bronchospasm and anxiety. Each sugar coated tablet contains Ephedrine hydrochloride (30 mg.), quinalbarbitone (30 mg.), theophylline (60 mg.) and guaiaacetyl glyceryl ether (100 mg.).

NEWS AND NOTES

The Bombay Obstetric and Gynaecological Society

(1) **Dr. S. N. Bhansali Charitable Trust Prize**
The Bombay Obstetric and Gynaecological Society invites theses or essays on any *Original* work on "*Human Sterility*" for the award of the Dr. S. N. Bhansali Charitable Trust Prize for the year 1961 of the value of Rs. 500.

The competition is open to Registered Medical graduates of Statutory Indian Universities and Registered Medical Licentiates of Examining Bodies in India. The entries should reach the Society's Office by Registered post by 1st November 1962.

(2) The Dr. Herculano De Sa Silver Jubilee Prize

Also theses or essays on "*Perinatal Mortality*" for the award of Dr. Herculano De Sa Silver Jubilee Prize for the year 1962 of the value of Rs. 250.

This competition is also similarly open to Registered Medical Graduates of any Statutory Indian University and Registered Medical Licentiates of Examining Bodies in India. The entries should reach the Society's Office by Registered post by 31st December 1962.

Further particulars in regard to both the above can be had from the Honorary Secretaries, Bombay Obstetric and Gynaecological Society, Purandare Griha, Chowpatty Sea Face, Bombay 7—WB.

An Appeal by Dr. Hans Selye

"The research library of the Institute of Experimental Medicine and Surgery of the University of Montreal has suffered extensive losses owing to destruction by fire. In attempting to rebuild our library, we should like to enlist the assistance of the readers of ANTISEPTIC.

We request them to send us all

available reprints of their work, especially those dealing with *Endocrinology* and *stress*. At the same time we wish to point out that our permanent mailing list was also destroyed, hence we shall be able to send reprints of our own publications only to those of your readers who write for them.

We would be most grateful if you could publish this request in an early issue of your Journal."

We commend to our readers the above appeal of Dr. Hans Selye, Professor and Director of the Institute of Experimental Medicine and Surgery, University of Montreal, P. O. Box 6128, Montreal 26, Canada, dated 12-3-1962.

Federation of Obstetric and Gynaecological Societies of India

(Tumour Registry)

The Federation of Obstetric and Gynaecological Societies of India has decided to have a Central Tumour Registry for the whole of India at three centres and Madras, Bengal and Bombay Societies have been selected to record and maintain the registry of tumours assigned to them as under:—

(1) Dr. M. K. K. Menon, 480, Poonamalle High Road, Madras 7. (*Ovarian tumours*); (2) Dr. C. Mukherjee, 120-B, Lower Circular Road, Calcutta 14. (*Chorion epithelioma*); and (3) Dr. B. N. Purandare, Chowpatty Sea Face, Bombay-7—WB. (*Cancer of the body of the uterus*).

Those interested are requested to send relevant detailed information to the corresponding doctor for the registration of their material.

Oral Polio Vaccine Flown to Ceylon

A Royal Air Force plane left Lync-ham Airport, Wiltshire, U.K., for Ceylon recently, carrying 100,000 doses of oral polio vaccine.

The vaccine was supplied by Burroughs Wellcome and Company in response to an urgent request from the U.K. Ministry of Health and the Commonwealth Relations Office to meet an outbreak of the paralytic form of poliomyelitis in Colombo.

Trials of New Smallpox Drug "Compound 33"

To Begin Soon in India

We learn that trials are to be undertaken soon in India and Pakistan of the new British anti-smallpox synthetic drug "Compound 33." British scientists are reported to be "pleased" with the results so far obtained from treatment with the drug.

According to the Wellcome Foundation, in whose laboratories in London the drug is being produced, 13 smallpox cases have so far been treated with Compound 33. Experimentally, it has cured animals of the disease.

The Foundation spokesman said the Indian and Pakistani trials would be carried out with the co-operation of leading specialists in these countries.

Obituary

Dr. D. V. VENKAPPA

We regret to record the death at his residence in Thyagarayanagar, Madras on Wednesday the 11th April 1962, of Dr. D. V. Venkappa, former President of the Indian Medical Association and of the All-India Medical Licentiates Association. He was a doughty champion of the cause of the licentiates in the Medical profession and strove hard to improve their lot and better their prospects. He was also a member of the Indian Medical Council and of the Madras State Pharmacy Council. As member and President of the Madras Medical Council he rendered valuable service for quite a long period.

