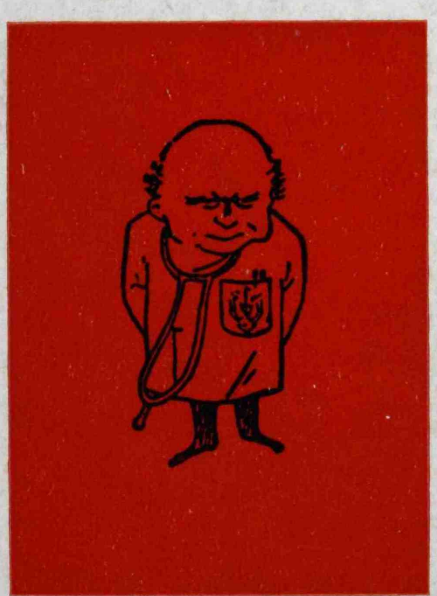
ELIXIR



E

rnal of hong kong university medical society 19

'Aventy

brand Nortriptyline

Lends wings to troubled minds

New wide spectrum mood enhancer

More than an anti-depressant

Four out of five patients respond

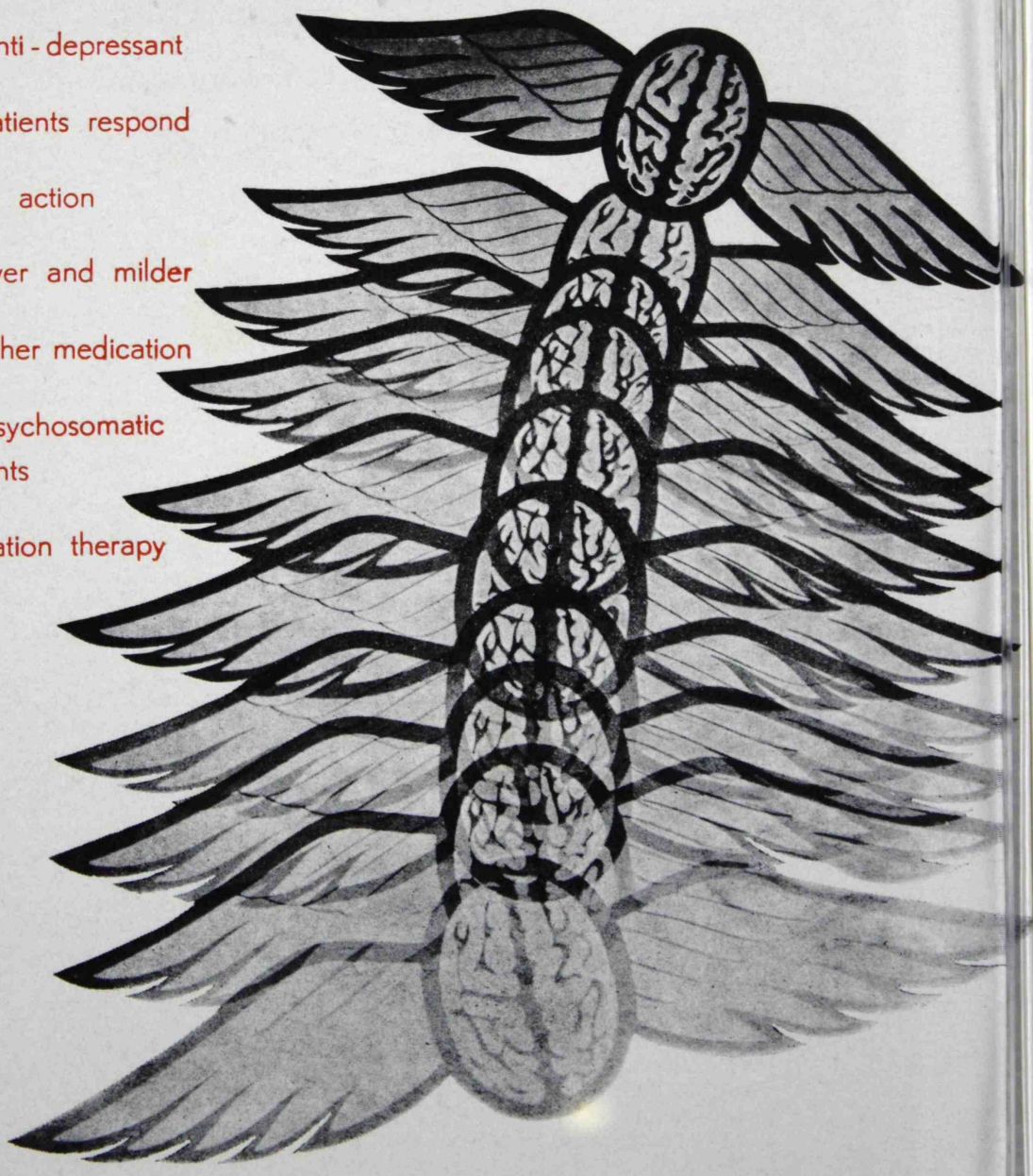
Swiftness of action

Side-effects are fewer and milder

Compatibility with other medication

Effectiveness in psychosomatic complaints

Value in combination therapy



Presentation: Pulvules of 10 mg. and 25 mg. Liquid 10 mg./5cc 120cc

ELI LILLY & CO. LTD.
Basingstoke, England.

Distributor: **Y. C. WOO & CO. LTD.** Hong Ko
TEL: 234295, 237496, 228386, 232852

A NEW STEP IN ANALGESIA

PONSTAN®

(mefenamic acid)

PARKE-DAVIS

Potent...rapid-acting...
nonnarcotic...well tolerated.

Useful in most types of acute or chronic pain—postoperative, postpartum, traumatic, dysmenorrhea, muscular pain, bursitis, headache, pain following tooth extraction.

PARKE-DAVIS

EJ-7-65

Savlon Hospital Concentrate

A powerful weapon against bacteria

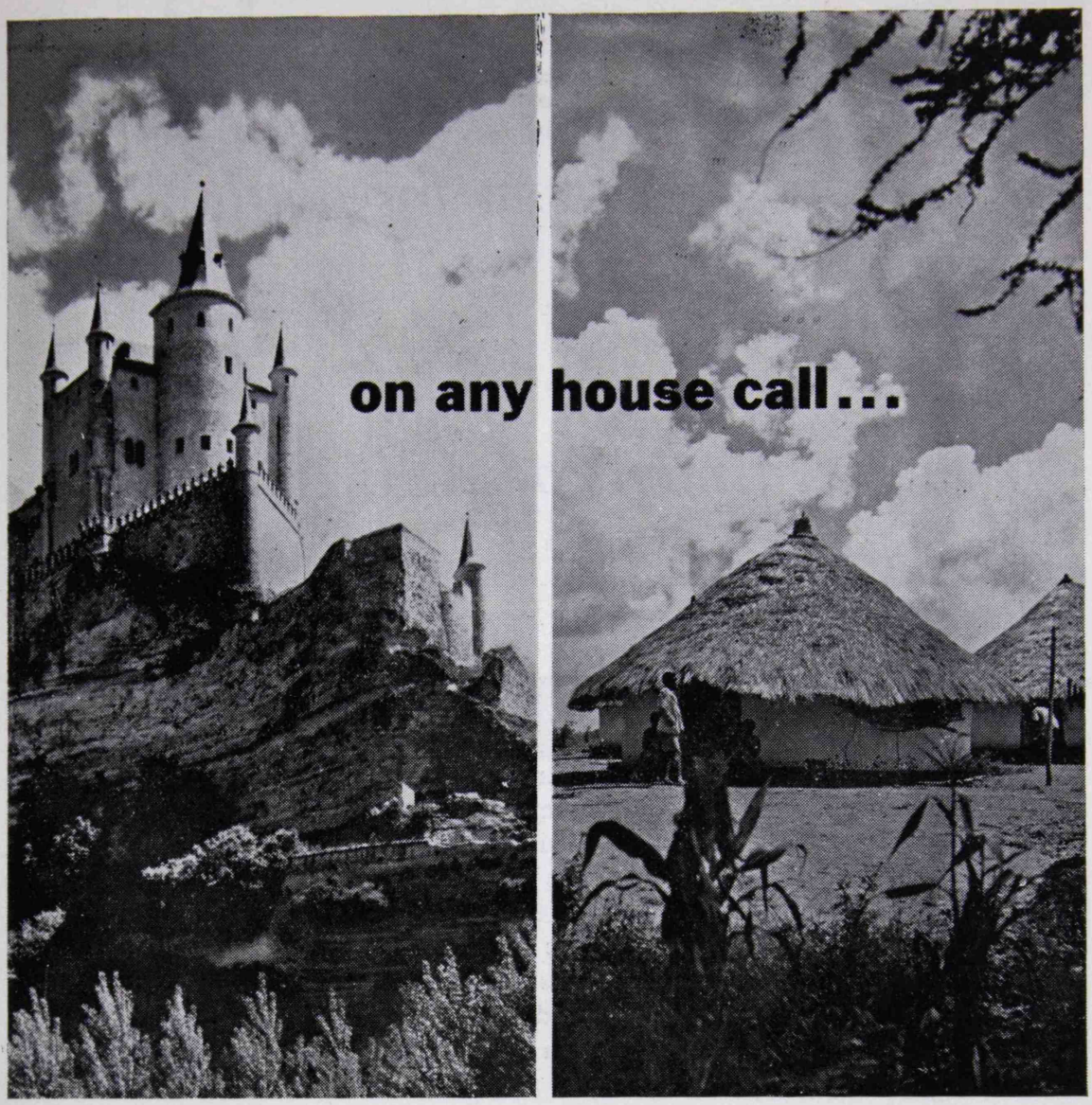
In hospitals, surgeries and wherever antisepsis and cleanliness are essential, 'Savlon' provides valuable advantages. Unparalleled antibacterial activity coupled with effective cleansing power has been achieved by combining 'Hibitane' (chlorhexidine) and 'Cetavlon' (cetrimide) in this new antiseptic. In potency and safety superior to the phenolic disinfectants, 'Savlon' is the agent of choice for routine antisepsis of all kinds.

Savlon HOSPITAL CONCENTRATE

Issued in containers of 1 quart and 1 gallon.

Sole Distributors:—

Imperial Chemical Industries (China) Limited,
Union House,
P.O. Box 107, Hong Kong.



LEDERMYCIN*

DEMETHYLCHLORTETRACYCLINE LEDERLE

*Trademark

secures optimum antibiotic care

Higher antimicrobial levels... up to 3.5 times more active than other tetracyclines† ☐ **Lower** milligram dosage... only 60 per cent of tetracycline ☐ **Longer lasting** activity... up to 48 hours after the last dose ☐ **provides an "extra dimension" of broad spectrum control in common infections.** ☐ For adults: Capsules, 150 mg. Pleasantly flavored for children: Pediatric Drops, 60 mg./cc. (3 mg./drop), and Syrup, 75 mg./tsp.-5 cc. †Sweeney, W. M., et al.: Amer. J. Med. Sci. 243:296-308 (March) 1962.

LEDERLE LABORATORIES • CYANAMID INTERNATIONAL

Sole Distributors: A. S. WATSON & CO., LTD. Tel: 700231

leaving no room for doubt . . .

in the treatment of ASCARIASIS

ONE DOSE ONLY . . . of one fluid ounce. It would be difficult to devise a simpler treatment. Yet this is precisely the treatment now advised when employing 'Antepar' Elixir against ascariasis*. No longer need you doubt that the course prescribed will be faithfully followed—for the 'course' is completed in one dose. No longer need you doubt that the patient will return for 'follow-up' treatment—for no such treatment is needed. In short, 'Antepar' reduces treatment to the very simplest terms. Moreover, 'Antepar' provides the surest, simplest answer to threadworms—the course comprising single daily doses of the preparation for seven consecutive days.

'ANTEPAR'

today's conclusive answer to roundworms and threadworms

NOW IN TWO FORMS

* ELIXIR — contains piperazine citrate equivalent to 500 mgm. Bottles of 1, 4, and 20 fl. oz.

* CHEWING TABLETS — each contains the equivalent of 500 mgm. piperazine. Strip packs of 20; bottles of 250.

*This dosage is for the older children and adults. Still smaller dosage is needed for young children. When employing 'Antepar' Tablets in ascariasis, a single dose of six or eight tablets is recommended — according to the patient's age.

JOHN D. HUTCHISON & CO. LTD. (Pharmaceutical Dept.), Union House, Hong Kong. Telephone: 242101

Sole Agents in Hong Kong for

BURROUGHS WELLCOME & CO. · LONDON

(THE WELLCOME FOUNDATION LTD.)

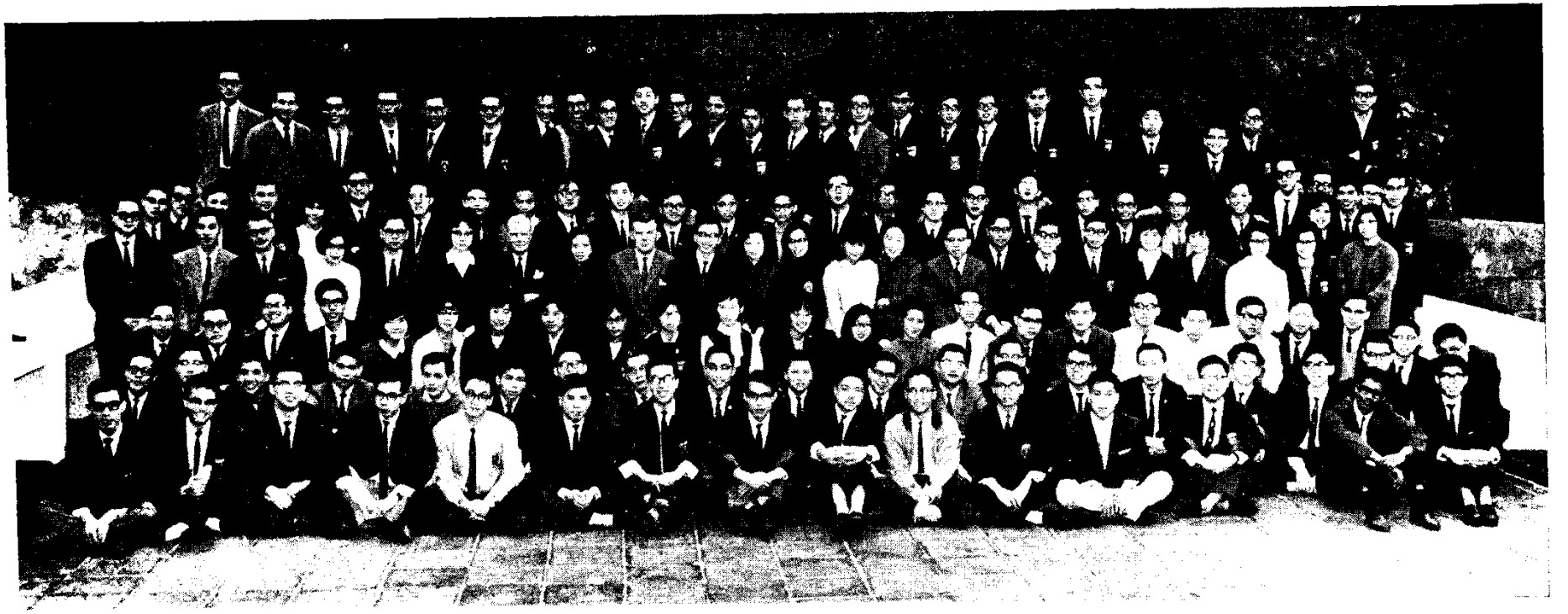
COMMITTEE OF THE MEDICAL SOCIETY

1964-1965

President	Dr. Rosie T. T. Young
Vice-President	Professor G. B. Ong
Hon. Treasurer	Professor J. B. Gibson
Graduate Representative	Dr. Harry S. Y. Fang
Chairman	Mr. Pau Wing Iu
Hon. Secretary	Miss Pamela M. K. Leung
Ass. Hon. Treasurer	Mr. Poon Yui Chee
Social Convenor	Mr. Yeung Chung Him
Sports' Captain	Mr. Tsang Lik Hang
Ex-Chairman	Mr. Foo Kam So

ELIXIR JOURNAL

Adviser	Dr. D. E. Gray
Manager	Mr. Chan Ying Shek
Editors	Mr. Yeung Kwok Hung
	Miss Angeline Yeung Wai Ling



The Group Photo, H.K.U. Medical Society, 1964-1965

ELIXIR

Journal of the Hong Kong University Medical Society

CONTENTS

	Page
Editorial	7
Facts and Fancies	9
The Role of Surgery in the Treatment of Cancer	11
Oh Dear me	19
Three Australian Students' Impression	21
Very Long Fingers	23
Gold Medal Awarded to Sister Mary Aquinas	33
Time To Feed	34
Med-Mad Tonic	42
Some Comparisons of Medical Education in Hong Kong and United States	44
Some Photos	55
A Chemist's Approach to the Problem of Drug-Addiction II	56
Cartoon Time	63
Physicians, Patients and Placebos	77
On the Treatment of Sore Throat	83
Misery, Security, Happiness	85
Do You Remember	86
News from the Gazette	88
Result of Colostomy	92

Number 1 1965

Price: H.K.$4.00

Editorial and Business Address:
Elixir, H.K.U. Medical Society,
c/o H.K.U. Students' Union, Hong Kong University, Hong Kong

Printer:
Ye Olde Printerie, Ltd., Hong Kong

CONTRIBUTIONS TO THE MEDICAL SOCIETY ELIXIR BURSARY LOAN FUND

Since our last issue went to press we have received the following donations to our Loan Fund:

Dr. S. M. Bard	$ 13.00
Dr. Bee Hoat Teck	$ 50.00
Dr. S. T. Chan	$ 10.00
Dr. James Chang	$ 10.00
Dr. Cheuk Chi Ming	$ 40.00
Dr. Joseph Cheung	$ 90.00
Dr. Cheng Ming Kin	$100.00
Dr. Cheung King Ho	$ 13.00
Dr. Chu Kwok King	$ 30.00
Dr. Chuang I-Sheng	$ 50.00
Rev. Fr. F. Cronin, S.J.	$ 10.00
Dr. Kunnien Fe	$ 10.00
Dr. Han Wee Fong	$200.00
Dr. Fong Joo Khoon	$ 25.00
Dr. Ho Suk Yee	$ 50.00
Professor A. R. Hodgson	$100.00
Dr. Hui Hwan Lun	$ 40.00
Dr. Sylvia Hui	$100.00
Dr. N. S. Karaujra	$ 10.00
Dr. Frank Kung	$ 10.00
Rev. E. Kvan	$ 25.00
Dr. Lam Chi Wai and Y. C. Tah	$ 25.00
Dr. Lim Chin Lang	$100.00
Dr. Li Hei Nin	$ 40.00
Dr. Liang Shun Yuen	$100.00
Dr. Lui Kwai To	$ 20.00
Dr. Lo Siu Sun	$ 50.00
Dr. Philip Wen-Chee Mao	$ 15.00

(To be continued on next page)

CONTRIBUTIONS TO THE MEDICAL SOCIETY ELIXIR BURSARY LOAN FUND

(Continued)

Dr. Raymond W. C. Mok	$ 20.00
Dr. I. F. Osmund	$ 30.00
Dr. Tang Yee Yuen	$ 50.00
Dr. Tseung Ying Kay	$650.00
Dr. Wong Chi On	$ 20.00
Dr. Wong Yiu Lai	$ 10.00
Dr. Wu Hung Hau	$ 10.00
Dr. Yang Ching Po	$ 10.00
Dr. Raymond Yap	$ 20.00
Mr. K. O. Yeung	$ 10.00
Dr. George T. C. Yeung	$100.00
Dr. David Yue Pui-Lam	$ 20.00

These donations are most gratefully acknowledged.

Contributions may be sent to the Editors, Elixir, Hong Kong University Medical Society, c/o Hong Kong University Students' Union, Hong Kong University, Hong Kong. Cheques should be made payable to: Hong Kong University Medical Society Elixir Account.

EDITORIAL

Contributions to the present issue both in the form of articles, jokes, cartoons and as donations to the Elixir Bursary Fund are encouraging. The editors wish to express their appreciation to all those who have helped to make this magazine a success.

Just as in the past issues, we have included into this publication writings and drawings of the students themselves, those of the teaching staff and outsiders who kindly give comment on one aspect or another of our Medical School.

We are starting to put up a Corresponding Column in the next issue so that when people wish to say something on the Medical Society they will be provided space for it in the magazine. Such a column, we hope, will also assist to bring the past and present members closer together. So may we appeal to our readers for a hearty support?

THE EDITORS

ACKNOWLEDGEMENTS

Journal of Education, Hong Kong University, 1963

Squibb

Boots Pure Drug Co., Ltd.

Texas Reports on Biology and Medicine

Japan Medical Gazette

Japan Pharmaceutical, Medical and Dental Supply Exporters, Association

Hong Kong University Gazette

FACTS AND FANCIES

Happy days are here again,
The skies above are clear again,
Lets sing a song of cheer again,
Happy days are here again.

What with a fresh accent in the fifth floor—"Boy, what can you make of this mass in her neck?", two Chairs filled to the brim by a pair of not-so-new faces, a welcome back to the Gibson Girl (not plural, unfortunately), without forgetting to say, "Here comes the bride".

* * *

In olden days, people resorted to 'specialists' just as we do nowadays, when a member of their family was ill. These 'specialists' were in fact five gods who presided over the epidemics of the five cardinal points and the four seasons. But these divinities were hardly the object of worship except from the Taoist sorcerers, who gave them names and titles according to the region and schools to which they belonged. So too with the Ministry of Medicine and that of the Driving out of Evil Enchantments, their members were practically only known to doctors and exorcizers.