He was 81 years of age and is survived by 3 daughters and a son, Dr. D. V. Ramamurthi, Lecturer in the Madurai Medical College. We offer our heartfelt condolences to the members of the family.

Adiol Compound
For Vitality & Vigour

KURAZOL
An Anti-Asthmatic remedy for ASTHMA

INTERNATIONAL CHEMICAL & BIOLOGICAL INSTITUTE (P) LTD
7, SOUTH END ROAD
BANGALORE-4

LEUCODERMA

Int. & Ext. medicines Rs. 8-4-0

Dr. B. Gopal Rao, B.Sc., M.B.,

Bangalore:—"Used in cases of Leucoderma and found very efficacious."

LEPROSY

45 days' Int. & Ext. medicines Rs. 12-8

Dr. M. Mohabay, Gandhi, C. P.—

"Work marvellously for Leprosy."

V.P. and other charges extra.

BEHAR CHEMICAL WORKS, BHAGALPUR.

Stockists: DADHA & Co., Madras.

Medical Students and General Practitioners' Indispensable Guide BED-SIDE MEDICINE

Tenth Edition: thoroughly revised, largely rewritten and amplified: Demy, nearly 1500 pages, 612 diagrams and 2 multi coloured plates.

Price: Rupees Twenty Six plus Postage

By Professors A. R. Majumdar & S. C. Chatterjee with seven specialist collaborators from the Calcutta School of Tropical Medicine, Medical College, Calcutta and Nilratan Sarker Medical College, Calcutta.

This combined text-book of Clinical and Systematic Medicine has described all aspects of Medicine including Medical Case Examination and the Medical Diseases in their etiology, pathology, clinical course, diagnosis, prognosis and treatment: also Laboratory Methods.

SCIENTIFIC PUBLICATION CONCERN,

9, Wellington Square, CALCUTTA-13.

A HAND BOOK OF PREVENTIVE & SOCIAL MEDICINE

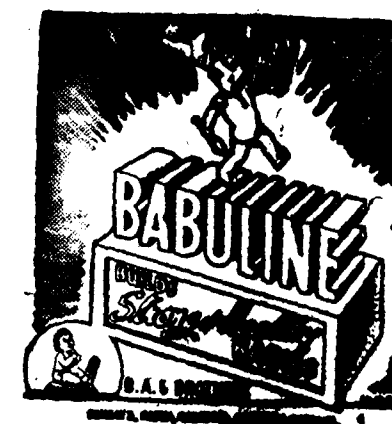
Dr. S. L. ROY

A HAND BOOK OF TROPICAL DISEASES

[WITH TREATMENT & PRESCRIPTIONS]

J. C. BANERJEA & P. B. BHATTACHARYA

ACADEMIC PUBLISHERS: CALCUTTA-9



in
ascariasis
filariasis
eosinophilosis....

DICARBAMIN

DI-ETHYL CARBAMAZINE CITRATE

- ★ SYRUP
- ★ TABLETS
- ★ INJECTABLE &
- ★ FORTE SYRUP

} available in

4

THERAPEUTIC PHARMACEUTICALS,
 54, Proctor Road, BOMBAY-7.

Phone 32320



Gram: 'Vitamin'