"Among the people the Smallpox divinity, Tou-shen, 痘神 was one of the most dreaded. It is said that she was especially charged with the punishment of infanticide, which was common in certain provinces where a large number of girl babies were drowned at birth, and that she prevented the guilty from having posterity. Her image was often found in the little chapels erected at crossroads in the heart of the country, and also in a great number of temples. In certain regions, she was a goddess, and was ranged among the attendants of the Princess of the Motley Clouds, with her son, the God of the Black Smallpox, Pan-shen, 班神, beside the two deities of measles, Sha-shen 痧神 and Chen-shen 疹神 ; in other temples, she was a male deity. In either case both pictured images and statues were characterised by an eruption of pustules upon the face. There were also the Goddess of the Plague, the God of Asthma, and the Generalissimo of the Five Dynasties, a God of Boils who seemed to be peculiar to Fukien, etc. All these gods and goddesses were invoked as much for protection against the disease they dispensed as for healing, but they were almost invariably only addresses for isolated or not very serious cases, or again in anticipation, following a consultation with a medium or a sorcerer who had advised making an offering to them."

This certainly reminds us of the present images of Little Horses 馬仔, under the deified eyes of the 大波士, Big Boss, protecting the Hashimotos and the Krukenbergs! Chances are, however, that without an M.R.C.P. or an F.R.C.S., the gods won't be collecting livers in their temples!

* * *

The word 'Elixir' was originally coined to mean a substance that could prolong life. Later on, this word was applied to medicinal mixtures that could heal a disease and thus render the sick man a life-longer service. The medicine man of the early American settlements took advantage of this, and made elixirs out

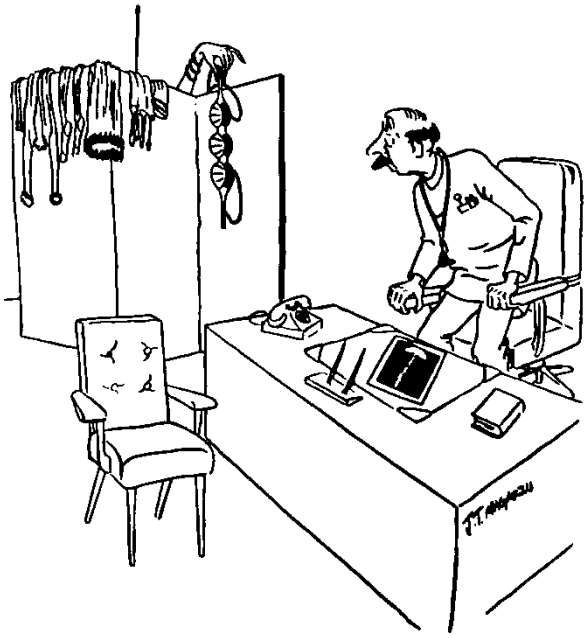
of alcohol and sugar; he sold them for $10 U.S. a bottle to the poor, heckled, bed-wildered husbands whose spirits certainly soared into heaven even if their bodies did not. News of this potent medicine spread like wildfire, and men ran out from the saloons to pay $10 for this bottle of freedom under the very noses of their osmically illusioned wives who could'nt smell a rat!

Thus elixirs used before the dawn of pills and injections all had one common factor—alcohol. Like so: Acid Elixir of Haller contains one part sulphuric acid and three parts alcohol.

Stoughton's Elixir is a tincture made of 25 parts each of rhubarb, gentian, wormwood, germander, and bitter orange, 5 parts each of aloes and cascarilla, and alcohol a sufficient quantity.

In other words, a bottle of whisky is an elixir, savvy?

* * * *



Topfull !

(Courtesy Squibb)

* * * *

LATEST BOOKS

" A Fractured Spine "	— (*by*)	Eileen Dover
" A Guide to Laboratory Research "	—	X. Plotion
" Cardiac Pain "	—	U. Brokitt
" On the Operation Table "	—	I. Seymour
" On Students' Behaviour "	—	Deak Orticate
" My Fair Lady "	—	Rosie and Young

L. F.

THE ROLE OF SURGERY IN THE TREATMENT OF CANCER

AN INAUGURAL LECTURE FROM THE CHAIR OF SURGERY

(delivered on 20th January, 1965)

By Professor G. B. Ong, M.D. (Shanghai), M.B., B.S. (Hong Kong), F.R.C.S. (Edinburgh and England), F.A.C.S.

The earliest evidence of surgery being practised by human beings is found in the palæolithic caves of Spain, where fingers were discovered to have been amputated in ritual ceremonies 20,000–25,000 B.C. Much later trephining operations were practised by the ancient Incas. These, first started as superstitious rites and then as therapeutic measures to let off evil spirits, could have been attempts at decompressing increased intracranial pressure caused by expanding intracranial lesions, which in some cases could well have been cerebral tumours.

Hua-To (Fig. I), the only ancient Chinese surgeon who was reputed to have carried out such surgical operations as venesections, acupuncture, resections of spleen, intestines, and liver, was credited with having diagnosed and commended the remval of a cerebral tumour. All ancient scripts on surgery dealt mainly with the care of traumatic and battle injuries; voluminous work was published dealing with the care of battle wounds. Little was known of the treatment of cancer inside the body. One of the earliest records of surgical operations for cancer was found in a book written by Johannes Schultz (Scultectus, 1595–1645). In this *Armanentarium chirurgircum* he described with illustrations the method of removing breast cancer. Surgery in the treatment of cancer did not really develop until less than a hundred years ago, when surgeons in Europe and America had a better understanding of the anatomy and physiology of the human body. The introduction of blood transfusion, the disvoery of antibiotics, and last but most important of all, the full cooperation and joint efforts of the physicians, anæsthetists, and surgeons in the pre- and post-operative care of patients added to its advancement. Today the role of surgery in the treatment of cancer extends from the scalp to the toe; but this evening I shall confine myself to the treatment of cancer of *1.* œsophagus, *2.* stomach, *3.* liver, and *4.* urinary bladder.

1. CANCER OF THE ŒSOPHAGUS

Carcinoma of the œsophagus may occur in the neck, superior mediastinum, mid-thoracic portion, and lower third of œsophagus.

This condition was well known in nineteeth century Europe, but nothing could be done for the poor sufferers until in 1871 Billroth thought of the possibility of resecting the cervical œsophagus, and in that year carried out operations on dogs with success. Six years later, on May 2, 1877, his pupil Czerny, then Professor of Surgery in Heidelberg, carried out the first resection of the cervical œsophagus. No attempt at reconstruction was made then and the patient had to be fed through a tube. The following year Mikulicz, another great pupil of Billroth, not only carried out resection of the cervical œsophagus, but also reconstructed it with skin. Up to 1885 only nine cases of cervical œsophagectomy were performed. Cancer occurring in the thoracic portion of the œsophagus was then an unsolved problem, due to its inaccessibility. Surgeons were then unable to open the chest with safety. It was not until 1913 that Franz Torek succeeded in removing a cancer of the thoracic œsophagus. His patient was a female aged sixty-seven, who had a lesion situated just below the aortic arch. He first performed a gastrostomy for feeding and then after resecting the middle œosphagus brought out

the divided end in the neck and closed the lower portion. After a period the gastrostomy was connected to the œsophagostomy opening with a rubber tube and the patient was able to eat by mouth. She was so satisfied with her rubber œsophagus that she refused further plastic repair.

Plastic repair with skin

Attempts at plastic repair of the thoracic œsophagus were carried out by many workers. H. Bircher used the skin to form a new tunnel for feeding, as early as 1894. His method had many adherents, and such operations were carried out as recently as in the 1940's.

We have employed this method of reconstruction only for cancer of the cervical œsophagus. This method of reconstruction is unsatisfactory, because it is time-consuming and there are many complications, such as strictures and fistula formation.

Use of stomach in reconstruction

Because of these disadvantages other methods of restoring continuity of the alimentary tract had to be devised.

In 1905 Carl Beck demonstrated in cadavers his technique of making a tube out of the greater curvature of the stomach to be anastomosed to the divided œsophagus. The tube he made was long enough to reach the chest.

Modern application of Beck's method of reconstruction was carried out with success by Gavrulu of Rumania and Heimlich and Winfield (1955) of the United States.

The use of the whole stomach for reconstruction of the œsophagus was successfully done by Kirschner in 1921. By freeing the lesser and greater curvature of the stomach and dividing the left gastric vessels, the vasa brevia, and the left gastro-epiploeic vessels, the stomach could be brought up into the chest with ease. We have demonstrated that by extensive freeing of the second part of the duodenum the fundus of the stomach could be brought up as high as the pharynx.

Case I. A case of postcricoid carcinoma was operated on in 1959. The operation consisted of removing the pharynx, the larynx, and the whole of the œsophagus. The stomach was freed in the abdomen and brought up into the neck through the chest, to be anastomosed to the pharynx. This patient is still alive and well.

Reconstruction of the œsophagus with jejunum

Besides the stomach, the jejunum and colon also may be used.

It was Cesar Roux (1907) who first fashioned a loop of intestine long enough to reach the chest (this type of intestine has since been known as Roux loop). The Roux loop can be brought up into the neck either underneath the skin or behind the sternum. The latter method was introduced by Robertson and Sarjeant in 1950. We have carried out both procedures with success.

Use of colon in reconstruction

Sometimes the colon may be used when the rest of the gastro-intestinal tract is found to be unsuitable. It may be brought up into the neck either underneath the skin or behind the sternum. (Fig. II)

Case II. A male patient had recurrent carcinoma of the larynx operated on in 1961. More than two-and-a-half years later he developed a recurrence of the cancer in the pharynx, resulting in dysphagia. Further excision of the pharynx with the growth was done in 1963. The right side of the colo nwas brought up into the neck behind the sternum and the cæcum was anastomosed to the divided pharynx. When last seen two months ago, he was quite well.

Fig. I.

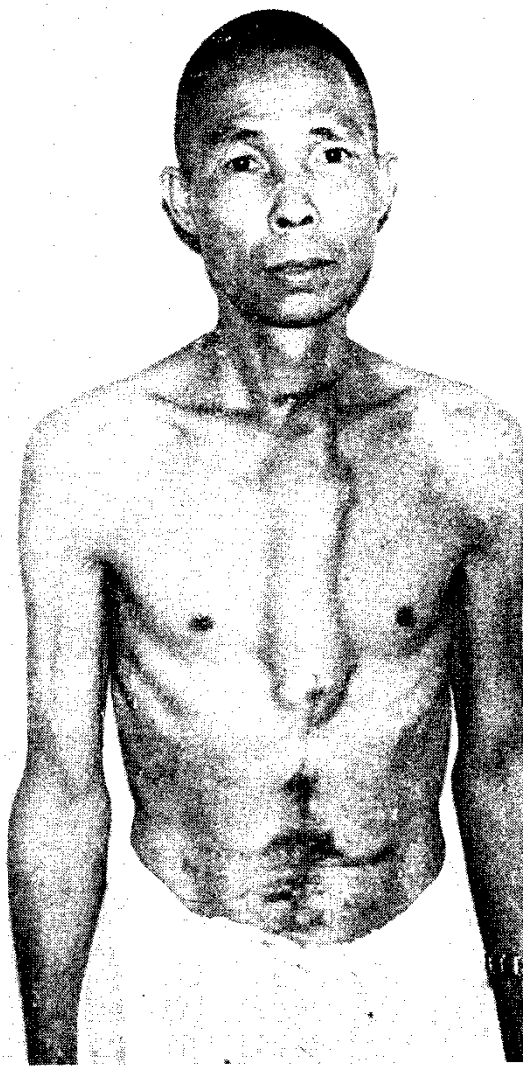


Fig. II.

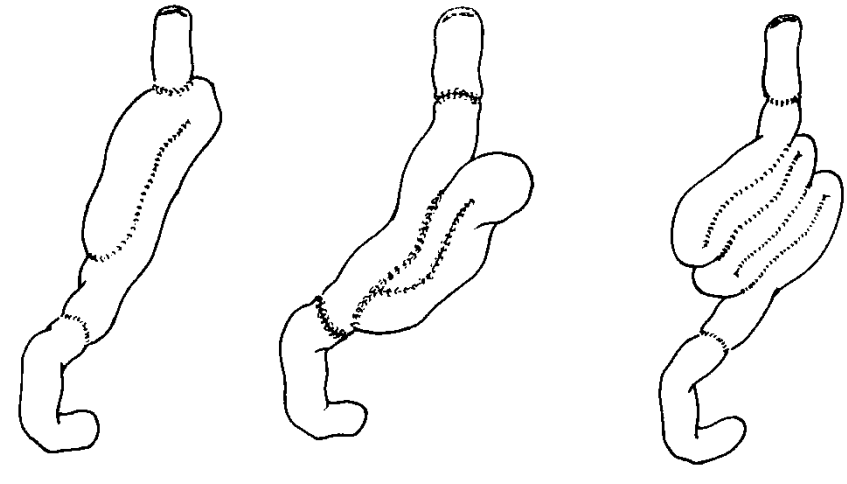


Fig. III.

Fig. I — Tablet showing Hua-To removing an arrow from the arm of Kwan Kung while the latter is playing chess
(By kind permission of WILKAMS AND WILKIMS CO., BALTIMORE*)*

Fig. II — The right side of the colon is used to reconstruct the œsophagus

Fig. III — Diagram showing the various methods of jejunal replacement of stomach

2. CARCINOMA OF THE STOMACH

The milestone in the treatment of cancer of the stomach was the year 1881 when Theodore Billroth resected the first case. He anastomosed the remnant of the stomach to the divided duodenum. This type of gastro-duodenal anastomosis is now known as Billroth I operation.

The following year (1882) Anton Woffler, finding in a case the cancer of stomach not amenable to resection, performed the first gastro-enterostomy to bypass the obstruction. By 1885, just four years after Billroth's first resection, thirty-seven gastric resections had been reported. There were thirty-seven operations performed by twenty-five different surgeons, with Billroth performing eight. The outlook for cancer of the stomach, gloomy enough today, was hopeless seventy years ago. It was Schlatter of Switzerland who in 1897 effected the first total gastrectomy. In his case he managed to restore gastrointestinal continuity by anastomosing the jejunum to the divided lower end of the œsophagus. The mortality was then high; and what is more, there was no evidence that total gastrectomy *per se* would improve the result of cancer of the stomach. The suggestion that results could be improved by extended total gastrectomy with the resection of the lymph nodes at the porta hepatis, resection of the spleen, and body and tail of the pancreas, has been advanced by McNeer *et al.* (1958), Oschsner *et al.* (1955), Pack *et al.* (1957), Vissali and Grimmer (1956), and Wangensteen (1959).

After radical total gastrectomy, various methods of restoring gastrointestinal continuity had been devised, the most commonly advocated being either the end-to-side anastomosis of the lower œsophagus to a jejunal loop, or a direct anastomosis between the œsophagus and the duodenum. The mortality of total gastrectomy has dropped to as low as 7% (Marshall and Uram, 1954).

However, it was soon obvious that the survivors were unhappy people with a high incidence of anæmia, inability to gain weight, and frequency of development of dumping syndrome. One of the most distressing symptoms is the inability to hold a meal of reasonable size. This has led surgeons to devise methods of making a reservoir to hold such a meal.

We have carried out gastric replacement with cæcum on seven occasion. An illustrative case is a female patient aged fifty-eight who was first seen having a mass in the upper part of her abdomen, present for six months. On further investigation she was found to have cancer of the stomach. She was operated on in 1961. The cancer was found to have extended into the left lobe of the liver, the pancreas, and the transverse colon. All the involved organs were removed en bloc. The cæcum was freed, and the terminal ileum was divided and anastomosed to the lower œsophagus. This patient lived comfortably for two-and-a-half years before finally succumbing to the disease. There is no difficulty in such a patient taking ten ounces of fluid at a stretch. Although this is a good method of gastric substitute it is not the only possible way of creating a 'new stomach' for such patients. A long transverse colon may serve this purpose equally well.

The jejunum is also of very convenient material for gastric replacement. In 1962 we devised a method of enlarging the gastric reservoir by first anastomosing one loop of jejunum and interposing it between the œsophagus and duodenum. A second loop of jejunum was then formed into a pouch, which was anastomosed into the first loop. It was done in a male patient aged sixty-two, who nine months previously had been operated on in another hospital, where a bypass was done without removing the cancer. At operation the whole of the stomach with spleen and body and tail of the pancreas were removed. After the operation he was able to eat well. This operation suffers from the defect that too much stitching has to be carried out and there is the everpresent danger of leakage.

A compromise has to be found. Perhaps a long small intestine, say about 40 cm., is folded together in concertina fashion and serial anastomosis carried out. This produces a satisfactory reservoir without too much stitching, and is still under trial now. (Fig. III)

The outlook for cancer of the stomach is still very grim; but with greater awareness of its existence and therefore earlier diagnosis and a more aggressive attitude among the surgeons, the results should improve.

3. CANCER OF THE LIVER

I turn to another organ in the abdomen and close to the stomach—the liver. Cancer of the liver presents an even greater challenge to surgery. It may arise from the liver cells or the bile ducts. I shall confine myself to liver-cell cancer, which is one of the most common forms of cancer we see in Hong Kong and the more difficult to treat. This type of cancer may arise from a normal organ or more commonly from one that has undergone cirrhotic changes.

The first liver resection, according to Keen, was carried but by Lucke 1891. Resection was then very crude. The liver was just cut through and bleeding controlled by cautery. The development of modern liver resection is made possible by the discovery of the segmental distribution of blood supply and bile ducts.

The amount of cirrhotic liver that can be resected is difficult to judge, because the human cirrhotic liver does not regenerate sufficiently to prevent liver failure in the postoperative period. However, cancer arising in an otherwise normal liver can be extensively resected, for even a small segment of the remnant will grow rapidly. This is shown in the following case.

Case III. A female patient aged forty-nine was found to have cancer of the liver in 1960. Through a right thoraco-abdominal incision exploration was carried out, and it was found that the growth arose from the right lobe and extended to the medial segment of the left lobe. Extended resection of the liver was done, leaving only the lateral segment. Three weeks after the operation a splenovenogram showed that this segment had grown to a fair size liver. She was discharged from hospital well.

Such radical operations are not always possible, for in a previously diseased liver extensive resection would almost always end in death. A more conservation operation should then be done. A patient with a badly scarred liver should have the cancer removed with a good margin of cancer-free zone. The next case will convey to you what I mean.

Case IV. A man aged forty-two was admitted to the surgical service of Kwong Wah Hospital because of ruptured cancer of the liver. At operation the cancer was found to arise from the medial segment of the left lobe. The cirrhoticliver was badly scarred. Instead of removing the whole of the left lobe, only that segment was resected. He was discharged from hospital well. Five months later he came back with general spread of the disease in the peritional cavity. At post-mortem examination the site of resection was found to be free from cancer. Therefore general metastases must have taken at the time of rupture.

On the other hand, when the liver damage is not too severe hemi-hepatectomy can be carried out. This is shown in a young male patient aged thirty-two who was admitted with rupture of the cancer arising from the left lobe of the liver. In an emergency operation the left half of his liver was removed. Tis postoperative course was smooth, and be was discharged well. This patient was closely followed up for just over two years, and when last seen three months ago there was no indication that there was any recurrence or spread of the cancer.

It is true that the number of cases of liver cancer that come to seek treatment from a surgeon is small. Most primary hepato-cellular carcinoma when first seen are in a late stage of the disease and are beyond the aid of the surgeon's knife. Nevertheless, the role of surgery in treatment of liver cancer will increase in importance as the physicians detect cases with early cancer still confined to one lobe.

Prognosis for sufferers of such cancer is best in those who develop rupture of the tumour without having had previous indication of the disease. In our small series of twenty cases of ruptured carcinoma of the liver, resection could be undertaken in only four cases, and they did not all have symptoms of the disease. The above case is one of the four lucky cases that underwent resection and has remained alive for more than two years after operation. What has surgery to offer for the other sixteen cases who had bleeding and were not resectable? Here the bleeding can be stopped either by packing or suture after evacuation of the necrotic tumour. This at least gives them sufficient time to straighten out their affairs. Primary carcinoma of the liver up to the present moment is a fatal disease, but with surgery it has been possible to salvage a very small proportion of cases. When the problem of tissue transplantation has been solved, the role of surgery in all probability will be a greater one in the treatment of such cases.

4. CARCINOMA OF THE URINARY BLADDER

One of the greatest difficulties facing the surgeons is in the treatment of cancer of the urinary bladder. Because of problems that may arise from the loss of the urinary reservoir, surgeons had approached the treatment of cancer of this organ with conservation. A small localized vesical cancer is burned away with diathermy either via the urethra or by opening the bladder. In more advanced lesions a portion of the bladder is removed. Total cystectomy or removal of the whole bladder was practically not done thirty years ago. Hugh Young and David M. Davies writing in 1928 stated that they had never performed a single operation of this type and did not think it justified to perform one. Total cystectomy done in those days meant that the ureters were brought out into the skin of the abdomen, and the patient would be wetting his clothes all the time. In 1911 anastomosis of the ureters into the colon was introduced by Coffey, so that urine mixes with fæces and both are evacuated together. Such patients would very often develop hyperchloremic acidosis and ultimately end in uræmia. This has since been shown to be due to infection of the kidneys, leading to failure of the renal tubules to excrete the extra chloride absorbed from the intact large bowel. Bricker (1950) used the terminal ileum to act as a conduit for the urine. All these methods require the employment of a urinary bag, which very often does not fit and leads to leakage of urine. In spite of this defect surgeons often had still to resort to total cystectomy. Riches (1954) carried out total cystectomy without resecting the lymph bearing areas. His results were naturally not too encouraging. Whitmore and Marshall (1956) on the other hand not only removed the whole bladder but also dissected but the lymph nodes in the pelvis and groin and obtained a much more acceptable result.

Surgeons are not satisfied with good results in terms of survival alone, but require that the patient's life must be made tolerable. Many patients are miserable, with urine leaking down the abdominal wall.

The search for bladder substitute

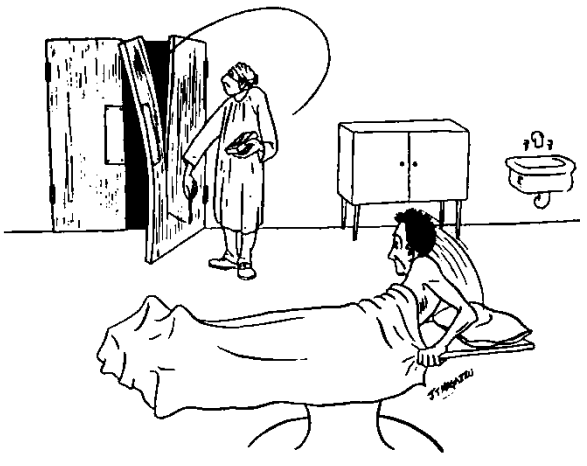
Cibert used the terminal ileum for enlarging the tuberculous contracted bladder. This has led Pyrah (1956) to use the ileum to replace the bladder in a case of total cystectomy. We have carried out radical operations on six cases, where we excised the whole bladder including the prostate, the seminal vesicles, and the lymph nodes from the pelvic brim downwards. We then created a bladder substitute from the sigmoid

colon. The patients lived in comfort and could hold their urine for three hours at a stretch. During the night, when they were asleep, they occasionally leaked some urine, because then the external sphincter which was under voluntary control was relaxed. This operation is shown in a male aged fortynine who underwent such a radical operation. A piece of signmoid colon measuring 12″ in length was formed into a pouch and anastomosed to the urethra. It took him between three and four months to gain complete control of his 'new' bladder. After a year, study of his new bladder shows that the cystometrogram is not unlike that of a normal bladder except that it is of smaller capacity. His blood electrolytes are normal. Study of the absorption in the new bladder shows that all the electrolytes are absorbed from this new bladder to a small extent. Calcium is the only electrolyte which is not absorbed but is actually excreted through this displaced sigmoid loop. This type of reconstructive surgery has still to be extensively tried before it can be recommended for general application. If it proves successful, it will be a great advance in the treatment of cancer of the urinary bladder.

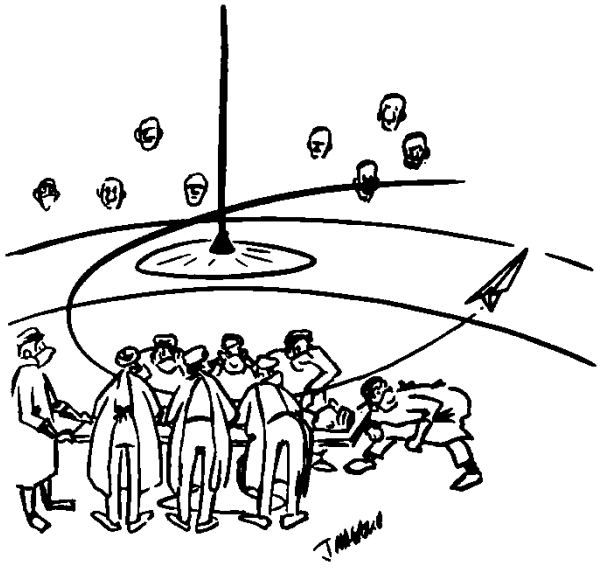
Surgery in the treatment of cancer has attained an advance that was not thought posisble ten to twenty years ago. Will the manufacture of more prowerful *X*-ray machines and the introduction of chemotherapy supersede the role of surgery in the treatment of cancer? Prediction of the future is not the surgeon's strong point; but for he present, a sharp knife and a stout heart offer the best chance of survival for the poor sufferers in at least some types of cancer.

REFERENCES

1. Beck, C. (1905): *Illinois Med. Journal* 7,463
2. Billroth, T. (1871): *Arch. Klin. Chir.* 13,65
3. Bircher, H. (1918): *Cor. Bl. Schwer's Aertze* 48,467
4. Bricker, E. M. (1950): *Surg. Chir. N. Amer.* 15,11
5. Cibert, J. and Durand, J. (1956): *Brit. J. Urology* 28,301
6. Coffey, R. C. (1911): *J. Amer. Med. Ass.* 56,397
7. Czerny, V. (1877): *Zbl. Chir.* 4,433
8. Gavrulu (1955): Quoted by Heinmlich and Winfield
9. Heimlich, H. J. and Winfield, J. M. (1955): *Surgery* 37,549
10. Keen, W. W. (1892): *Boston M. and S. J.*
11. Kirschner, M. B. (1921): *Arch. Klin. Chir.* 114,606
12. Marshall, S. F. and Uram, H. (1954): *Surg. Gynæ. and Obst.* 99,657
13. McNeer, C., Lawrence Jr., W., Ashley, M. P. and Pack, G. T. (1958); *Surgery* 43:879
14. Mikulicz, J. (1886): *Prager Med. Wschr.* 11,93
15. Ochsner, A. and Blalock, A. (1955): *Ann. Surg.* 21,1
16. Pack, G. T. and Molander, D. W. (1955): *New York J. Med.* 59,487
17. Pyrah, L. N. (1956): *Brit. J. Urology* 28,363
18. Riches, E. W. (1948): *Brit. Surg. Practice* Vol. II, 140 (ed. Carling, Sir Ernest Rock and Ross, Sir James Paterson, Butterworth, London);
(1954): *Modern Trends in Urology* (Butterworth, London)
19. Robertson, R. and Sarjeant, T. R. (1950): *J. Thoracic Surg.* 20,689
20. Roux, C. (1907): *Sem. Médicale* 27,31
21. Schlatter, C. (1897): *M. Rec.* 52,909
22. Torek, F. (1913): *Surg. Gynæ. Obst.* 16,614
23. Vissali, J. A. and Grimmer, O. R. (1956); *Surg. Gynæ. Obst.* 103,401
24. Wangensteen, O. H. (1959): *Cancer* 7,170
25. Whitmore, W. F. and Marshall, V. F. (1956): *Bladder Tumours Symposium* (Lippincott, Philadelphia and Montreal), p. 54
26. Young, H. H. and Davis, D. M. (1928): *Young's Practice of Urology* Vol. II (Saunders, Philadelphia and London), 367



A sharp knife, stout heart and itchy fingers.



' Schweppes '

Encore!

(Courtesy Squibb)

* * * *

The idea of a mask is not to protect the staff, but to protect the patient from the Staph.

O-O-O-H DEAR ME

Why is the new Pre-clinical better than the old one? Answer: the view from the Anatomy dissection room. View from one side: Oh, inspiring: a drowsy little village, a piece of the sea encircled by woody knolls like a sleepy lagoon. View from the other side: Oh, distracting: long haired N.T.C. girls going a clickety-clack by.

By 1967, we will have to split class again in the Physi and Biochem labs. But presently, it is kinda roomy. In the old building, while moving around the labs, we couldn't help running into one another. Which condition is preferable? That, my friend, is a matter of opinion.

Comrades, let's fight for our interest. The Students' Common Room. It's really not difficult, so long as the Medical Society can raise the forty thousand to build one more storey on top of the Library-Canteen building, and as anyone can suggest reasons for a common room, reasons apart from a billiard table and a long soft cosy sofa + associated consequences.

In the near future, we shall have the first M.B. exam. re-arranged: Anatomy in the 5th term, and Physi and Biochem in the 6th. Boy, isn't that sweet. Really, in the present system, to have all three packed into 72 hours . . . . Well, when a fellow has finished all his papers, a fellow is such a complete mental wreckage that a fellow would even forget his girlfriend's phone number.

When we leave the Pre-clinical building, what will we miss most? You know, people sort of get used to things, things like the Beatles and such. At first they give you indigestion or duodenal ulcers. Then you get used to them. Then you start forming fan clubs for them.

Give you some data:

(*a*) experimental animals are kept in the basement.

(*b*) air molecules are diffusible.

Unavoidable consequence: when we leave the pre-clinical, we will form a Miss-the-Smell-of-Mice Fan Club.

I want to suggest a school bus to this out-of-the-world place. Why? To prevent the following tragedy from re-occurence:

Near a no. 4 bus stop, at 8.25 a.m., a girl waved franctically to a passing car with a medical badge on it. But car didn't stop. Afterwards, guy driving car apologized for 24 hours. Girl wouldn't forgive. Poor fellow.

But why didn't he give her a lift?

She was pretty. She was a medical girl. She was in distress. She has no boy-friend yet.

So, Why?

A real brain teaser, ain't it?

Tell you why: the car is 1957 fossil with dyspnoea and palpitation on slight exertion: and in lay man's language: it is in delicate condition with very limited accommodating capacity.

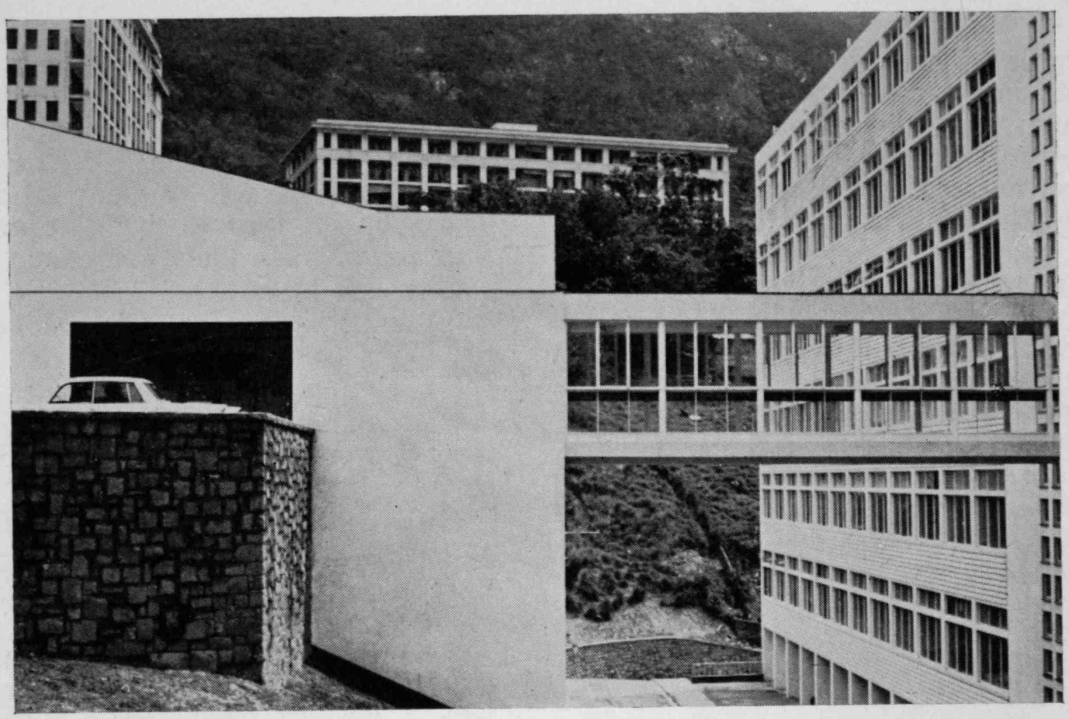
XX or XY?

* * * *

DAFFY-NITIONS

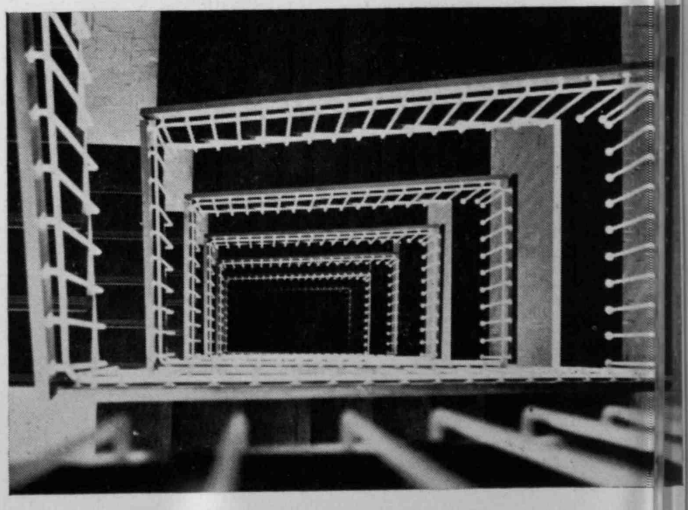
WOLF — A lad who believes in life, liberty, and the happiness of pursuit.

DIET — What you keep on putting off,
While you keep on putting on.



The Milky Way

The place where we take our "meal"



The Ascending Tract

THREE AUSTRALIAN STUDENTS' IMPRESSIONS

The writers of this article are three Australian medical students, who came to join us in the early part of this year. Many of us met them, and here they write on their impression on our Medical School. — THE EDITOR.

During our two months in Hong Kong, we set out to learn where we could, and to appreciate, as far as possible in a short time, your culture and way of life. This understanding of another place is hindered by continual comparison with one's own country. However, it is inevitable that one does make comparisons, and we will record some of these, and some impressions of your Medical School, in the hope that it may be of interest to some of the friends we met there, and perhaps to others we were not able to meet.

We began by seeing patients, and our first impression was of many patients of a different colour, and speaking a different language to those in our familiar wards at home. We were soon struck by the variety, and often advanced nature, of the diseases they had. No doubt this is due partly to different patterns of disease, and partly to a relative shortage of hospital beds necessitating greater turnover of patients. This is in contrast to our own hospitals where many patients are recovering from myocardial infarcts and cerebrovascular accidents, or have other chronic diseases, and many more have very few symptoms and signs, and often are not suffering from organic disease. This often involves elaborate and complex investigations which would not be necessary in Hong Kong. Again, in Outpatients, we were quite amazed to how such people would stoically continue with their work, and present at an advanced stage of their illness. Of course, the explanation of this difference is a social, educational, and economic one. As well as many patients with diseases we see infrequently, there were some with diseases new to us and very rare in Australia, e.g. primary carcinoma of the liver and hepatic abscess. At other hospitals we saw tuberculosis, leprosy and other infectious diseases e.g. bacillary and amoebic dysentery, typhoid fever and diphtheria. All of these are uncommon in our country.

What of the Medical School itself? Coming from a final year of more than 300 students, it seems small, but is really a more manageable size than our own Medical School (Sydney University). This is said to be the largest in the British Commonwealth, and, especially in our early years, there are problems of overcrowding, although in our clinical years we go to one of six Teaching Hospitals, and there the problem is not so great. Recently a second Medical School was established in Sydney, (population $2\frac{1}{2}$ million), with about 100 students per year.

The fact that so few applicants can be accepted in Hong Kong means, no doubt, that only the studious survive, and many students feel that they have little time for outside activities, and even sometimes for visiting the Wards. Of course, there are students like this in Sydney, but with a less competitive educational system, there are fewer of them. Sir William Osler told his medical students at one time: "Divide your attention equally between books and men", and somewhere else he said that studying medicine without reading books was like sailing an uncharted sea, but studying medicine without seeing patients was not studying medicine at all. Perhaps we in Australia tend towards the former error, and Hong Kong students towards the latter.

Basically, though, students are probably much the same everywhere, and we greatly enjoyed getting to know many. We appreciated your friendliness and hospitality, and hope that one day, Australian students may be able to return some of that hospitality if any of your students are able to come "down under". It would be good if a real exchange scheme could be developed.

Teaching, we felt, was of a very high standard. It differed from ours in being done mainly by full time University staff, many of whom have recently done their post-graduate training. In contrast, most of our teaching is done by Hospital resident and honorary staff (specialists with their own practices who give their services free to the Hospital). Your system, there-

fore, has the advantage that you are taught by doctors who are continually in touch with the stimulating atmosphere of a University, and whose main task is teaching. It probably also has the disadvantage that you have contact with a smaller number of doctors, and miss out on the broadening influence of many teachers, each with a slightly different approach.

We noticed also a rather marked difference in the conduct of Outpatient tutorials and ward rounds. They were mostly direct question and answer sessions, students generally did not ask many questions or participate in general discussion, and the relationship between tutor and students was a more formal one than in Sydney. Again there are, no doubt, cultural and other reasons for this, but it may tend to make tutorials less stimulating and enjoyable than they could be.

Your course is basically similar to ours, except that you do the equivalent of our 1st year in your last year at school. Thus ours is a six year course. You have the English system of doing the 1st M.B. exams at the end of two years preclinical work, while we have exams in these subjects at the end of each preclinical year (our 2nd and 3rd years). The other big difference is in final year. At the end of the equivalent of your Specialty Clerkships, (our 5th year), we are for the first time given an elective term which is designed for students to pursue medical subjects in which they are interested. Thus, for example, several of us came to Asian universities, many spent time with general practitioners or in country hospitals, others participated in research projects, and others had a holiday. Then there follows three 10 week terms of organised teaching and ward rounds, etc., before our final exams. In contrast, you have a long period with little teaching, and as a result (with the added incentive of a Pædiatrics exam) we did not see a great deal of many of your final year — they were behind closed doors!

Finally, we saw something of a culture much older than our own. It is fortunate that despite many inevitable Western encroachments in Hong Kong, the Chinese way of life is still there basically unchanged, and many people are proud of their heritage. It is a pleasant contrast to many parts of the world where people are losing their identity, and taking over the good, and more often the bad, of Western life indiscriminately. We all learnt a lot and came to appreciate the attitudes, values (for example, the importance of the family) and way of life of people in Hong Kong.

JOAN HATTON,
BRIAN SOMMERLAD,
WARREN WALSH.

* * * *

IT IS A JOB TO BE A SPECIALIST

A patient had accidentally swallowed a tooth which was extracted from him by dentist.

"But this is outside my scope", said the dentist, "May I refer you to my friend next door? He is a gastro-enterologist."

The gastro-enterologist was consulted, but could do nothing without an X-ray. By the time the radiologist had finished setting up his apparatus, the X-ray film showed the tooth to be in the rectum.

"Sorry," said the gastro-enterologist, "We must refer you to the proctologist."

Peeping thru' his proctoscope, the specialist announced, "It's a tooth, call the dentist."