*Penicillin Skin Oint. 5000/IU gm.	14 gm.	0-25
Eye Oint., "	3.5 gm.	0-17½
*Chloramphenicol Eye Oint. 1%	3.5 gm.	0-25
Hydrocortisone Acetate 1% Skin Oint.	3.5 gm.	0-90
*Sulphathiazole 5% Ointment	20gm.	0-22
Vitamin B ₁ 100mgm	10cc.	0-43
" C 500 "	"	0-75
" B ₁₂ 50 mcg. "	0-45; 100mcg.	10cc 0-60
" " 200 "	"	0-90
" " 500 " 5cc.	1-00; 10cc.	1-80
" " 1000 " 5 "	1-70; "	3-25
" B-Complex "	"	0-44
" B ₁ 10mg. 1000s	4-30; 50mg 1000s	11-25
" " 100 "	500s	11-00
" B ₂ 5 " 1000s	4-20; 10mg. 1000s	6-10
" B ₆ 5 " "	9-00; 10 " 1000s	14-80
" C 50 " "	5-30; 100mg.	8-40
" C 500 " "	500s	18-00
Folic Acid 5mg. 500s	4-60 5mg. 1000s	9-00
Nicotinamide	50 " 1000s	7-25
Nicotinic Acid	50 " "	6-20
Vitamin B-Complex	"	4-95
" " Forte	"	7-95
" " Super Forte	"	9-75
Vitaminised Malt (Up-V-Malt)	450 gm.	3-50
*Chloramphenicol Caps. 250mg	1000 Caps	103-75
500s 52-15; 100s	11-00; 12s	1-70
*Tetracycline Hydrochloride 250mg. Caps.	100s	39/-
" " "	8s	3-60
*Chlorpropamide 250mg	100 Caps.	11-00
(for diabetes) "	30s	3-75
*ABC Gripe Mixture (Babytone)	125ml.	0-60
" Vit. B-Com. Elixir	100ml 0-90; 450ml.	2-90
" with Glycerophos.	100ml 1-40; 200ml.	2-40
" Asthma Mixture (Asmamix)	100ml.	1-20
" Cough Syrup	"	1-00
" Aminophyllin 0.25gm.	10cc. 50amps	7-90
" Calcium Gluconate 10%	10cc.	4-25
" Glucose Solution 25%	25cc.	8-00
" " 50%	25cc.	11-00

Prices are unengaged, ex-godown, packing, forwarding & S.T. extra. Advance 5% M.O.

SPECIAL RATES FOR LOT ON REQUEST.

UNITED PHARMA (INDIA) PRIVATE LTD.

P. B. 521 :: 64, Mint St., Madras-3

Branch: POST BAG 2799, 83, Princess St., BOMBAY-2

* Available at BOMBAY BRANCH ALSO.



HOUSEHOLD
 MEDICINES

CASTOPHENE:

Only laxative which corrects constipation at all ages, in the gentle way nature wants.

GRIPE MIXTURE:

Gives immediate relief to babies from painful stomach discomforts, and keeps them healthy.

COUGH TABS:

Soothe coughs, and help break-up bronchial congestion.

QUINA CAPIRIN:

Brings prompt relief from fever, cold, headaches and pains.

ALL CASTOPHENE pharmaceutical products are available at popular chemicals and medical stores.

AGENTS FOR SOUTH INDIA:

M/s. SIVARAM & SWAMY,
 154, Nyniappa Naick St., Madras-3.

Distributors: J. THADANI & Co.,
 16, Broadway, Madras.

CASTOPHENE MANUFACTURING CO.
 Worli, Bombay-18.

Special Concession!!!

TO SUBSCRIBERS OF ANTISEPTIC
 UP TO 30-6-1962 ONLY

A SUPPLEMENT (1961)

to Dr. Narayanrao's Materia Medica
 of Pharmaceutical Combinations and
 Specialities (5th Edition 1954)

Keeps you quite up-to-date with all the details of specialities from various manufacturers of the world. It is a sister volume and quite similar in format and other details. Known as a "Book of Reference" on "Patent Medicines." Very useful to the busy medical practitioners, consultants, hospitals, pharmaceutical laboratories, chemists, druggists, college and hospital libraries etc. etc. all over the world.

Price: SUPPLEMENT (1961) Rs. 8.00.
 Both Volumes (1954 & 1961) Rs. 25.00

Otherwise Rs. 10/- & 28/00

Postage and Packing free:

Send your orders with remittance to:

MEDICAL DIGEST
 BOMBAY-4

SYRUP ALAREX

for ASTHMA

For literatures apply:

Mendine Pharmaceutical Works, 36-B, Alipore Road, Calcutta-27

As an ideal combination of reputed indigenous anti-spasmodic drugs, e.g. Kuth, Kantikari with ephedrine, aminophyllin etc., **SYRUP ALAREX** offers extraordinary relief in a large variety of Asthmatic conditions.

SALOBCEIN

(Regd.)

AN AYURVEDIC PRODUCT FOR

DIABETES MELLITUS

1. Reduces BLOOD and Urine SUGAR.
2. Harmless and no side reactions.
3. Improves HEALTH.
4. Easy to Administer.
5. Suits Every Pocket.

E. N. Ramavarma
Varma's AYURVEDA PHARMACY
ALLEPPEY, S. INDIA

INTRODUCING

The ASWINI Estd. 1951
A Quarterly Clinical Medicine

A Journal giving opportunity to Doctors of any Science
Annual Subscription Rs. 4. Pakistan & Ceylon 4-50
Single Copy 1-55 nP.