IF

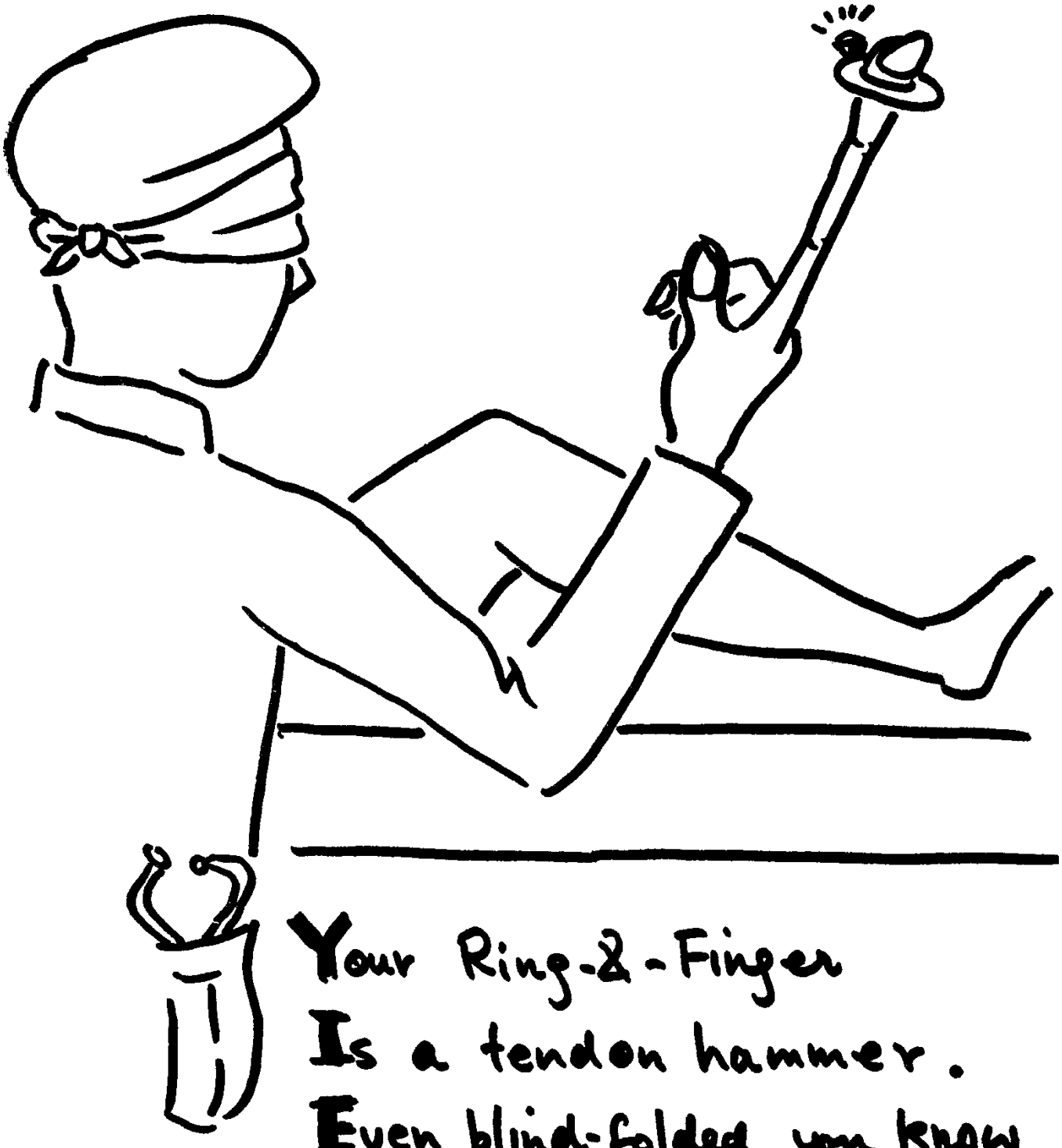
YOU

HAVE

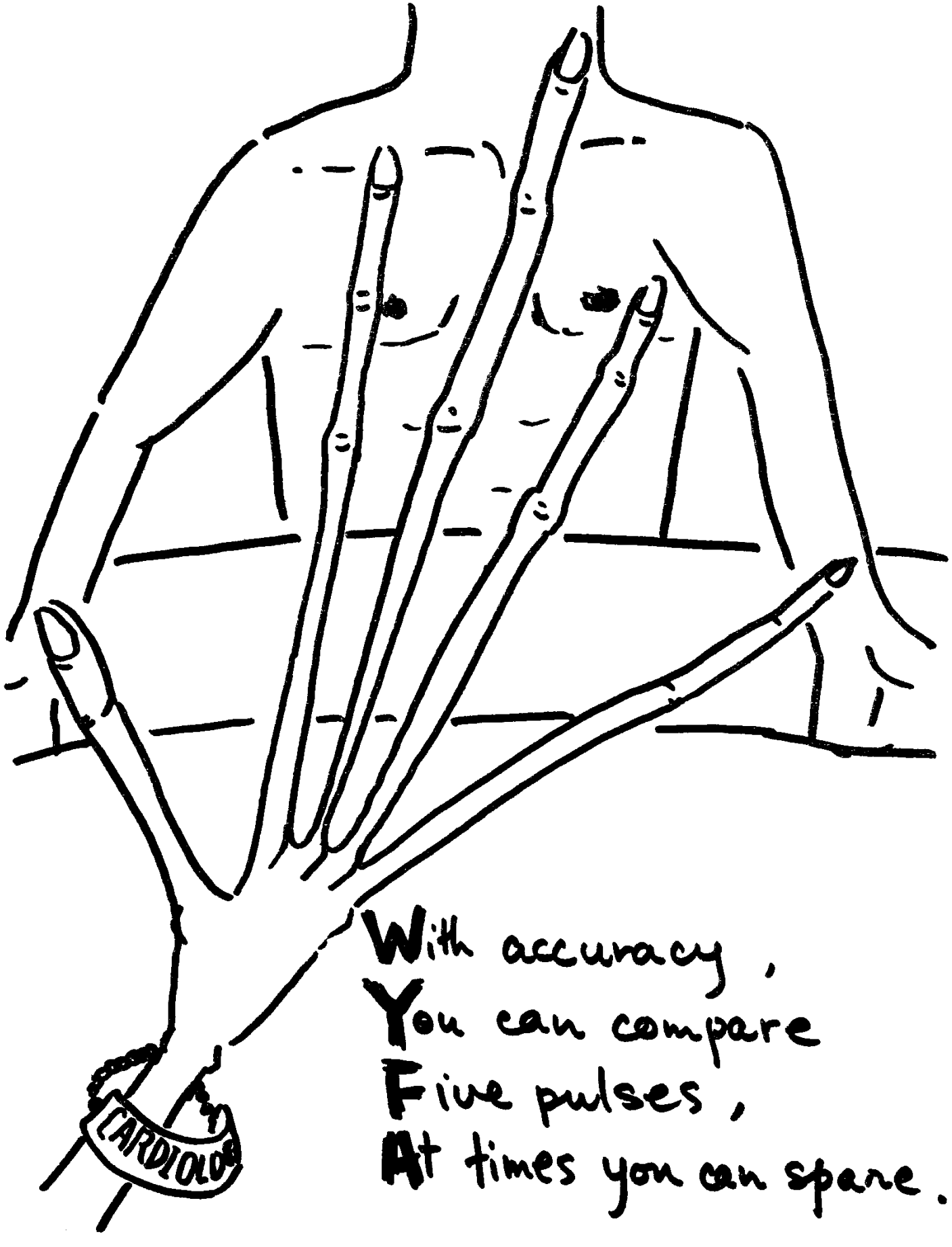
[VERY]$^{\infty}$

LONG

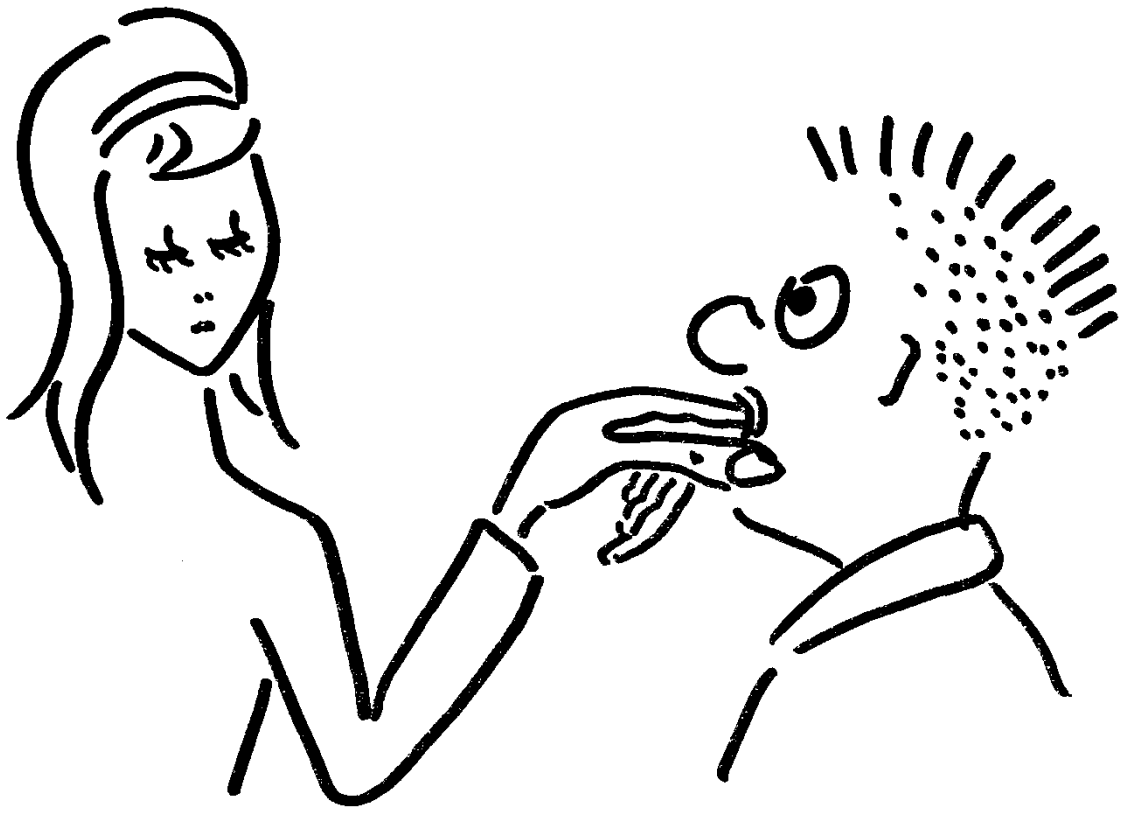
FINGERS



Your Ring-2-Finger
Is a tendon hammer.
Even blind-folded, you know
The effect of pain the patient shows
Yelling is like thunder,
Or his reflex is slow.



With accuracy,
You can compare
Five pulses,
At times you can spare.



You have a new approach
To rectal examination.
No polyp be too high for your search,
No mass will miss your palpation;
No patient need a couch,
Nor his pants off for no reason!

You can do something
For the friend below,
While the D-tale betold
For the whole morning
By the FRCS enrolled.

A jubilant and excited Sister Mary Aquinas of Ruttunjee Sanatorium shook hands with Princess Marina one festive night of March, 1965, in Eastbourne, England. Much to her surprise, but totally to her credit, Sister Aquinas was presented with the Sir Robert Philip Gold Medal for outstanding material contribution towards the prevention and control of Tuberculosis. This medal is awarded every four years by the Chest and Heart Association of Great Britain to a doctor working in the Commonwealth who is judged by the Association to have made such as achievement. This is the fourth time the award has been made.

By Courtesy of Eastbourne Gazette, England.

TIME TO FEED

The Presidential Address delivered on April 12, 1965, by Dr. Rosie Young.

It is customary for the President of the Medical Society to deliver a Presidential Address about this time of the year. When I was asked to do so, it was obvious that I should avoid any duplication. I therefore looked through the names of the Presidents in the past and the titles of their address. This however proved to be totally unnecessary, for the list of distinguished names and the inspiring titles they had offered filled me with unqualified admiration. Indeed I honestly wonder whether on this score alone the Medical Society has made the right choice in me. The only quality common to my distinguished predecessors some of whom are present here this evening and myself is the indisputable fact that we are all human beings and as such in order to survive and survive properly we have to feed ourselves every day. This happy coincidence has suggested to me the topic of my talk today. Be that as it may.

> To everything there is a season
> and a time
> to every purpose under the
> Heaven,
> A time to be born, and a time
> to die.

This quotation taken from the Book of Ecclesiasticus covers naturally the subject of our discussion today. "There is a time to feed and a time not to feed".

Food has always been recognised as one of the most vital necessities of life. Man's interest in its nutritional values began before the dawn of civilisation and it has continued to grow throughout the ages. This interest however, did not develop into a distinct science of nutrition until the 20th century. This was inevitable, for diet could not be studied scientifically until organic chemistry and the physiology of nutrition had made considerable advance.

On an old millstone found in Egypt some years ago there is engraved what is perhaps the oldest writing in existence. It is a copy of an old papyrus that dates back to almost 3,400 B.C. When translated it reads 'AND THUS THE STATIONS WERE MADE AND THE FUNCTIONS WERE ASSIGNED, WHICH FURNISHED ALL NUTRITION AND ALL FOOD. EVERYTHING HAS COME FORTH FROM HIM, WHETHER FOOD OR NUTRITION OR FOOD OF THE GODS OR ANY GOOD THING'.

The interest of the ancients in food and in dietary matter is well exemplified by the biblical story of Daniel and his three companions who were chosen to stand before the King of Babylon as unblemished youths with the understanding of Science. The gentlemen were to receive daily a portion of the King's dainties and his wine. But Daniel objected to this regime and instituted what was probably the first dietary experiment when he persuaded the King to allow him and his companions to be given a diet of pulse in place of the King's meat and water in place of his wine. At the end of their 3 years' training, the King found them ten times healthier than all the magicians and enchanters that were in his realm. Thus we see a beginning at about 600 B.C. of an appreciation of things scientific even though a very meagre fund of knowledge existed.

Primitive men soon learned to associate his disease with his food supply, and many erroneous ideas prevailed.

There was no one to challenge seriously these ancient superstitions until Hippocrates appeared on the scene of action about 400 B.C. He linked the development of medicine to that of nutrition and recognised that all foods might not suit all people, thus there is some truth in the saying that 'one man's meat is another man's poison'.

While Hippocrates challenged the old order of things it was not until after the

beginning of the Christian era that experimental method was initiated. Galen as a result of his dissection on bodies of executed criminals concluded that the stomach was a place in which food could be resolved into particles sufficiently small to be absorbed.

In the 18th century Lavoisier, the French scientist, became interested in the study of metabolism or what would become of food after its digestion in the body. Florence Nightingale had recognised that good nursing demanded hygienic conditions and adequate food and thus revolutionised the care of the wounded soldiers in the Crimea.

Early in the 20th century research workers in food chemistry and physiology in Europe and America demonstrated the need of good quality protein for the growth of animals. Later the concept of numbers and types of minerals needed for growth came to include trace elements as well as those present in large amounts. At the same time other workers have shown the presence and the need for certain accessory food factors later called vitamins. Then followed in rapid succession studies of aminoacids, hormones, enzymes, chemical regulators and intermediate products of digestion and metabolism.

E. V. McCollum in his article 'Today's Health' has aptly summarised man's concern for food. He says 'Mankind has been on this earth for not less than 3 million years. For a large share of that time man has been a hunter and food-gatherer, eating what he could find. Around 6 thousand years ago, when the earliest civilisations were being established in a few places, man set forth in earnest as a food producer to alleviate his ever pressing need to satisfy hunger. Yet for less than 50 years has man possessed the knowledge that would permit him to provide and then select combinations of foods to nourish his body as it rightfully and properly should be nourished'.

You will agree with me that 50 years is a relatively short period compared to 3 million years. But, thanks to the rapid and significant progresses made in various branches of science, chemistry and physiology in particular, the knowledge of nutrition and metabolism has advanced by leaps and bounds since the beginning of this century.

One pressing problem facing mankind at this moment is the explosive increase in population. Modern medicine and health measures have been so successful that they have drastically reduced mortality and much increased the expectation of life. The human population only reached the thousand million mark early in this century; it is today just above 3,000 million and whatever measures we undertake now, this number will more than double itself by the year 2,000, within the lifetime of many of us present here this evening. As a result the world's population is beginning to press harder and harder on the world's resources.

What are *we* to do about it? Some people have suggested that we should export our surplus to the other planets. A simple calculation shows that this would mean shipping off a hundred human beings every minute. Other people have advocated birth control and the practice of eugenics. I personally am not in a position to discuss this highly controversial issue which involves complicated moral, ideological and religious arguments.

Besides the problems of the future, one has to face the facts of the present. Lord Boyd Orr when he retired from the post of the Director General of the Food and Agricultural Organisation of the United Nations in 1950 made the following remarks. 'A lifetime of malnutrition and actual hunger is the lot of at least two-thirds of mankind'. This extraordinary statement sowed seeds of further disquiet and concern in the minds of the world's thinking people. Fortunately subsequent investigations revealed that this statement was based on a mistaken concept of statistics, a science which has trapped many a good man, not only Lord Boyd Orr. Although the situation is not so desperate as he suggested, the prevalence of undernutrition and malnutrition in certain parts of Africa and Asia is an undeniable fact.

To understand the extent of undernutrition and malnutrition, protein deficiency in particular, it is necessary to

have a fair knowledge of the dietary habits of the people. Some believe that men are very much alike wherever you find them. A survey of the food habits of the peoples throughout the world will convince them that such belief is unfounded.

The dietary habits of our ancestors and the few surviving primitive races of today had of necessity to depend on the climatic conditions and the natural sources of food available in their environment, e.g., people in the tropics tend to live more on vegetables which are in abundance in contrast to the carnivorous instincts of those who had to live in the cold and less sunny regions of the arctic and subarctic climate.

But there are many other differences in food habits which cannot be explained by necessity alone. They are the outcome of racial, religious and cultural differences.

For example, the aborigines of Australia are very fond of putrid, fatty fish, the natives of Tierra del Fuego according to Darwin in his 'Voyage of the Beagle' regard the floating carcass of a putrid whale as a rich feast in store. Even less primitive people such as the Veddahs of Ceylon favour decayed meat with the added luxury of large masses of honey and in India certain classes to whom putrefying fish is quite acceptable as an article of diet.

In the religious sphere we find Buddhists to whom the taking of life is strictly forbidden and for whom the consumption of vegetables alone has become quite an orthodox custom. The traditional attitude of avoiding pork and alcohol by orthodox Mohammedans is well known.

Besides these obvious differences influenced by climate, race and religion there are some subtle differences exhibited by smaller groups of people or even individuals. One reason for the tenacity of food habits is their association with family sentimentality. The family meal situation is one of the most important events in producing morale or a sense of unity. The family eating together in privacy also becomes a major value in some societies. Late in World War II after the liberation of Greece, some direct food relief was provided for the inhabitants. It was observed that most residents of Athens preferred to eat cold food in their unheated houses than hot food in warm soup kitchens.

Eating should be a social grace as well as a physical necessity. Good food and good wines are not for the friendless man. They are essential aids to close contact of mind and spirit between men and men (including women of course). The sharing of food almost universally symbolises a rather high degree of intimacy and acceptance. Some foods in all societies become the focus of deep and persistent sentiments that have little connection with nutritional value.

The significance of dietary habits in conjunction with geographical position and climatic condition have a very important ethnological significance. That this is true of man is borne out by the appearance and disappearance of certain races, tribes and communities. Some races are tall, healthy and longlived; others are puny, disease-ridden and prematurely senile. One of the most interesting reports on the part played by diet in the development of races has been published by the Medical Research Council. It is a study of the physique and health of 2 African hill tribes in Kenya. One tribe, the Kikuyu is vegetarian, the oher Masai, is carnivorous. The Kikuyu tribe is agricultural and although the natives possess large herds of goats, they practically never eat meat. The Masai on the other hand are a pastoral tribe: the staple diet of the young men consists of meat, milk and blood. It is interesting to note the physical characteristics of the two tribes. At every age the Masai tribe is taller and heavier than the Kikuyu. At the age of 23 there is an average difference of 5" in height. Measurement of physical strength shows that the Masai present a marked superiority. The Masai lorded it over their puny neighbours; they were a fearless tribe, to hunt lion with only a spear.

An application of the knowledge we have acquired of the principles of dietetics and nutrition will go far to help the people in various parts of the world to modify

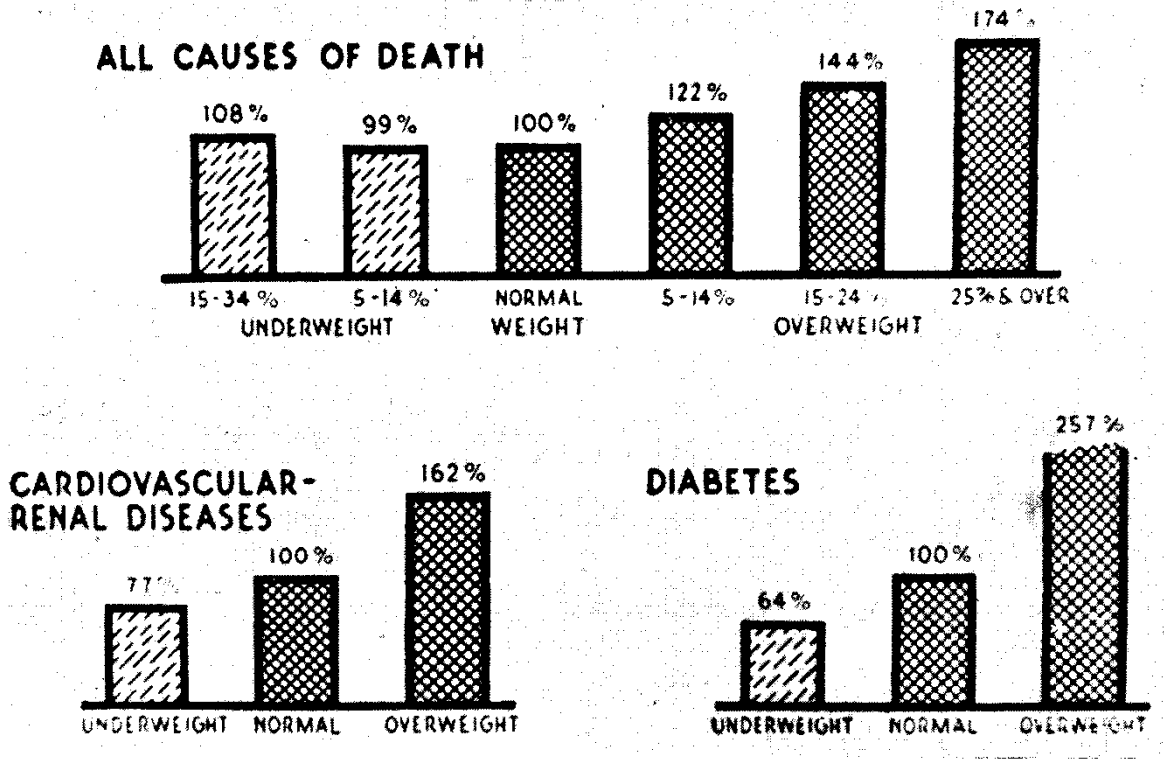

ALL CAUSES OF DEATH
108%
99%
100%
122%
144%
174%
15-34% UNDERWEIGHT
5-14%
NORMAL WEIGHT
5-14%
15-24%
25% & OVER OVERWEIGHT
CARDIOVASCULAR-RENAL DISEASES
77%
100%
162%
UNDERWEIGHT
NORMAL
OVERWEIGHT
DIABETES
64%
100%
257%
UNDERWEIGHT
NORMAL
OVERWEIGHT

Fig. 1.

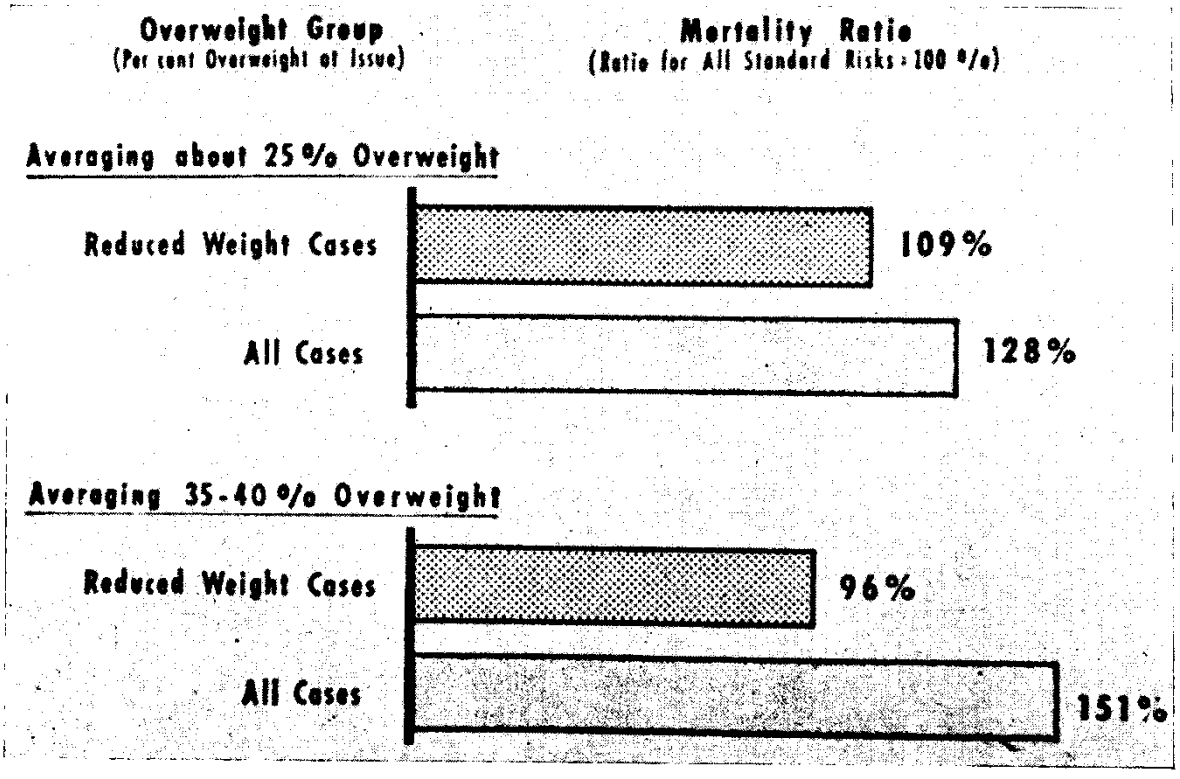

Overweight Group
(Per cent Overweight at Issue)
Mortality Ratio
(Ratio for All Standard Risks = 100 %)
Averaging about 25% Overweight
Reduced Weight Cases
109%
All Cases
128%
Averaging 35-40% Overweight
Reduced Weight Cases
96%
All Cases
151%

Fig. 2.

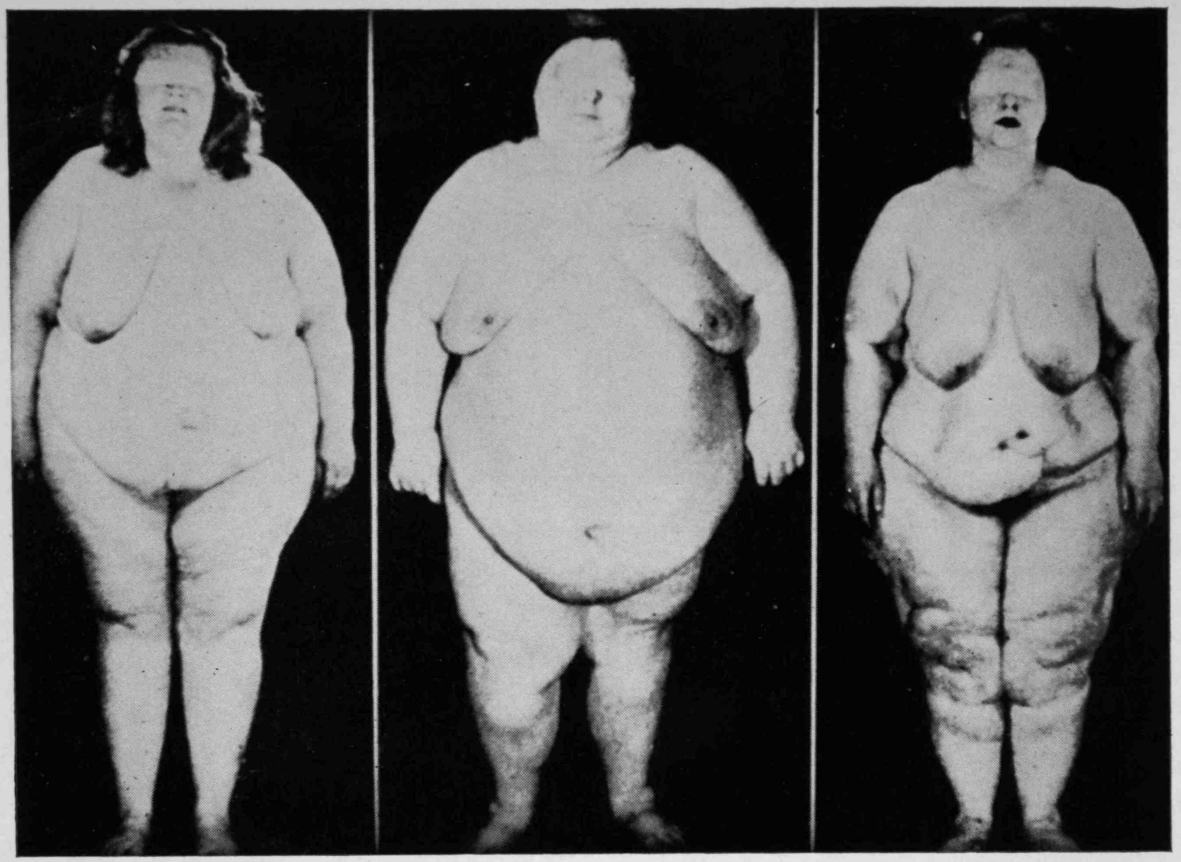


Fig. 3.

Fig. 4.

their dietary habits, to choose the proper combination of foods. The agriculturalists will be given guidance to produce the maximum quantity and the best quality with the resources of nature available and the economists to distribute the products according to the varied needs of different regions. This I reckon, would be a most valuable contribution of medical science towards winning the race between the production of food and the increase of population.

Much has been said about the effect of undernutrition, i.e. deficiency of calories and malnutrition such as deficiency of proteins, vitamins and minerals on an individual or race as a whole. Little attention has thus far been given to the ill effects of *overnutrition,* i.e. excess of calories leading to obesity. Indeed certain people even visualise obesity as a sign of happiness and good disposition. To quote Shakespeare in Julius Caesar's words 'Let me have men about me that are fat —

> Sleek-headed men and such as sleep o'nights,
> Yon Cassius has a lean and hungry look,
> He thinks too much, such men are dangerous.

Fig. 1. These data are taken from the Metropolitan Life Insurance Company. As indicated obesity is associated with a distinct increase in mortality and morbidity especially when one considers the incidence of Diabetes Mellitus and cardiovascular and renal diseases, and this increase correlates with increasing degrees of obesity. Probably many of these effects are related to changes concomitant with obesity rather than obesity per se. But, with significant weight reduction the associated conditions also improve as shown in Fig. 2.

Fig. 2. Apart from these purely medical reasons for advocating the prevention of obesity, it is obvious that obesity especially gross does not appeal to one's æsthetic sense.

Fig. 3. These are the photographs of obese women of flesh and blood taken from a Textbook of Endocrinology.

Fig. 4. Is a painting of the Goddess Venus by Sandro Borticelli. It does not need an artist to tell you which is the more beautiful.

Let us consider the causes of obesity. Like many other diseases, the theories for its causation have undergone many revolutions.

1. Age. There are no age limits for the occurrence of obesity. There is a gradual increase in weight after 30. The increase is probably due to augmented fat deposits resulting from the maintenance of the intake of youth associated with reduced activities of increasing years. The gradual increase in weight which is associated with age may not be entirely unfavourable, but a normal concomitant of a contented life.

2. Sex. There is a greater incidence of obesity in females.

3. Heredity. Genetic abnormalities play an important role in the development of obesity, e.g. less than 10% of children are overweight when both parents are normal; 40 to 50% overweight when one parent is obese and 80% when both parents obese. However, it is difficult to differentiate between genetics and environmental factors in this respect because the eating habits of the family, the socio-economical status, emotional status and other factors all influence the familial incidence of obesity.

4. Neurological. It is often said that obesity is the result of excessive caloric intake. Evidence supports the presence of a regulatory centre and a feeding centre in the hypothalamus. Impulses from the regulatory centre inhibit the feeding centre and therefore stop the animal from eating, giving a sense of satiety. It is possible to produce very fat mice through overeating by damaging the regulatory centre. On the other hand damaging the feeding centre will produce a state of anorexia nervosa in animals. For some time people sought the explanation of obesity in neurological abnormalities. However overeating due to lesion of the hypothalamus is a rare cause of obesity in human beings. We find a good example of this in Joe, the fat boy in Dickens' Pickwick Papers. Joe was immensely obese, lazy and always sleepy. He could only be kept awake by the sight of food.

5. Endocrine and metabolic. Certain endocrine and metabolic disturbances

have long been known to be associated with obesity. Castration after puberty in males tends to promote obesity. Many eunuchs are somewhat obese and tend to lose at least some of the obesity with the administration of testorone. The truncal obesity of Cushing's syndrome is well known.

Patients with hypothyroidism also put on weight, but this is mainly due to fluid retention and deposition of myxomatous tissue.

A close relation is observed between obesity and Diabetes Mellitus. More than 75% of individuals who have Diabetes after the age of 40 are obese and tend to remain obese.

For many years, investigation into the ætiology of obesity had been centred on endocrine and metabolic differences but definite evidence of such a disorder was not forthcoming. This theory therefore gave way to the next.

6. Psychological. It is clear that the frontal lobe can influence obesity significantly e.g. after frontal leucotomy the appetite increase associated with lack of motivation and laziness often leads to obesity.

In a survey of 500 obese patients it was found that 370 ate more when nervous or worried, 95 more when idle or bored and only 35 noted no connection between food intake and emotional stress. On the other hand it has even been observed that non-obese individuals tend to eat less when upset or depressed.

In individuals who have developed marked obesity there often is a serious disintegration of the intake regulating mechanism. Normally regulation of food intake is unconscious, governed by a sense of satiety. But in these unfortunate individuals regulation reaches a higher level of conscious activity, and as you may guess under such circumstances a much poorer job is performed. The warning signals of satiety are apparently abolished. Judgment is often unbalanced by a number of frustrations and anxieties. Frequently it appears not so much that there is a tremendous desire for food in the obese as that even the relatively small amount of will power needed to stop eating is lacking.

In many instances obesity and the various features associated with its management lead to a number of psychological disturbances and conversely psychological disorders can induce and promote obesity.

I cannot find anybody unduly obese among my audience but if there is I will put up the following theory for his defence. It is admitted that no adipose tissue can be laid down without caloric intake being in excess of energy output and that this is not a difficult or unusual process nowadays with so much physical effort being spared by automation. It is also admitted that in many grossly obese individuals some psychological problem promoting appetite is present but recent advances in the knowledge of metabolism suggest that there may be a basic difference in the metabolism of fats and carbohydrates between the obese and non-obese subjects. Therefore not all fat people are necessarily gluttons.

In its simplified form the theory is as follows:

Insulin stimulates the uptake of glucose by both muscles and adipose tissue. In London, Butterfield and his co-workers have shown that the muscles of obese subjects are resistant to the action of insulin i.e. under the influence of insulin, muscles of obese subjects take up less glucose than muscles of non-obese. This has two effects. Firstly more glucose will be made available to the adipose tissue and secondly more insulin will be secreted by the pancreas to overcome the resistance. The outcome is the deposition of more adipose tissue. Hyper-insulinism and reactive hypoglycæmia have been reported in obese subjects. This metabolic disturbance is either the cause of obesity or the process by which obesity once established is perpetuated. When the compensatory mechanism fails and the Islets of Langerhans are exhausted Diabetes Mellitus will put in its appearance. Thus this theory also fills the gap between obesity and Diabetes of maturity onset.

Despite all that has been said, a large number of mildly obese individuals presumably have no neurological, psychological, endocrine, metabolic or genetic disturbance, but have been the inadvertent

victims of modern civilisation, of certain customs and habits that lead to obesity.

In some households especially as a result of parental influence far more food and calories than needed are provided. It is common policy to provide an unnecessary array of food at numerous social gatherings; many celebrations of different types are associated with serving food and many business transactions particularly major ones call for extensive indulgence. It seems ungrateful on my part to mention this after we have helped ourselves to an excellent tea half an hour ago. Food processing has changed throughout the years in such a way that calories are more readily available. The perfection of the culinary art has made food more tempting to one's senses.

The increased intake of energy has been accompanied by a decrease in its expenditure. Transportation is so readily available that very little exercise is involved in getting from one place to another. One just has to count the number of cars owned by medical students nowadays. Occupations have become more sedentary. Even housewives who used to work very hard have less to do now because of the availability of the washing machine and other mechanical devices. Work is performed by just pressing the button. Television encourages one to spend the evening in an easy chair and downing beer by the pint instead of engaging in active sports for recreation. In the United States it is estimated that one-fifth of the population over the age of 30—about 15 million people are overweight. Just consider the amount of food that could be saved if these people would restrict their caloric intake and adhere to a more healthy diet. Furthermore the excess can be used to feed the less fortunate brethren in other parts of the world where undernutrition and malnutrition prevail. The problem of obesity is not only confined to the United States or Britain either, it is present in various degrees all over the world.

Sir Winston Churchill once said to the Royal College of Physicians on the occasion when he was the guest of honour—'the more we look back the further one can look forward'. Thus by looking back over the faulty dietary habits of the past, which have led to undernutrition, malnutrition and overnutrition one can draw inspiration for the present and understand more clearly how medical science can meet the challenge of the future.

"OK, LET'S EAT!"

(Courtesy Squibb)

MED-MAD TONIC

"Truth is beauty." Perhaps if we stretch our imagination far enough, these truthful "beauties" will be realized.

CYRPTOCOCCUS NEOFORMANS — negative stain

Full many a gem of purest ray serene,
The dark unfathomable caves of ocean bear.

PARASITES:

Far from the madding crowd's ignoble strife,
Their sober wishes never learned to stray;
Along the cool sequestered vale of life
They kept the noiseless tenor of their way.

OPHTHALMOSCOPIC EXAMINATION:

Drink to me only with thine eyes,
And I will pledge with mine.

THURSDAY CLINIC:

The quality of mercy is not strained,
It droppeth as the gentle rain from heaven
Upon the earth beneath.

BLOOD EXPERIMENTS, RYLES TUBES ETC.:

Ladies first.

FROG UNILABYRINTHECTOMY:

Look before you leap.

VIVAS:

Blow, blow, thou winter wind . . . .
Freeze, freeze, thou bitter sky.

DISSECTION (cadaver):

To me, fair friend, you can never be old,
For as you were when first your eye I eyed,
Such seems your beauty still.

THE SKELETON:

The man of life upright,
Whose guiltless heart is free
From all dishonest deeds,
Or thoughts of vanity . . . .
He only can behold
With unaffrighted eyes
The horrors of the deep
And terror of the skies.

PR EXAMINATION

Guts!

SQUAMOUS CELL CARCINOMA:

A pearl in your hand.

BEFORE EXAMINATIONS:

Art is long, and Time is fleeting,
And our hearts, though stout and brave,
Still, like muffled drums are beating,
Funeral marches to the grave.

DURING EXAMINATIONS:

Much ado about nothing

AFTER EXAMINATIONS:

He has his Winter too of pale misfeature,
Or else he would forgo his mortal nature.

ON NIGHT CALL

Look for me by moonlight,
Watch for me by moonlight;
I'll come to thee by moonlight,
Though Hell should bar the way!

Let sleeping 'docs' lie

POST MORTEM EXAMINATION:

Never on Sunday

M.B.B.S.:

From here to eternity

OPERATIONS:

A stitch in time saves nine

CLEOPATRA.

Some Comparisons of Medical Education in Hong Kong and the United States

(From Journal of Education, H.K.U., 1963 Issue No. 21; and by kind permission of the author; Professor N. K. Henderson, Professor of Education, H.K.U.; and Mrs. H. Yapp, editor of Journal of Education, H.K.U.)

by ROBERT JENNINGS

Although the medical schools in the United States vary considerably they tend to follow a general pattern which may be used as a basis to compare medical education in that country with that in Hong Kong. It is recognized that there may be many exceptions to the numerous generalizations which follow; nevertheless, it is hoped that these generalizations will help to emphasize the major similarities and differences which exist in the two systems.

The requirements for admission to medical schools are markedly different in the United States and in Hong Kong. Most American medical students have completed four years of college following graduation from an accredited high school (approximately equivalent to Lower Form VI) prior to their admission to medical school. Certain medical colleges in practice do admit, and in theory most of them will admit, very exceptional students with three years' or, in some case, less college preparation. The number of students, however, who are admitted on this basis is proportionately very small. Paradoxically, those students who are admitted with only three years of pre-medical training usually show greater proficiency in their medical studies than those who have completed four years. This reflects the former group's exceptional ability which resulted in their early selection.

The pre-medical curriculum lecture and laboratory courses in both organic and inorganic chemistry, physics, biology and English language and literature. Many universities also require a foreign language (usually French or German) and additional courses in botany, zoology, chemistry and mathematics. Usually the course must include approximately 25% of non-science subjects such as history, economics, political science, philosophy or music. Recently there has been a tendency to recommend that pre-medical students should devote an increased percentage of their electives to non-science subjects. It is felt by many that the required science subjects afford adequate preparation for medical school and that a broad cultural background provides great advantages, even for those who will eventually specialize in one of the sciences.

It is always difficult to evaluate grades given by different institutions even when the same marking system is employed. Suffice to say, therefore, that most medical colleges in the United States require that the prospective candidate has had above average marks during his pre-medical course before his application will even be considered. In practice, a student must usually rank in the upper 25% of his class to have a reasonable chance to gain admission.

Dr. ROBERT JENNINGS, B.S., M.D., PH.D. has been directly associated with five different medical schools in the United States and has visited and had extensive contact with many others in the United States, Europe and the Far East. During his stay in Hong Kong, he had the opportunity to interview many medical students, both past and present, and conversed with most members of the Faculty of Medicine. The opinions expressed are those of the author and they do not necessarily represent or reflect those of any governmental or professional organization in the United States.

The number of applicants for admission to medical colleges in the United States greatly exceeds the number of places available. In some schools there are more than 20 candidates for every vacancy. The average, however, is probably about 6 to 1. This large ratio of applicants to vacancies allows the medical schools to be extremely discriminating in their selection of students.

A student seeking admission to the University of Hong Kong must have fulfilled the Matriculation Requirements. Entrance to the Matriculation Examination is restricted to candidates who have passed a qualifying examination such as the Hong Kong School Certificate, which indicates at least minimal knowledge of at least six subjects including English, one additional approved language and one science subject. The standards of the approved qualifying examination vary to some extent but, in general, the educational level represented is below that of normal High School graduation in the United States.

"In order to matriculate a candidate must satisfy the examiners in at least five subjects . . . . and of these subjects at least two should be at Advanced Level, at least three shall be passed at one examination, one must be English Language (and) one must be a science subject." This requirement, coupled with that of the Faculty of Medicine requiring Advanced Level passes in physics, chemistry and either biology or zoology, allows the student to satisfy the minimal requirements for admission to the medical school with only one Ordinary Level pass in a non-science subject other than English. Advanced Level passes in the science courses represent an educational attainment approximately comparable to that achieved by students taking the same subject for one year at a college in the United States. Thus the pre-medical requirements in physics and biology are similar in the United States and Hong Kong. Most American medical schools require that the applicants have had approximately two years of college chemistry prior to admission. In comparison, therefore, the medical students at the University of Hong Kong have had less training in chemistry than their counterparts in an American school. Despite the additional study of organic chemistry during a brief portion of the first preclinical year the Hong Kong medical students remain relatively weak in the chemistry of aromatic and heterocyclic compounds.

This deficiency, however, is not as marked as the lack of knowledge of the non-science subjects which most of the medical students at the University of Hong Kong exhibit. The practice of medicine involves the daily contact with persons from many different walks of life, and a well-rounded background in both the Arts and Sciences contributes to the physician's understanding of the patients' problems. Furthermore, such knowledge and the development of interests outside the field of medicine will enable the individual concerned to lead a more profitable, enjoyable life.

Although the minimal requirements for admission to the Faculty of Medicine of the University of Hong Kong have been listed above, in practice, it is also required that the candidates pass three Advanced Level examinations in one year. Even this, however, would not ensure selection. Approximately half of the students admitted have distinctions in one or more subjects or have obtained Advanced Level passes in four or more subjects. As the ratio of applicants to vacancies, (which is now approximately three to one,) increases, it is likely that the admission requirements will also be raised. It should be noted that(in contrast to the States where personal interviews, letters of recommendations and non-academic activities play a considerable role in the selection of medical students, in Hong Kong the major emphasis is placed on academic achievement.