Common Diseases of Children, 5 parts, Pages 196
For sale at Rs. 6/- Postage 0-65 nP. No Specimen.

Emergencies in Children's Diseases in General Practice
Ea. Pages 25 (Part I & II) Single copy Rs. 1-58 (in advance)
Contributed by eminent Children Disease Specialist in India.

Rates of circulation 1000. Size Royal 1/8th, 7"x5"
The only Medium of Advertisement in Orissa.

Rates of Advertisement:
Please Contact.

The ASWINI, P. O. Soro (Orissa)

Over 3000 Medical Men and Women
alone in India Abroad

SUBSCRIBE TO

'HEALTH'

The Oldest Journal in India on Health Matters
In regular monthly publication on the 15th since 1923

Founded by the late Dr. U. RAMA RAU
Past Editor: U. KRISHNA RAU.
Editor: U. VASUDEVA RAU, M.B., B.S.

Annual Subscription:

Inland Rs. 2-50 nP. Foreign Rs. 3 Post paid
Single Copy 25 nP.

Editorial & Publishing Office:

THE "ANTISEPTIC"
323-24, Thambu Chetty St., Madras-1.

COLLAPSIBLE TUBES

For tooth-paste, ointments, adhesives, cosmetics etc.
For all your requirements of plain or decorated, tin or aluminium, with or without internal laquer, collapsible tubes.



please contact:

**EXTRUSION PROCESSES
PRIVATE LTD.**

Ram Baug, Ghodbunder Road,
Malad, Bombay-64.

Phone: Factory: 84726 • Office: 30903

Some Standard Medical Textbooks for the Students & Practitioners

Books by Dr. B. N. GHOSH, M.B.E., F.R.F.P. & S. (Glas.), L.M. (Dub.), F.R.S. (Edin.)

A TEXTBOOK of PHARMACOLOGY & THERAPEUTICS 1956

Rs. 20-00 or 35s.

(With Addendum of British Pharmacopoeia 1959)

A TREATISE on HYGIENE & PUBLIC HEALTH 14th Ed. 1959

Rs. 22-50 or 40s.

Price for other medical books on request.

Telegram:
'CREOLION'

SCIENTIFIC PUBLISHING CO.,

85, Netaji Subhas Road; Calcutta-1

Telephone:
22-5566

T. H. P. HEMOSTYSIN

Hæmostypic tablets of
Superlative efficiency
With
Immediate
And
Sustained effect

Each tablet contains:

Menadione (Vit. K)	... 5 mg.
Rutin (Vit. P)	... 10 mg.
Vitamin C	... 200 mg.
Ayapan	... 50 mg.
Calcium Gluconate	... 300 mg.

PRESENTATION:

Tubes of 20 and bottles of 50 & 100 tablets

TREATMENT HOME PRODUCTS

Telegram:
'TREATMENT'

OFFICE: 36, CREEK ROW, CALCUTTA-14.

Telephone:
24-1082

BOROSIL GLASS WORKS

Now offers

AMBER NEUTRAL HEAT RESISTANCE

Laboratory ware for Bulk storage of Liver Extract and
Vitamin Products up to 2000 cc. capacity.

Industrial & Engineering Apparatus Co. Private Ltd.

Chotani Estates, Proctor Road, Grant Road, BOMBAY-7



For your requirements of:

MICROSCOPES

Colorimeters,
Centrifuge Machines,
Microtomes,
Serological and,
Paraffin Bath,
Ovens and Incubator,
Ultra & Infra lamps etc.

Write to:

D. SHAH & COMPANY,
24, Sardar Griha Buildg.,
Lohar Chawl, BOMBAY-2.

Phone: 30054 Grms: 'SCIENCIA'



for radiant motherhood

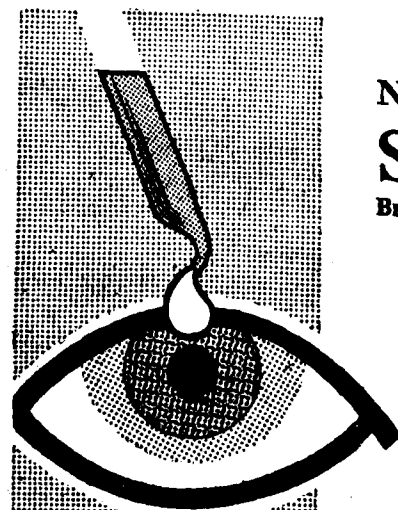
The tonic of choice
in
pregnancy, lactation
and
general debility.