The course of study in American and British type medical schools is, on the whole, relatively similar. At the University of Hong Kong, the actual course lasts $4\frac{1}{2}$ years with an additional half-year devoted to revision. In addition, clerkships continue through the Summer Terms during the third and fourth years. In contrast, the curriculum in the

States is usually only four years and most schools give a long vacation during the summer. Thus the students in Hong Kong receive instruction for a slightly longer period of time than is usually given in America. In actual fact, if one allows for the significant number of students who are required to repeat one or more years, the average duration is considerably higher. The teaching of organic chemistry accounts for a small portion of this extra time while the remainder is relatively equally divided between the pre-clinical and clinical subjects.

The teaching of anatomy, physiology and biochemistry is in a state of flux throughout the modern medical world. These departments at the University of Hong Kong, as well as most of those in the States are following the trend of adapting their courses to the new developments in medicine. In anatomy, for example, the emphasis has shifted from a mere study of body structure to a correlation of structure and function. In biochemistry and physiology the study of metabolism at the cellular level has assumed increased importance. Unfortunately, at the University of Hong Kong, the lack of money, and consequently, the lack of space, equipment and staff seriously hampers the progressive development of the teaching programs in these fields, especially so far as the laboratory courses are concerned. In histology laboratory, for example, there is only one staff member for every 35-40 students. In comparison, the ratio of staff to students in a similar class in many American universities is 1 : 10 or less.

In gross anatomy, it is usually desirable to limit the number in a dissection group to four students. When the groups are larger, one or two students usually do most of the work, and therefore, learn the most, while the remainder "stand around". Likewise, it is usually desirable to have one demonstrator for approximately every three tables so that questions may be answered promptly and assistance given when required. Unfortunately, this plan cannot, because of the lack of space and staff, be implemented at the University of Hong Kong at the present time. Modern X-Ray and fluoroscopic machines, electron microscopes, "Multiview" microscopes and other similar instruments are also useful, although perhaps not essential, in the teaching of anatomy. These items are not available for students in Hong Kong although they are frequently found in the medical schools in the United States where money is more readily available for medical education.

Similar difficulties are encountered in both physiology and biochemistry at the University of Hong Kong. Modern teaching techniques in biochemistry include the student use of "Warburgs" for measurement of tissue, cellular or sub-cellular metabolism, chromatographic equipment, spectrophotometers, differential centrifuges, etc. Although these instruments are available for research purposes, sufficient simplified apparatus of this type has not been obtained for student laboratories.

The trend in the teaching of physiology in the United States also involves the use of many modern pieces of equipment. The relatively simple "isolated intestinal muscle strip" preparation has, in many institutions, been supplanted or supplemented by experiments involving balloon catheters in intact humans or animals. Experiments involving cardiac catheterization are now used as adjuncts to the isolated frog or turtle heart preparation in the teaching of cardio-vascular physiology. Dynamic measurements of changes in blood pressure are recorded by means of strain guages instead of the relatively insensitive mercury manometer. It is not unusual to find physiology laboratories in America equipped with closed-circuit television for demonstration purposes and electronic recording equipment for student use. This equipment has been introduced because, providing money is no object, it is the firm conviction of many educators in this and allied fields that a more accurate knowledge of the physiological functions of the human body can be imparted (and retained) by the use of these new techniques than was possible when the old "classical experiments" were employed. Although the teaching value of *in vitro,* isolated organ and non-mammalian experiments is still

recognized, it has been demonstrated on many occasions that these procedures give a false or incomplete impression of human physiology. On the other hand, the cost of electronic equipment is extremely expensive, one or more electronic technicians are required to keep the apparatus in functioning order and some individuals question whether the sums involved could not be better spent for other purposes. Because of the limited funds available and because of the readjustment of the teaching program required, it is unlikely that any marked alteration in the teaching of physiology at the University of Hong Kong can be instituted in the near future.

The opening of the new Pre-clinical Building at the University of Hong Kong should help to alleviate the space shortage which so acutely affects the above departments. It is hoped, however, that this will not merely lead to an expansion in student enrollment, without the necessary increase in equipment and staff to accompany such a change.

At the University of Hong Kong, Preventive and Social Medicine, Pharmacology and Pathology are frequently considered as "transitional" course, bridging the gap between the pre-clinical and clinical curriculum. This distinction between pre-clinical and clinical courses, which also exists in the States is to some extent unfortunate. The use of "clinical" material in the teaching of the basic sciences is often of considerable value. This practice is followed by many medical colleges in America and was also, until recently, pursued at the University of Hong Kong. Unfortunately, administrative difficulties have resulted in a temporary, at least, cessation of this practice in the latter institution. It may perhaps be re-instituted when closer physical association of the various departments is attained. The basic science departments can also serve a useful role in the clinical curriculum. In many American universities, the staff of the Biochemistry and Physiology Departments work in close cooperation with their clinical colleagues in the teaching of the fundamentals of such subjects as acid-base and water balance, normal and abnormal pulmonary function and endocrinology. It would be advantageous if a similar interchange of talent could be instituted in Hong Kong.

The course in Public Health in most American medical schools covers much of the material taught by the Department of Preventive and Social Medicine at the University of Hong Kong. Even in the former country, however, the curriculum varies widely and in some cases the subject matter is handled by different departments or under a different name. In general, there is a greater emphasis on statistics than in the comparable course in Hong Kong. Although various elements of statistics are presented in physiology, biochemistry and pharmacology, a more extensive, unified coverage would be desirable. Because the medical curriculum is already crowded, this suggestion has not been greeted with great enthusiasm and it is unlikely that a separate course in statistics will be included in the medical teaching program in either Hong Kong or the United States in the near future.

The Department of Preventive and Social Medicine touches on many aspects of tropical diseases, especially those involving public health and social hygiene. Most medical schools in America offer a separate course in tropical medicine which, to some extent at least, duplicates the material presented in pharmacology, pathology, public health and medicine. Although this repetition may be useful in the teaching of tropical medicine, its value in the States, especially in the northern areas where such diseases are rare, is questionable. In contrast, the establishment of a separate course in tropical medicine should be seriously considered in Hong Kong where such diseases are relatively prevalent.

Although the Department of Preventive and Social Medicine has been handicapped by the lack of a full-time head of department and by a small permanent staff, it has adequately covered the subject matter through the judicious use of "outside" personnel. Such a system, however, may on occasion result in a lack of correlation between lectures

and it would, therefore, be desirable to have a full-time adequate staff appointed as soon as possible.

At present, pharmacology is taught by the Department of Physiology at the University of Hong Kong. Although provisions exist for the establishment of a separate Department of Pharmacology it has, apparently, been impossible to secure adequate personnel to implement this program. Combined departments exist in a few medical schools in the States but in these cases an attempt is made to maintain a relatively equal balance between the two subjects. Unfortunately, such a combination frequently results in the over-emphasis of one subject to the detriment of the other. For this and other reasons most medical educators recommend separate Departments of Physiology and Pharmacology.

The lecture course in pharmacology at the University of Hong Kong is comparable in subject content and hours of instruction with the initial course in pharmacology in most American medical schools. Under the existing time-table, pharmacology in Hong Kong is taught during the Spring Term of the Second Year and the Fall Term of the Third Year. The long summer vacation which approximately divides the course in half produces some discontinuity but this does not create a serious problem. It is difficult, however, for students to understand the pharmacological principles involved in the drug therapy of diseases unless they have a knowledge of the underlying pathological conditions. Ideally, pharmacology should follow pathology and continue through the clinical years. This programme is followed in a few American universities. In others, pharmacology is taught simultaneously with pathology, but since, as will be mentioned later, bacteriology has already been completed the student may attain a familiarity with some diseases, at least, prior to their discussion in pharmacology. Where adequate inter-departmental cooperation exists, the courses are frequently arranged so that the pharmacological aspects of a disease may be presented immediately following its discussion in pathology. Unfortunately, such planning is the exception rather than the rule.

In many American schools, physical diagnosis, or a similar introductory course in clinical medicine under another name, is frequently given concurrently with and greatly facilitates the teaching of pharmacology. The student in Hong Kong, however, does not receive such training until after the completion of the course in pharmacology.

In spite of the variation in the programming of the initial course in pharmacology, most medical schools in the United States continue with more or less formal instruction in this subject during the final two years. The latter courses are orientated with a clinical approach, the drugs are discussed not according to their pharmacological classification but according to their therapeutic uses. Close inter-departmental cooperation and extensive planning is essential in such a course. When properly arranged, it is not unusual to find such conferences attended by students of all years and by members of both the clinical and preclinical staff. Such a course would be a valuable addition to the medical curriculum in Hong Kong.

The laboratory course in pharmacology given at the University of Hong Kong apparently attempts to duplicate, to a large extent at least, similar courses in the United States. This practical class is handicapped by the same problems which affect physiology — inadequate staff, space and equipment. In addition, the supply of dogs, which in the States are used extensively in the demonstration of the pharmacological action of drugs on the cardio-vascular and respiratory systems, is limited and irregular. Various proposals have been suggested to circumvent this difficulty but the answer lies in those proposals designed to increase the availability of these animals. The mere elimination of those students' experiments involving the use of dogs would lower the standard of teaching.

The course in pathology in Hong Kong extends over three terms. On the surface the time allocated seems almost comparable to that available in American teaching programmes. The course at the University of Hong Kong, however, includes bacteriology which is usually given as a separate course during the first year in most medical schools in the States. Although the study of diseases produced by pathogenic organisms is an integral part of internal medicine the basic principles involved in microbiology are more closely related to the pre-clinical subjects. Many medical educators have advocated that bacteriology be included in the pre-medical curriculum. Certainly much of the required information could be taught in zoology as botany. This would help to relieve the overcrowded medical programme. It is unlikely, however, that this change will be adopted in the near future. Even if it were felt desirable to include bacteriology in the pre-clinical course at the University of Hong Kong, and there are many who are not convinced of the wisdom of this move, such a change would require the complete re-organization of the teaching schedule. Such a step will probably not be taken as long as the University continues to follow the British pattern of medical education.

As many of the problems of pharmacology are akin to those of physiology, likewise pathology experiences many of the difficulties encountered in history. The space afforded by the new Pathology Building in Hong Kong is at present adequate but whether it remains so following the expansion of the medical school is problematical. The equipment shortage is perhaps less acute in pathology than histology but it nevertheless exists. Many valuable teaching aids which are not available in histology are also lacking in pathology. A solid foundation in histology enables the student in pathology to show greater independence and to work with less supervision. Nevertheless, it is desirable to maintain a low staff to student ratio in both laboratory courses. Unfortunately, the numerous obligations which are incurred by most pathology departments both in the States and in Hong Kong prevent the attainment of this goal.

Clinical Pathological Conferences (C.P.C.'s) play an important role in the pathology teaching program. Their exact format varies usually accordingly to the personal preferences of the department chairman and the policy of the medical faculty. In some institutions the students are responsible for the entire presentation. In others the staff assume all responsibility and the students merely attempt to gather the "pearls of wisdom" which flow from the mouths of their distinguished teachers. A combination of these techniques may also be utilized and under such circumstances students may be requested to comment on various aspects of the case under discussion. There are advantages to each system, but in general those conferences in which staff members from many departments contribute prove most enjoyable and probably are most instructive. The clinical history is usually presented by the attending physician; X-Ray films and the results of fluoroscopic examinations are discussed by the radiologist; comments, possible diagnoses and the reasons therefore are given by physicians engaged in the appropriate fields of medicine; after considerable discussion the pathologist presents the autopsy findings with specimens and slides. Then a recapitulation ensues to determine the cause of diagnostic error, if any, and whether other methods of treatment would have proven more beneficial. Obviously such conferences require considerable planning and the enthusiastic participation of members from many departments. Admittedly few C.P.C.'s attain the excellence of those of the Massachusetts General Hospital reported in The New England Journal of Medicine or those of the Mayo Foundation reported in their Bulletin. Nevertheless, it behooves those responsible for such conferences to strive to approach such standards. There is considerable room for improvement in the C.P.C.'s in most medical schools including Hong Kong's. A step in the right direction would include the advance distribution of the programme to those who might be interested.

The comparison of teaching programs in the clinical field is more difficult than the evaluation of pre-clinical and transitional courses. To a large extent the quality of

instruction in the clinical departments is dependent on the type and amount of clinical material available and the teaching ability of the staff. The clinical teaching facilities at the University of Hong Kong are comparable to and in some respects superior to those found in some American medical schools. The number of teaching beds per student is adequate and the patient turnover is relatively rapid. Specialized hospitals for the treatment of tuberculosis, mental disease, maternity and orthopedic cases are also at the disposal of the clinical departments for teaching purposes. The out-patient sections, which may seem over-crowded and inadequate from a public standpoint, likewise provide an important source of clinical material. The casualty ward also offers the student an excellent chance to gain valuable experience. The availability of "extra-special" laboratory and diagnostic tests may perhaps be less in Hong Kong than in some teaching centers in the United States, but such discrepancies, if they exist, do not significantly affect the teaching programme.

The medical student in Hong Kong has a greater opportunity to observe patients with a greater variety of diseases, especially infectious diseases, than his counterpart in most medical schools in the States. In the latter country it is not unusual for a student to graduate from medical school without ever having seen a case of diptheria, malaria, small pox, typhoid, cholera, beri-beri or pellagra. However, these conditions are occasionally encountered in general practice and previous first-hand experience with the disease greatly assists in the diagnosis.

The most obvious difference between the constitution of the clinical departments in these two areas is reflected in the relative abundance of fully established "Speciality" Departments in American medical schools and their relative absence in Hong Kong. Orthopedic Surgery and Pediatrics have recently been established as full-time departments in the University of Hong Kong and the latter department sets a paper for the final examination. There are, however, no established departments of Psychiatry, Dermatology, Radiology, Neurology, Allergy, Endocrinology, Gastro-enterology, Ophthalmology, Otorhinolaryngology, Neurosurgery, Thoracic Surgery or Urology in the University. There are, however, numerous consultants and part-time lecturers available in these fields who participate in the teaching programme. The establishment of separate Speciality Departments greatly facilitates the continuity of the teaching and, whenever possible, is to be desired. On the other hand, such development requires the expenditure of large sums of money for additional staff, equipment and space and is perhaps not justified in Hong Kong at the present time except in special subjects.

The emphasis on psychiatry and psychosomatic problems is greater in most American medical schools than at the University of Hong Kong. Many of the institutions in the former country begin the formal teaching of psychiatry in the first year of the medical curriculum and continue throughout the course of study. This probably reflects the social conditions and associated emotional problems which exist and are recognized in the United States. As yet there has not been a widespread awareness of the need for more extensive psychiatric training for the physician in Hong Kong. It is disconcerting to find, for example, that the majority of third year students in Hong Kong believe that those individuals who respond to placebos ("sugar pills") are definitely psychoneurotic. It is hoped that this misconception, which reflects the lack of knowledge of normal behaviour, is corrected prior to graduation.

There is no adequate criteria for evaluating the teaching ability of the individual members of staff. The student may prefer the instructor who tells the best jokes, but this does not necessarily imply that he necessarily imparts the most knowledge. The students' results on examinations may give some indication of the caliber of instruction but many other factors also influence the outcome and examination results do not necessarily reflect teaching ability. In this respect, however, it appears that there is no significant difference between the staffs in the two areas under discussion. Some are

excellent teachers, others are average, and a few are relatively poor. In both Hong Kong and the United States, teaching ability plays a relatively minor role in the selection of members of the university staffs.

In comparison to American colleges, the library facilities at the University of Hong Kong are relatively limited. Despite the small budget available, the general standard of the library has improved greatly since its decimation by the Japanse during the Second World War. The number of medical journals, especially those related to the various specialities, is still comparatively small. Likewise, recent medical texts and reference books are seldom readily available. Those which have been purchased are frequently on "Permanent Loan" to the various departments. Although on the surface this policy might seem unwise, the semi-exclusive use of such books by staff members probably represents the best use of the limited material available. It is nice but naive to imagine that medical students spend long periods consulting library books and journals. Most medical students use the library as a quiet place to study. The availability of adequate library facilities primarily affects the ease with which the staff may keep abreast with modern medical progress.

In an effort to supplement the available "out of date, over complicated or inaccurate" textbooks many departments of the medical Faculty of the University of Hong Kong distribute mimiographed lecture notes to the students. According to many educators the use of such "canned notes" is a reprehensible form of "spoon feeding". It decreases student initiative, reduces the necessity for the student to "think for himself", inhibits the development of the ability to analyze and organize material and discourages independent reading. Furthermore, it may result in the lack of student attentiveness. "There is no need to listen if it is all down in black and white." Those who favor the distribution of lecture notes claim that this procedure allows more material to be adequately presented in a limited time by decreasing the amount of blackboard work required. It eliminates the necessity for the student to "scribble" in a note-book and thereby allows him to concentrate on the presentation. The time which the student would otherwise be required to spend in looking up material for himself can be devoted to more profitable endeavours. There are merits to both view-points. Provided that such notes are used to form the framework for further discussions their advantages probably exceed their disadvantages. If such is not the case the student gains little by attending lectures.

In the States extensive mimiographed notes are seldom given to the students by the lecturer. In practice, however, lecture notes are usually prepared, duplicated and distributed by enterprising students working on a cooperative basis. In some cases, the students employ portable tape recorders or secretaries to take shorthand notes. In many cases the material distributed is better organized and more complete than the original lecture. As yet the medical students in Hong Kong have not developed similar schemes. Perhaps this reflects a lack of initiative, a lack of cooperativeness, a reluctance to trust other students to prepare the notes or perhaps a spirit of independence. It is unusual to find that this practice which is almost universal among medical students in the United States is almost non-existant among their counterparts in Hong Kong.

The examination system in medical schools which follow the British system differs markedly from that employed in the United States. In the latter country examinations are usually given at the end of each semester or term, even in courses which extend for longer periods. Interim or midterm exams are given in many subjects and the results of these tests, as well as the instructors' personal evaluation, are considered in the determination of the final grade for each subject. Whenever possible separate examinations and grades are given in each sub-section. Thus a student receives a separate mark in histology, neuro-anatomy, embryology, gross anatomy and cross-sectional anatomy. Individual entries are made for general pathology, special or organ pathology

and pathology laboratory. Practical examinations are given when feasible and in approximately the same courses as at the University of Hong Kong. Practicals in medicine, however, are usually omitted since it is felt that it is unfair to place undue emphasis on the examination of a single patient and because the cooperation or non-cooperation of the patient markedly influences the results. As a general rule "orals" are only given in a few of the clinical subjects. It is felt that the daily evaluation of the student by the instructor forms a more accurate basis of evaluation.

The written examinations in medical schools in the States are usually of the objective or short answer type. Long essay answers are seldom required and indeed the student may be penalized for undue verbosity. It has been demonstrated conclusively on many occasions that *properly constructed* objective examinations give evaluations of students' ability which are comparable to those obtained when the essay type of examination is employed. The objective type of examination usually gives more consistant results since it does not depend on handwriting ability, writing speed, literary skill or, more importantly, the mood of the marker. It is true that the objective examination does not usually test organizational ability or the ability of the student to express oneself. It can however, accurately measure the student's reasoning powers and need not merely give an indication of rote memory. It is likely that many of the criticisms of the objective type of examination have arisen from poorly set papers. The construction of a satisfactory examination of this type requires considerable skill and effort. The evaluation which it affords, however, certainly justifies the expenditure of time and energy. If it is felt desirable to measure the students' ability to organize material and their ability to express themselves, objective examination may be combined with the essay type.

Under the British system of medical education as practised in the University of Hong Kong, Part I of the First Examination is limited to a written and practical examination in Organic Chemistry. Part II given after approximately one and two-third academic years covers anatomy, physiology and biochemistry. The Second M.B. is composed of separate examinations in preventive and social medicine, pharmacology and pathology. The Final Examination consists of medicine, surgery, obstetrics and gynecology and pediatrics. In addition to written essay type examinations, orals are given in most courses. In essence, therefore, the medical student at the University of Hong Kong takes approximately eleven course examinations whereas fifty to sixty separate "examinations of record" are employed in the States to evaluate the students' progress.

Those who advocate less frequent, comprehensive examinations feel that this system gives a better indication of what the student actually retains and is, therefore, a superior method of evaluation. Those who prefer many, less inclusive examinations feel that the students will normally retain the important material which they use and the remainder, although partially forgotten, can be readily looked up if required. Furthermore, if the number of examinations is limited, undue emphasis is placed on each exam, and a student may fail because of nervousness, sickness, misinterpretation of a question, etc. A few medical schools in America give comprehensive examinations at the end of the final year. These, however, are relatively routine and are primarily employed to prepare the student for the State and National Board Examinations which they may subsequently take.

An external examiner is appointed for each examination in the medical school in Hong Kong. This, in theory at least, ensure the maintenance of a high standard of instruction. In practice, the external examiners usually grade more leniently than the internal examiners and, therefore, under most circumstances are probably not required. Nevertheless, the presence of an external examiner does serve as a useful safeguard. The system of external examiners is not widely employed in American medical Schools.

However, the various State and National Board Examinations which must be passed before a licence to practise is issued serve a similar purpose.

The grading systems in American and British type medical schools differ significantly. In the States the A, B, C, D, E (or F) scale is usually employed although a few schools follow the pattern used in Hong Kong of only awarding Distinction, Pass or Fail. The pass mark in the Faculty of Medicine at the University of Hong Kong is 50, whereas in American schools a grade of "C" usually represents between 70 and 80. The difference in the pass level in the two countries is of little practical significance. Raw scores can be adjusted to any desired numerical level. Depending on the difficulty of the examination and strictness of marking, a raw score of 30 might represent a higher standard than a mark of 80 on an easy examination.

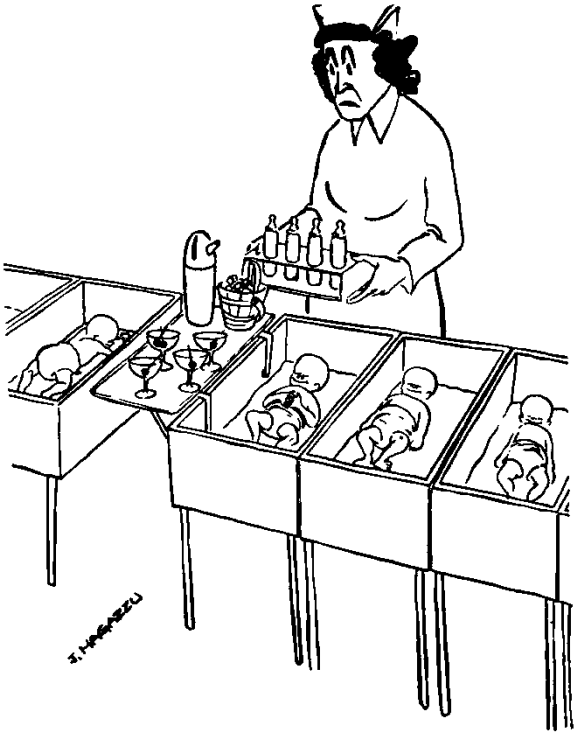
The total attrition in American medical school is approximately 5-10%. Most of the individuals who "flunk out" do so in the first two years because of personal reasons unrelated to their intellectual ability. In general a student who receives a "D" in a course must take a repeat examination in that subject. In the event of a failure the student must repeat the course, usually in summer school, before he can proceed with his medical education. Students who have uniformly low grades or who fail in approximately half of their courses during the first or second year are required to repeat the year or discontinue their medical course. During the final two years failures are extremely rare and seldom is a student required to repeat a course, except perhaps because of illness, or "drop out".

In Hong Kong, a student who fails organic chemistry at the first attempt may take two supplementary examinations. The number of students who do not pass this examination in the three trials is extremely low. The Second Part of the First Examination consists of oral, written and practical exams in biochemistry, physiology and anatomy. A candidate who fails in one subject at his first attempt is given a re-exam in that course. If he fails again, or if he has failed two subjects initially, he is required to repeat the second year and resit and pass all three subjects together within a year after his first attempt at this part of the examination. Thus a student who fails to meet this requirement may be dismissed from the Medical Faculty after two and two-thirds years of study without any concrete evidence of academic achievement. When more frequent, separate exams are given, as in the States, dismissal, when indicated, is effected earlier without such a waste of time and the student receives credit for the courses which he has passed.

The medical student in Hong Kong who fails any part of the Second Examination (pharmacology, preventive and social medicine and pathology) may usually resit that exam at semi-annual intervals until he passes. The student is not required to repeat the course and there is no specific penalty except for the re-examination fee (HK$150). In the Final Examination, pediatrics may be passed singly, but medicine, surgery and obstetrics and gynecology must be passed at the same examination except if a student passes in two of these three subjects he may take two re-examinations in the third subject. Otherwise he must resit and pass all three subjects together. The number of students who fail one or more subjects at their first attempt at the Final Examination is relatively high and at times approaches 30%. It is difficult to ascertain the cause of this high failure rate. The candidates certainly have the necessary intellectual ability as indicated by their previous passes; the quality of instruction is adequate; the standard required appears reasonable. It is possible that the high failure rate is due to the students' lack of application. Although in general the students study extremely hard immediately prior to examinations, the system does not encourage the great expenditure of energy during the preceding two years. This perhaps represents another argument in favor of more frequent examinations.

Despite the various differences which have been noted between medical education in the United States and Hong Kong the caliber of graduates is very similar as evidenced by the reports of External Examiners, the success of Hong Kong graduates who take further training in the States and the recognition of the Hong Kong M.B., B.S. by the British Medical Council. This suggests that the differences in selection and the teaching program are of more theoretical than practical importance.

* * * *



(Courtesy Squibb)

* * * *

A nurse, carrying a dark-coloured baby coming out from Labour Ward, saw three men waiting. She asked the Englishman, "Is this your baby?" "No!"

Then she asked the Scot, "Is this yourbaby?"

"No," was the reply.

When she turned to the Irishman, he immediately said, "Could be. She burns everything!"

MEDICAL BALL 1964

BarBeCUE '64

rthe Professor of Modern Dancing: "It is a mis-
ɨption to think that the Limbo was invented by
maicans. It was, in fact, originated in Scotland,
the Scots tried to enter the public toilets free."

Fishing — men's favourite sport.

A CHEMISTS APPROACH TO THE PROBLEM OF DRUG-ADDICTION

Part 2 — *Morphine and the Hormonal Control of Metabolism*

By E. O'F. WALSH

In the previous instalment of this article (*Elixir*, No. 1, 1964, *pp.* 8-10) the writer reviewed in outline his earlier research, carried out in the Royal Free Hospital School of Medicine, University of London, in seeking to discover what changes were induced by addicting and/or habit-forming drugs in living cells that could result in the establishment of a physical dependence of a type which, in man, might be the basis of addiction. As a result of experiments with morphine, cocaine, and nicotine on unicellular organisms and on tissues of experimental animals, it was concluded that the membrane-effects of such drugs were of much greater pharmacological significance than effects on intracellular enzymic systems. The sites of action of both cocaine and nicotine as respiratory poisons were discovered but no induced changes in the nature of "enzymic adaptations" were detected. Morphine, unlike the other drugs, had no appreciable effects on the common basic metabolic processes of glycolysis and cellular respiration in either micro-organisms or animal tissues including both resting and potassium-stimulated nerve. From this and general cumulative evidence it was deduced that addiction probably involved induced changes in sensitivity and response to hormones of hormone-sensitive tissues. This view was encouraged by the realisation that the morphine molecule embodies chemical structures analogous to both the steroids and the adrenalines.

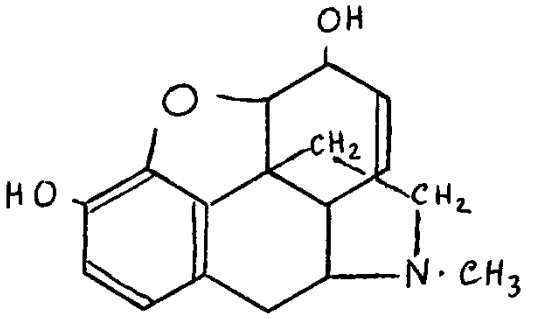
A study of the effects of morphine on the hormonal control of metabolism was therefore indicated. Such a study was undertaken in the Department of Biochemistry in the University of Hong Kong. The results of this work is here reviewed.

A brief introductory outline of the chemistry of morphine would not be out of place here.

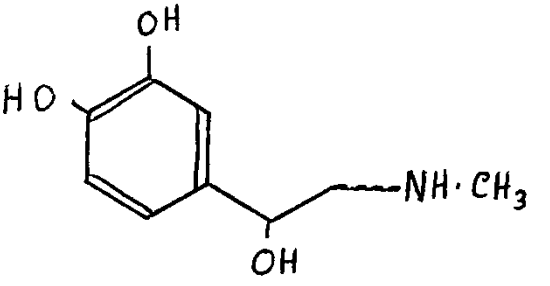
The alkaloid, morphine, obtained from the latex of the opium poppy, *Papaver somniferum*, is a phenolic base of unusually complicated multiple ring structure. Like narcotine and laudanosine (also opium alkaloids) it embodies a partially reduced *iso*quinoline ring structure. As a result of further ring closure, it is unusual in possessing also a partially reduced quinoline ring structure (unreduced *iso*quinoline and quinoline rings occur in alkaloids of the papaverine and cinchona groups respectively), a partially reduced phenanthrene structure as in the steroids, with an additional furan ring involving the ether-linkage. Such a complex of ring structures occurs also in codeine (methyl-morphine) and in the highly toxic opium alkaloid, thebaine (a dimethyl analogue of morphine with an extra double bond, and, but without the furan ring, in sinomenine, an alkaloid from the Japanese vine, *Sinomenium acutum*.

In the poppy, morphine is synthesised from two molecules of the amino-acid, tyrosine, which in animals is a precursor of the adrenalines. It was realisation of the fact that both morphine and adrenaline are biochemical derivatives of tyrosine that drew my attention to the possibility that morphine and adrenaline might have some properties in common and others in relation to biological systems of an antagonistic nature, for it is often found that compounds which show a structural resemblance to natural metabolites tend either to simulate or to interfere with the biological function of the latter. The analogy between morphine and the steroids is apparent from their structural formulae as usually written (Fig. 1) it is not so obvious in the three-dimensional models—but I had not hitherto thought of the analogy with

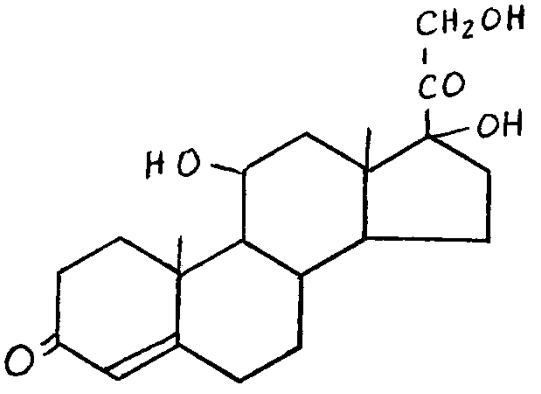
adrenaline. The idea formulated itself suddenly one day as I was walking home through the compound and I was very excited about it. Was this the vital clue to those peculiar properties of morphine which had so far eluded explanation—structures and functional groups of both types of adrenal hormone combined in one complex molecule? Next day, I built a molecular model of morphine, and there it was staring me in the face, the adrenaline structure so flagrantly exhibiting itself that I wondered how it could have been for so long overlooked. Why had I not seen this before? After all, I had been familiar with the chemical structures and properties of both morphine and adrenaline for a quarter of a century. Had preoccupation with biological problems dulled my ability to think as a chemist? It was a humiliating thought.



MORPHINE



ADRENALINE



HYDROCORTISONE

Fig. 1.

To conclude this introductory outline of some of the chemistry relevant to the problem, perhaps I should point out that the morphine molecule is very compact and almost spherical, presenting a large area of fatty (water-repellant) surface with the tertiary nitrogen in the middle of it, and a short hydrophilic strip of three oxygens on one side. Like morphine, adrenaline has one nitrogen, three oxygens, and a benzene ring, is a water-insoluble phenolic nitrogenous base, capable of accepting a hydrogen ion to form a water-soluble cation and, by virtue of its polar groups and catecholamine structure, capable of hydrogen bonding and of chelating with metal ions. Hydrocortisone, the steroid we used for our preliminary experiments, is of similar molecular size to morphine but is

sausaged-shaped and somewhat flexible (all the rings have the chair structure), is of a fatty nature but with three hydrophilic oxygens clustered, as in morphine, at one end, and two more so attanged as to form a hydrophilic strip along the length of the molecule. It contains no nitrogen and is not a base, but it resembles morphine in possessing a complex of 5- and 6-membered rings. All such "fatty" compounds with hydrophilic groups have surface-active properties and tend to accumulate at the interface between aqueous and lipid layers such as occur in cellular membranes.

From the known chemistry, therefore, morphine would be expected to interfere with and possibly to simulate some of the activities of the steroid-adrenaline complex of hormones that influence both organic metabolism and salt and water balance.

We chose firstly to investigate the effects of morphine on carbohydrate metabolism in muscle rather than the effects on "mineral metabolism" because the glucocorticoid, hydrocortisone, is much cheaper and more readily available than aldosterone and the techniques were much simpler with the equipment and limited facilities then available to us. With the isolated diaphragm of the rat as test-organ, we studied the effects of morphine on the rate of glucose-uptake, on glycogen metabolism, on lactate-accumulation, and on oxygen-consumption, thus to gain some idea of the effects on the glucose-transport mechanism (which in muscle is controlled by insulin and by the adrenal hormones), on glycogen synthesis and mobilisation (known to be influenced by hydrocortisone and adrenaline respectively), on glycolysis (said to be influenced by adrenaline), and on respiration (which is depressed by hydrocortisone and accelerated by adrenaline). Identical experiments were carried out with diaphragms from chronically morphinised rats, litter mates of the normal rats, which had received daily injections of morphine (30 mg/Kg body weight) for 5-6 weeks.

Morphine had no appreciable effect on the intracellular processes of glycolysis and respiration in any of the rats, but the effects on the glucose-transport mechanism were indeed striking. It stimulated glucose-uptake in the diaphragm of normal rats (N-diaphragm), the increase being as much as 4-fold in some experiments and thus comparable with insulin in magnitude of effect, but it depressed uptake in diaphragms of chronically morphinised rats (CM-diaphragm). This was indeed an exciting discovery, for it demonstrated clearly that morphine had hormone-simulating properties. Maximal effects were obtained with morphine in $7{\cdot}7\times10^{-4}$ M concentration, and this concentration was used in the rest of the experiments in this preliminary investigation, in which the effects of morphine and of hydrocortisone were compared. In a series of experiments involving about 100 rats, the effects of hydrocortisone (also $7{\cdot}7\times10^{-4}$ M) were studied, the effects of drug and hormone together, the effects of the drug in the presence of the hormone (i.e. hydrocortisone in the medium with the control hemi-diaphragm and hydrocortisone plus morphine in the medium with the other half of the diaphragm), and similarly the effects of the hormone in the presence of the drug. These experiments with morphine and hydrocortisone were carried out by Mrs. C. H. Lee Peng.

To summarise briefly: hydrocortisone in the concentration used had no effect at all on the rates of glucose-uptake by either N- or CM-diaphragm, but it opposed the effects of morphine. Morphine, which alone had no effect on respiration, opposed the effects of hydrocortisone on respiration, but did not oppose the effect on glycogen synthesis, or otherwise interfere with intracellular carbohydrate metabolism. Suppression of respiration by hydrocortisone is attributed to a direct effect of the hormone on the permeability of mitochondrial membranes and the effects of hormones on glucose-uptake is attributed to effects on or in the cellular membrane. These finding therefore implied that the site of action of morphine was at the membrane level. Another finding, which must be strongly emphasised was that, although the initial

glycogen content of CM-diaphragm was significantly higher than that of N-diaphragm, the mean basic rates (no added drug hormone) of glucose-uptake, of net glycogen synthesis, of lactate accumulation, and of oxygen-consumption were statistically identical in both N- and CM-diaphragm. This implied (confirming the writer's earlier deductions from experiments with micro-organisms) that morphine does not induce changes in intracellular enzymic activity or otherwise interfere with the intrinsic controlling mechanisms of cellular metabolism. Explanation for such differences between N- and CM-diaphragm as were observed in our experiments must be sought in mechanisms whereby the effects of hormones are superimposed on the intrinsic control of metabolism in the cell. The increased glycogen content of CM-diaphragm must have resulted from an *in vivo* change in the balance of hormones which influence glycogenesis and glycogenolysis. It is known that morphine affects adrenal function, influencing secretion of both corticosteroids and catecholamines and that adrenal function *in vivo* suffers modification as a result of repeated dosage with morphine.

To complete our preliminary programme of investigation requires a similar study of the effects of hydrocortisone and adrenaline, singly and together as in the experiments with hydrocortisone and morphine, and of the effects of morphine and adrenaline. Such a study of the effects of hydrocortisone and adrenaline has now been completed, the experimental work having been carried out by Miss M. L. Ng, who is now studying the effects of morphine and adrenaline.

In order to compare the results of all these experiments and to detect antagonisms between any two of the drug and hormone complex of factors, it is desirable in the first place to accumulate data from experiments in which the drug and the hormones were added in equimolecular concentrations, and to extend the study to include the effects of varying concentration later. It was not, however, possible to use adrenaline in a concentration as high as $7{\cdot}7\times10^{-4}$ M at pH 7·4, but maximal effects were found with half that concentration. It was necessary therefore to acquire data for the effects of hydrocortisone at $3{\cdot}85\times10^{-4}$ M concentration also. To our surprise, with this concentration, hydrocortisone strongly inhibited glucose-uptake (naturally, we repeated our experiments with the higher concentration to check that the difference was not due to differences between research workers, and we were happy to find the earlier results confirmed).

We were indeed fortunate in having had to change to $3{\cdot}85\times10^{-4}$ M concentration for our exploratory range of experiments, for it resulted in a most important finding.

Whereas, hydrocortisone ($3{\cdot}85\times10^{-4}$ M) strongly depressed glucose-uptake in N-diaphragm, it markedly stimulated glucose-uptake in CM-diaphragm. This was, perhaps, our most exciting discovery, and the results are here quoted from our letter to *Nature*.

Glucose-uptake, mg/100 g wet tissue/hr.
(Mean ± S.E.)

	Control	*+ Hydrocortisone*	*Difference*	*t-test*
Normal rats (6)	193±41	52±27	−141±27	(P <0·01)
CM-rats (7)	228±29	325±35	+ 97±35	(P <0·05)

Similar results were obtained with lower concentrations of hydrocortisone. The differences with a concentration of $1{\cdot}95\times10^{-4}$ M being, for 8 normal rats, -90 ± 30 ($P<0{\cdot}02$) and for 8 CM-rats, $+80\pm13$ ($P<0{\cdot}001$).

Differences in responds to addition of adrenaline were also observed. Adrenaline strongly inhibited glucose-uptake by N-diaphragm but had no effect at all on CM-diaphragm. In the presence of hydrocortisone, adrenaline inhibited glucose-uptake in the CM-diaphragm. In other words hydrocortisone restored adrenaline-sensitivity to CM-diaphragm.

The effects of hydrocortisone were also changed by the presence of adrenaline. Whereas hydrocortisone alone depressed glucose-uptake in the normal and stimulated it in the CM-diaphragm, in the presence of adrenaline, hydrocor-

tisone stimulated the normal but depressed the CM-diaphragm. In our most recent experiments we are finding that the effects of morphine are also quite different in the presence of adrenaline, or alternatively, the effects of adrenaline are quite different in the presence of morphine—it depends which way you look at it.

That really is the problem here—how best to interpret the results of our experiments. It is not quite so simple as perhaps I have implied. We do not yet know how the glucose-transport system in muscle works or why insulin and other hormones act upon it as they do. It is known to be a passive or downhill transport, not an active transport in which respiratory energy made available through ATP is exploited to transfer glucose across a membrane against a concentration gradient as in the small intestine and the renal tubules. Also, there are many conflicting reports in the literature concerning the effects of hydrocortisone and adrenaline, but I believe I am beginning to understand why, for it would appear that the effect of any one hormone (whether it stimulates or depresses for example) depends on a variety of factors, on absolute concentration, on concentration in relation to other hormones, on concentration of metal ions such as Mg^{++} and, as the results of our work with morphine suggest, on the state of the tissue upon which it acts. Let me enlarge upon this last factor.

The ability of cells in certain tissues to respond in a specific manner to hormones is not a general property of all cells, but a specialised function that must have arisen by adaptive processes in the course of evolution. Compared with the intrinsic controlling mechanisms of cellular metabolism, which has an ancient lineage dating back to times when only unicellular organisms existed, sensitivity to hormonal control is a relatively recent development. Now, whereas the cells of highly differentiated tissues have retained the ancient intrinsic controlling mechanisms, but lost the ability to vary these as unicellular organisms do in response to drastic environmental changes, they have probably retained an ability to adapt in their sensitivity to hormones to changes in hormonal balance. It is well known, for example, that in states of endocrine deficiency the tissues become hypersensitive to the hormones in short supply and, conversely, that overdosage with a hormone induces a hyposensitivity to it. Prolonged hormone therapy, if abruptly ceased, may give rise to withdrawal symptoms.

Man is, in effect, addicted to his own hormones. In each individual, the hormone-sensitive tissues are adapted to a hormonal balance that, within limits, is an individual characteristic. Gross changes in this balance, such as occur naturally at puberty, in pregnancy, and at the menopause may result in emotional disturbances and distress that is by no means entirely psychological.

Let us now, in the light of our experimental findings, consider the possible consequences of introducing a drug such as morphine into a system (man) that is happily in equilibrium with its own adrenal secretions. Endocrine activity is disturbed and the accustomed balance of adrenal hormones changes. To this, the tissues adapt by changes in their sensitivity. Not only does morphine induce changes of such nature, which could presumably be easily reversed, but the drug itself, by virtue of its hormone-simulating properties, participates in the adrenal complex of factors controlling metabolism, including salt and water balance. The drug has, in effect, assumed the rôle of a hormone and the tissues have adapted to it. There is the complication that morphine is pharmacologically active in other respects and as tolerance develops larger doses are demanded.