VINKOLA

plain & with vitamins

Standard Pharmaceutical Works Ltd. Calcutta - 14



NOW FREELY AVAILABLE
SUNEPHRINE

Brand of Phenylephrine hydrochloride, 2.5% 5% & 10%

*most useful drug
In Ocular Therapeutics*

A SUNWAYS  PRODUCT

Other Eye Preparations

CARPINOL
Pilocarpine Nitrate, 2%

ARGAMIDE
Ephedrine, Sulphacetamide
with Silver Vitellin.

BIOCULA
Acid Boric, Zinc Sulphate,
Acid Salicylic, etc.

SUN-OCULA
Argenti Nitras
with Potassium Iodide.

SUN MIOTIC
Eserine Salicylate,
Pilocarpine Nitrate & Boric Acid.

For details write to
SUNWAYS (INDIA) PRIVATE LTD.
C-19, Wastamal Building, Grant Road, Bombay-7

True
physical
&
psychic
sleep
with



VESPARAX

TABLETS

Tranquillizer — Barbiturates Combination



UNI-U.C.B. (INDIA) PVT. LTD.
BOMBAY 26.

- without dreams or nightmares
- without hangover
- without depression

In Service Lies Success

GUARANTEE: Reliable Goods Prompt Delivery
Packing Free for Post Parcel Order of 100/-

Postage & Sales Tax extra. 1% with C Form otherwise 7%. Maharashtra State 5% more

Pl.	SG.	Ft.	S. Forte	BDH 5gr x 100	100A 14-00	Ind. 11/-
Penicillin G Crys	4-50	6-50	8-50	9-75	1000	3-75
0-43 0-63 0-98	10 lac.			5 mg	3-50	
Proccain 4 lac	0-57	20	1-69	100mg	7-75	
Proccain Oily 30 lac			3-87	SC.	10-75	
Tab. 2 lac 10 1-69			100	10cc	0-70	
Dihydrostrepto 1 grm			0-80	Orange	9-62	
Streptopenicillin 1G	0-74	1G	1/-	Multivitamin	1000	5-25
Chloramphenicol Caps Sealed	12	2-00		Nicotinic or Nicotinamide	1000	5-25
100 10-75	500	53/-	1000	102-50		
Eye Gint 6/- Syrup	50	MI	3-44	Bot.		
Cum Dihydroestr.	12	4-75	100	35-50		
Aspirin BDH 1000	6-25	Ind.	4-25			
INH 50mg x 1000	8-50	100mg.	15-75			
Prednisolone tab.		100	13-75			
Santonine & Calomel	100	2-00	500	7-50		
Telbutamide Tab.	100	5-25	500	25-00		
A.P.C. Cheap	5-62	B.P.C.	7-00			
Euterochlor tab.	500	7-37	1000	14-50		
Imphaprin tab.	100	4-37	500	20-00		
Chloroquin tab.	100	7-25	500	32-75		
Sulphadiazine 500	13-75	1000	27-00			
guinadine 500	4-25	1000	7-50			
thiazol 500	6-00	1000	11-00			
dimidine 500	7-50	1000	14-50			
Sulphanilamide 500	4-50	1000	8-00			
Sulpha (3)	500	8-50	1000	18-75		
Vit. A D Caps	1000	18-00	tab.	10-00		
B Complex Sup.	Fort	100	2/-			
Pl.	SG.	Ft.	S. Forte	BDH 5gr x 100	100A 14-00	Ind. 11/-
4-50	6-50	8-50	9-75	1000		
B2 10 mg x 1000	5-50		5 mg	3-50		
C 50 mg x 1000	4-75		100mg	7-75		
K tab 1000	8-75		SC.	10-75		
Folic Acid 1000	5-87		10cc	0-70		
Multivitamin 1000	9-37		Orange	9-62		
Nicotinic or Nicotinamide	1000	5-25				
Camoquine tab.	250	30-50				
Nivaquine tab. strop	100	8-75				
Multivitamin Drops	11/-	F.	18/-	doz.		
Equine Java	10-50	Bengal	5-37	gr.		
Quinine Sulph oz	2-75	500	grm	50-00		
B-Complex 10cc.	Sup.	Fort	11-50			
Plain 6/- dz.	Fort	7-00	dz.	Med.		
B12 100mg x 10cc		doz.	8-50			
200mg x 10cc	1-12	500mg x 5cc	1-12			
1000mg x 5cc	2-12	Medichem				
Vit. B1 100mg x 10cc	6-00	doz.	Med.			
Liver Ext. 2USP	Ind.	8-50	Fort	20/-	doz	
Cal. o Vit. C	500mg x 10cc	50A	20-75			
Glucosate 10%	x 10cc	50A	4-75			
Emetine Hydro	gr x 50	19-50	lgr	38/-		
Milk cum Iodine	50 x 5cc		4-25			
Col. Calc. Vit. D	300cc		1-88			
B12 10cc			2-12			
Distilled water	amps.	100				
2cc	2-75	5cc	2-88	10cc	4-00	
Paraldehyde	50x2cc	7-50	5cc	10-50		
Quinine Amps.	100	10gr.	2cc.	15-00		
Oil Chinopodium	25cc		3-75			
Santonine dr.	2-00	25 grm	14-50			
Aspirin	5-12	Phenacetin	6-00			
Pot. Citras	2-00	Bromide	5-00			
Soda Salicylas	3-38	Iodoform	2/-	oz.		
Iodin Crystal	1-12	Menthol	1oz	9-75		
Silver Vitellin	1-87	Protinate	1-12			
Gum Accasia	2-50	Mag Sulph	0-37	lb.		
Oil Castor	1-50	Terbenthi	1-50			
Soda Bicarb	0-62	Calcium Gluco	3-75			
Acrifavin	5grm	2-00	25grm	8-25		
Mercurochrom	25grm	2-37	100grm	8-25		
Hydrogen	4 oz	0-50	lb.	1-25		
Suture Needles	6 in a pkt.		2-50			
Scalpel Blades	6 in a pkt.		3-75			
Mag. Tricillate			2-25			
Carb Light			1-25			
Personal Weighing Machine			75-00			
Scissors 5"	1-25	D Forceps 5"	1-00			
Artery Forcep	2-00	Sinus Forcep	2-25			
Cheatele Forceps	8"	C.P.	3-50			
Foreign Body Remover			1-00			
Percussion Hammer			Sup.	2-50		
Thermometers	min. Jap.	20-50	Ger.	39/-		
Zeal	58-00	Eng.	45-00	USA	48/-	doz.
A.T.S.	750/1500	U.		16/-		doz.
	1500/3000	U.		18/-		
	10/2000	U.		12-75	20/40000	U.
	1 lac	0-52/-				19/- each.

SHANTI TRADING CO., Baroda Bank Buildings, Palton Road, BOMBAY-1
(Any Item not quoted will be supplied at competitive Rate)

Phone: 264972 T'grams: "BATTENS"

now
cholinolytic

PIPTAL

without
urinary retention
or constipation
relieves
pain $\rightleftharpoons$ spasm
of peptic ulcer

Vagal depressants
and anticholinergics
"...studied to date
have produced
toxic symptoms
before therapeutic
vagotomy"

L. Matman, R.E. and Brubaker, L.: Am. J. Digest. Dis. 20: 126, 1955.
Copyright 1955, GEORGE L. BROWN, INC.

PROCESSED IN INDIA BY



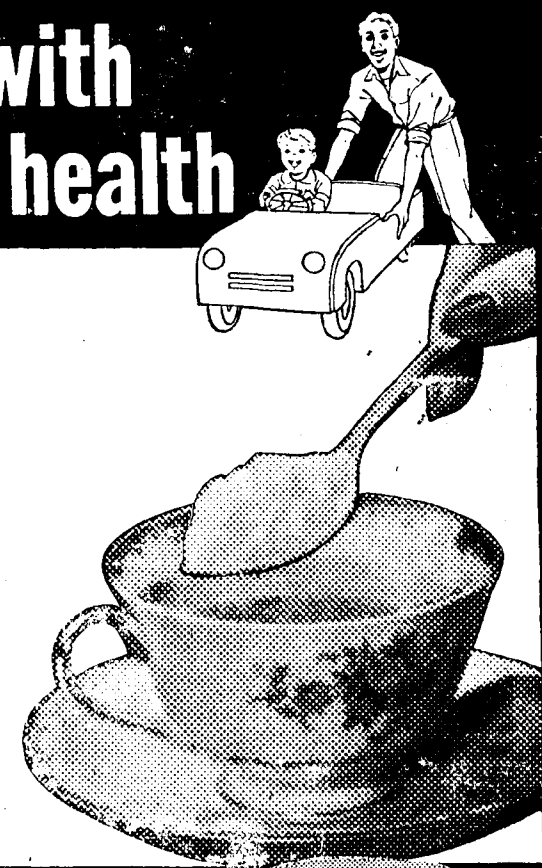
Chemo-Pharma
Laboratories Ltd.
PLOT C-8, 214, SEVEN, BOMBAY 12.

BY ARRANGEMENT WITH

L. Matman PIONEERS IN PIPERAZOLE
LABORATORIES INC. MILWAUKEE 1, WISCONSIN



Begin today with a spoonful of health



Your daily worries and anxieties tend to throw your digestive system out of balance. You feel depressed, upset over trifles, tense and listless. Get back your normal health...guard against ill-health...with Kruschen Salts. Only Kruschen Salts has the perfectly balanced combination of vital minerals and salts, each of which aids the body in its functions.

Kruschen Salts stimulates your body system to eliminate blood impurities associated with pain in muscles and joints, rheumatism, gout, lumbago, sciatica; also eczema and other skin diseases. Take just a spoonful of Kruschen Salts with your morning drink...you'll feel so much healthier.

ONLY KRUSCHEN SALTS
GIVES YOU THIS 7-WAY ACTION

- Flushes the kidneys • Activates sluggish liver • Purifies the blood
- Prevents constipation and cleanses the stomach • Quickens digestive action • Makes you relish your food • Retains vital salt balance



FOR BETTER HEALTH, TAKE Kruschen Salts

A NICHOLAS **N** PRODUCT

Your guarantee of quality and purity.

LENOPON

- ANTACID
- ADSORBENT
- ANTISPASMODIC

for P-R-O-L-O-N-G-E-D relief



TABLETS AND
NOW
ALSO IN
palatable
LIQUID
FORM

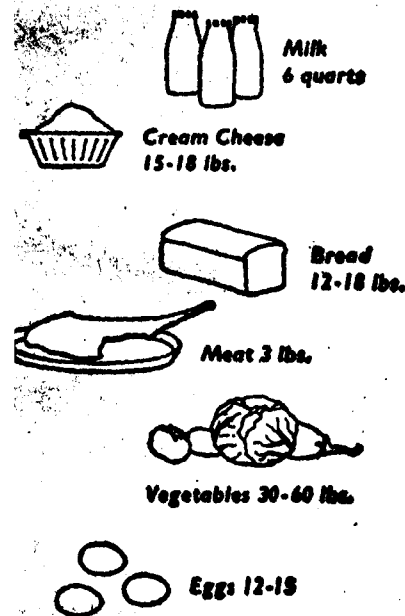
No acid "rebound" or constipation
No alteration of acid-base equilibrium
No mydriasis, tachycardia, or dryness of mouth

Dose: 2-3 tablets or 2-3 teaspoonfuls after each principal meal and before going to bed
Packings: Tubes of 20 and bottles of 50 & 100 tablets; Bottles of 100 ml. liquid.

LABORATOIRES VIFOR S.A. GENEVA-SWITZERLAND
Sole Distributors: ATUL DRUG HOUSE, BOMBAY 18.

15 mcg. Vitamin B₁₂
in a
daily dose...

(quantities of common dietary articles containing 15 mcg. of Vitamin B₁₂ are indicated below)



plus...

Vitamin B₁₂...the erythrocyte maturation factor...is but one feature in the Plastules B₁₂ formula. It also contains iron, liver, yeast and folic acid. It is designed to provide for complete and continued haemopoiesis in nutritional anaemias, whether "borderline" or severe.

Just
3 Plastules B₁₂
capsules
per day
provide:

Dried Ferrous Sulphate	486 mg.
Dried Yeast	144 mg.
Folic Acid	3 mg.
Vitamin B ₁₂	15 mcg.
Liver Extract derived from 10.2 Gm. fresh liver	

Supplied:

Bottles of 30 and 300 capsules.



JOHN WYETH & BROTHER LIMITED, LONDON

(Incorporated in England with Limited Liability)

Indian Branch: Steelcrete House, Dinshaw Wacha Road, Bombay 1

* Trade Mark

**SO versatile...
SO flexible...**

can be administered intravenously

CHLOROMYCETIN SUCCINATE

subcutaneously

intramuscularly

PARKE-DAVIS