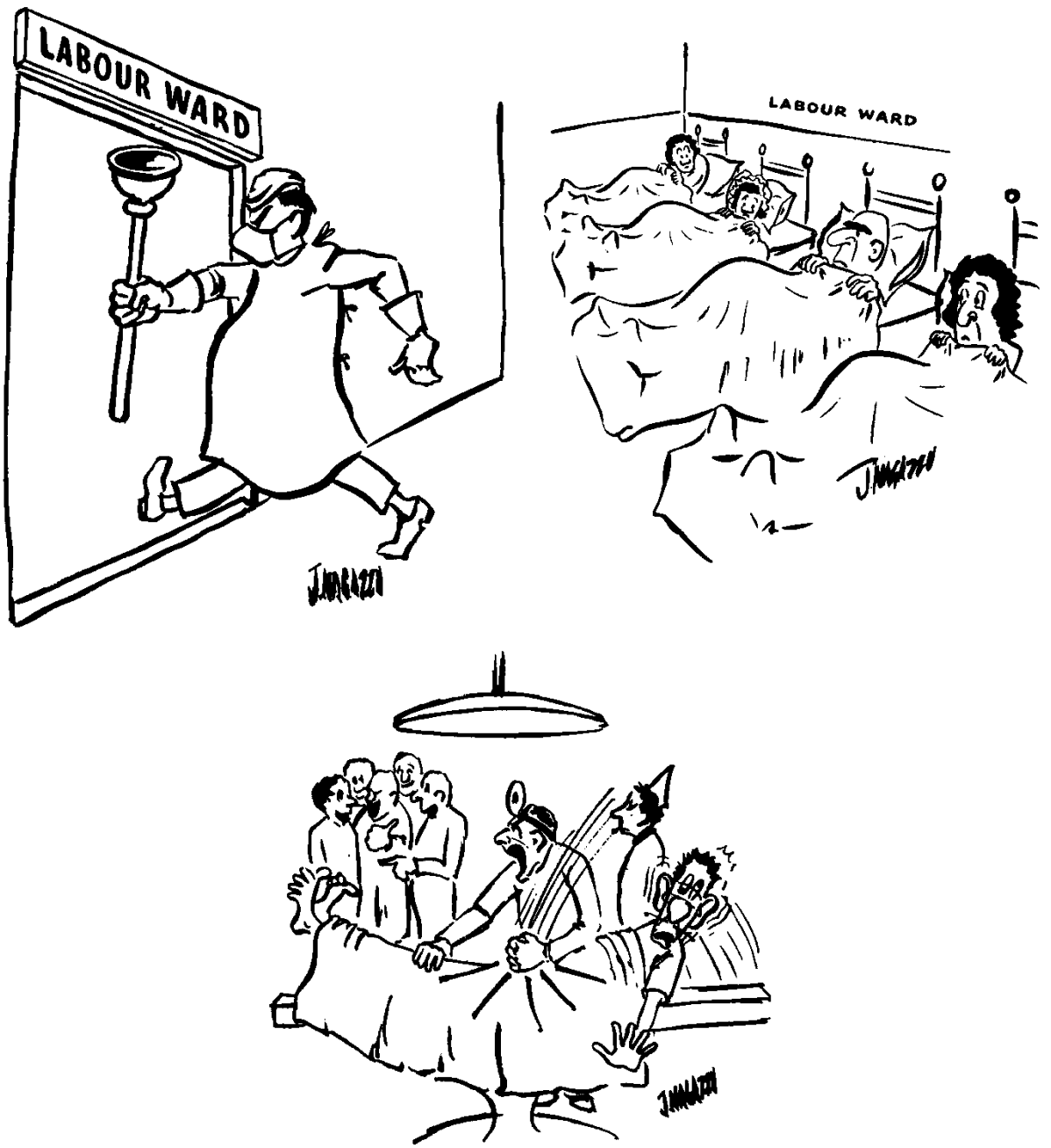
This, I believe, is the basis of morphine addiction.

But we need to know much more about it, and the work continues.

References *(part 2)*

"Effects of morphine on uptake of glucose and synthesis of glycogen in muscle of normal and chronically morphinised rats", Lee Peng and Walsh, *Nature,* 196, 171 (1962).
"Effect of morphine on the hormonal control of metabolism 1. *In vitro* effects of morphine and hydrocortisone on utilisation of glucose in muscle of normal and chronically morphinised rats", Lee Peng and Walsh, *Biochem. Pharmacol.,* 12, 921-930 (1963).
"Reversal of hormonal effects as a result of chronic morphinisation", Walsh, Lee Peng and Ng, *Nature,* 204, 698 (1964).
"Some effects of morphine and hydrocortisone on glucose utilisation in rat diaphragm", Lee Peng, *Ph.D. Thesis, H.K.U.* (1964).
"The hormonal basis of drug addiction", Walsh, *Medical News,* No. 136, Research review, 13 and 29 (1965).
"Effects of morphine on the hormonal control of metabolism 2. *In vitro* effects of adrenaline and hydrocortisone on utilisation of glucose by muscle of normal and chronically morphinised rats", Ng and Walsh, *Biochem. Pharmacol.,* 14 (1965 in press).

* * * *



QUIET PLEASE !!!
THIS IS A VERY SICK MAN !

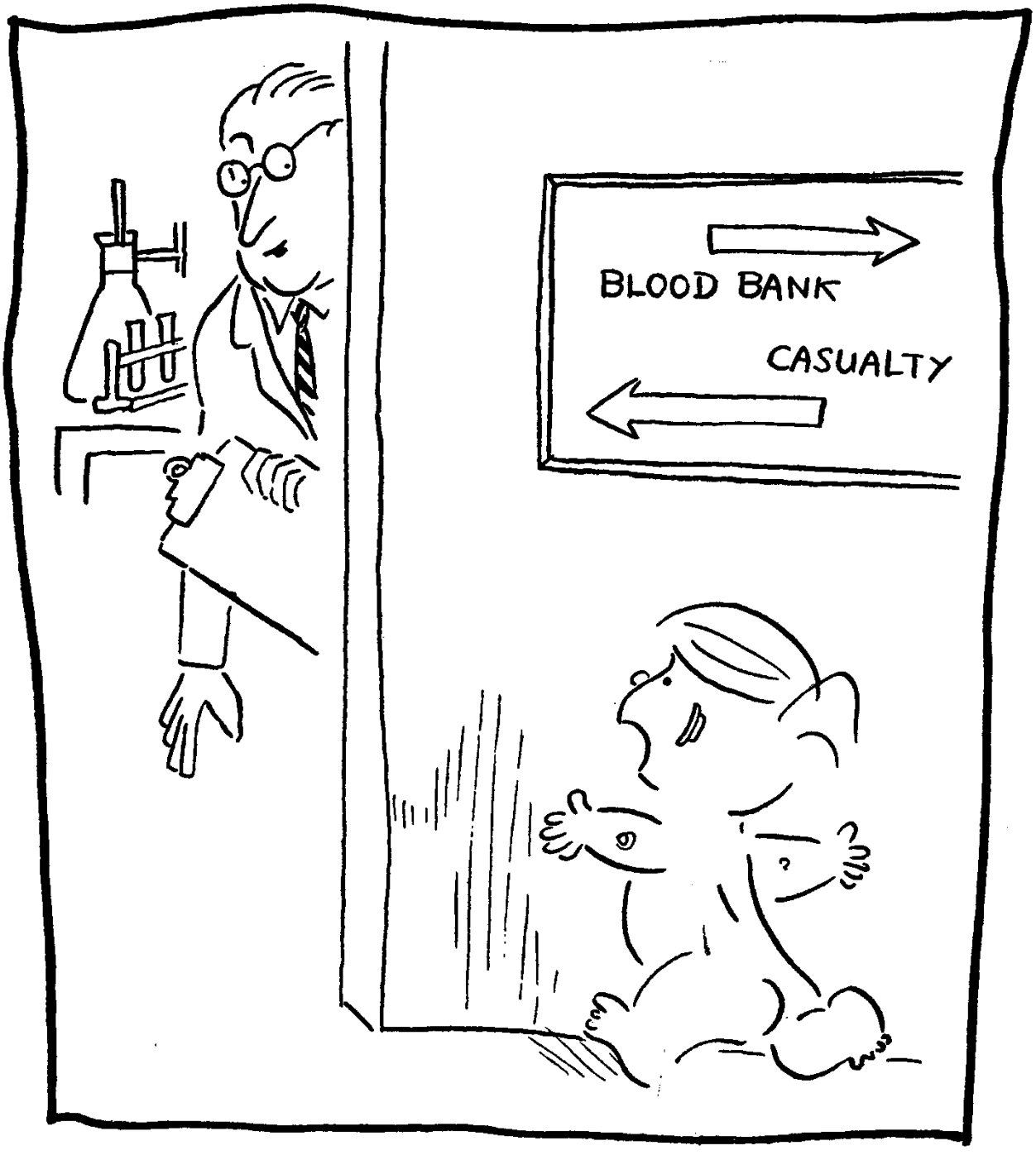
(Courtesy Squibb)

CARTOON TIME

Hiya Folks! you've just caught me escaping from the transfusion officer. MY BLOOD, do ya hear that? — a MEDICAL STUDENT'S blood. 'Cause there is a RUN on the BLOOD PIGGY BANK — Doctors running towards the bank, and students away from it!

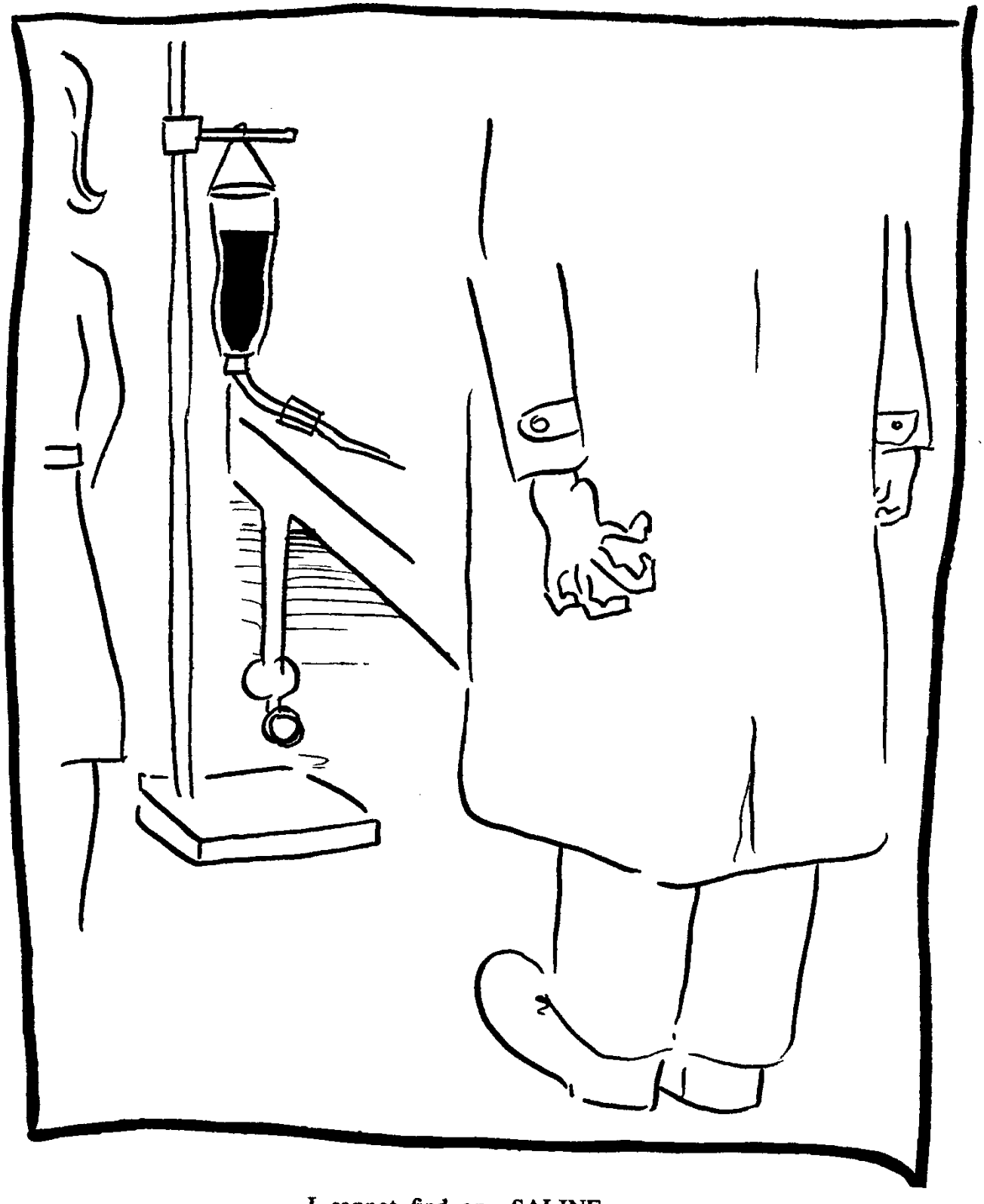
C'mon help me bolt it fast!
The doctor is after MY BLOOD!

It sure frightened me when I saw that huge VAMPIRE TOOTH (NEEDLE, stupid!) Perhaps they could be more successful if the transfusion guy would use some new greesy stuff (Fer 'stance — Brylclean).



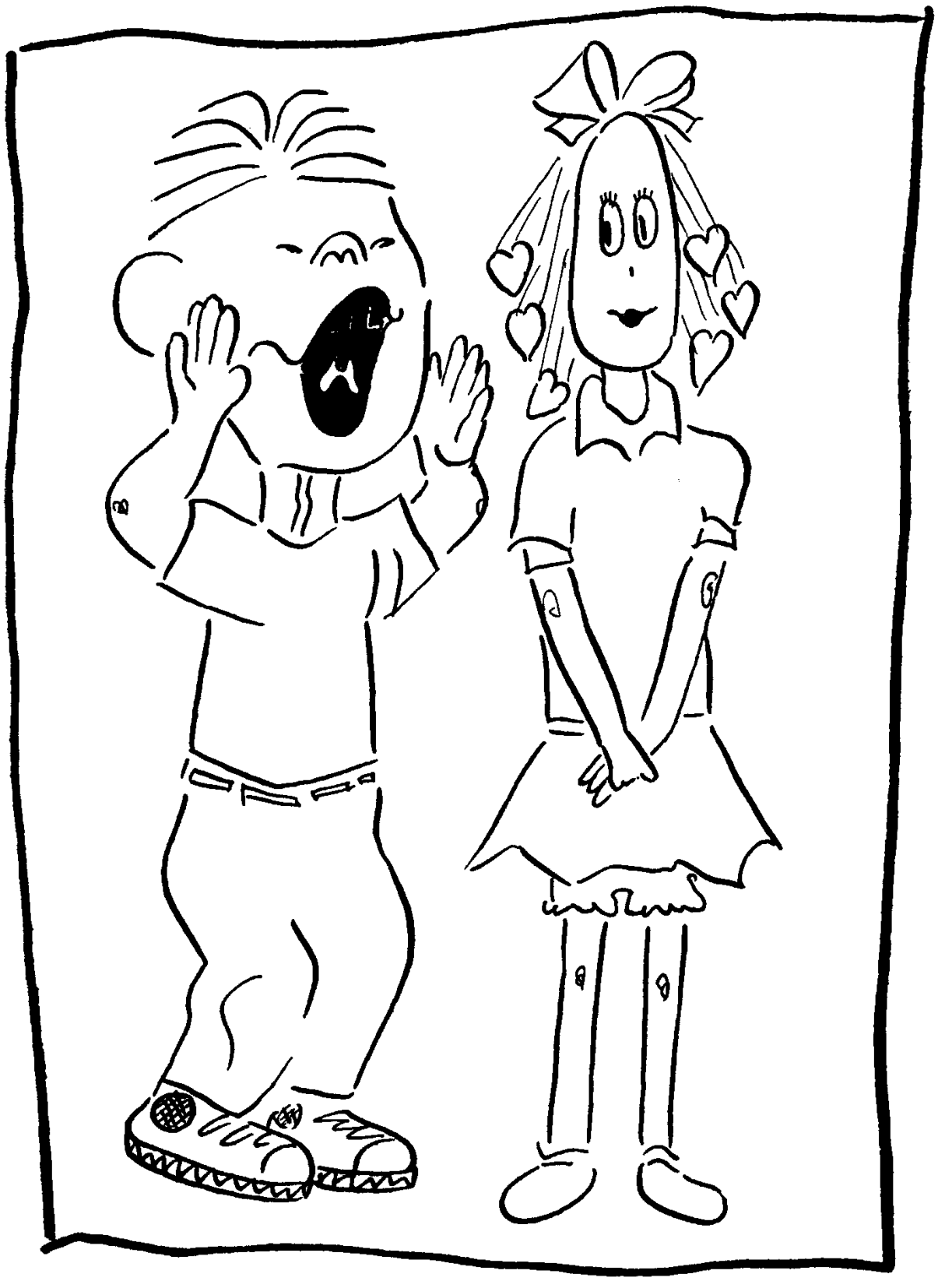
I ain't gonna give no blood,
That doctor's got a needle THAT long!

The blood is for the patients, of course, but I don't dig why they have to take blood from we, the lowest animals in the hospital? Sometimes the BOSS is mightly mad to see his hard-earned blood USED!



I cannot find any SALINE,
so I have to give him BLOOD.

But don't ya worry, there's always some fat guy volunteering — 'cause there is a mighty high competition to win favours in the faculty!



Mine is group A sir!

My tutor told me that girls lose blood EVERY MOON — Boy! if they would be more careful and not so FORGETFUL, it sure would save a lot 'a good ol'patients!

Margaret wants her blood back!

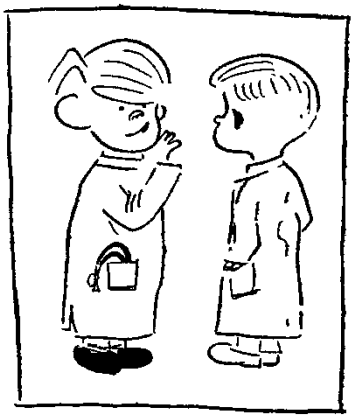
But there are always ways and means of getting enough, fer 'stance:—

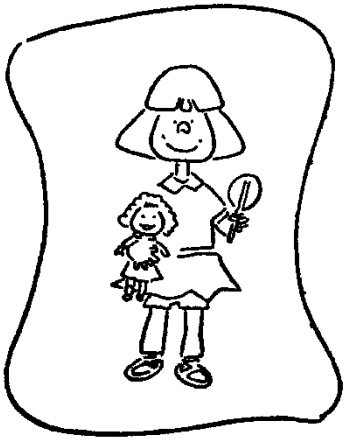
MORE PUBLICITY

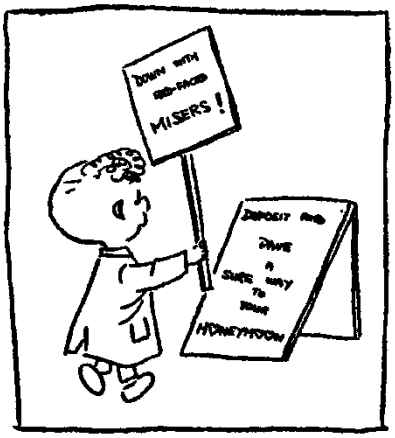
ADMIT MORE HEALTHY-LOOKING MEDICAL STUDENTS

HAVE HIGHLY RESPECTED AND ADORABLE PERSONNEL ON THE PERSUADING LIST!

BE THRIFTY, OF COURSE!







A. L.

PHYSICIANS, PATIENTS AND PLACEBOS

Dr. DAVID M. P. THOMSON,

This paper was originally presented to the Alpha Omega Alpha Society on November 21st, 1963. Dr. Thomson, graduated, *cum laude* in 1964, and is presently taking his interneship at the Montreal General Hospital. Reprinted by permission of the author and of the editor of University of Western Ontario Medical Journal.

Throughout the history of medicine, man has searched for drugs to assuage his discomfort and his agonies and yet he seems never to have completely made up his mind how he really felt about them. Associated with his search, there inevitably has been a wealth of magic and a close connection between drug treatment and healing by suggestion. Layman and physician alike have vacillated between almost magic belief in the efficacy of drugs and the other end of the scale—therapeutic nihilism. On the one hand, man undertakes the quest for a life-giving elixir or "a sweet oblivious antidote" and then, upon learning that "therein man must minister to himself" he, like Macbeth, bids physicians to "throw physic to the dogs" for he'll none of it. As time moves on and it is found that each new pharmaceutical discovery has promised more than actually delivered, then, each new generation of physicians has stood and watched disconsolately the waning power of a medication earlier endowed with great promise.

Davidson compares the introduction of new drugs to "the launching of pharmaceutical sputniks" into the therapeutic heaven.[5] He further suggests that these sputniks "often return promptly to their launching sites." He submits that these multi-coloured satellites may orbit for years, sustained by two powerful forces: medical ignorance of the placebo effect and the dissemination of this ignorance—doubtless unwittingly by the drug industry.

Lasagna outlines necessary conditions for the unwarranted success of some new drugs:[11]

1. A new drug must be essentially nontoxic.
2. No effective standard for comparison.
3. The drugs must be allegedly useful for some disease or symptom, which is hard to evaluate, or has a high rate of spontaneous or placebo-induced remission.

Gold has made several statements which will probably be challenged because they are drastic.[4]

Firstly, although placebos are scarcely mentioned in the literature except for the last few years, they are administered more than any other group of drugs. Secondly, although few doctors admit that they give placebos, there is a placebo ingredient in practically every prescription. Thirdly, the placebo is a potent agent, and in its action can resemble almost any drug.

Let us trace the history of the word placebo. It is the first person singular, future tense of the Latin infinitive "placere", to please. The word placebo is equivalent to the phrase, "I shall please". The first use of the word dates back to at least the 13th century, appearing in the "Vespers for the Dead" in the Roman Catholic service. It is then found in Chaucer and Scott suggesting servility. It is defined as "commonplace method of medicine" in the 1787 edition of Quincy's Lexion and in the Philadelphia Medical Dictionary published in 1808.

A satisfactory definition of placebo is: —a preparation containing no medicine (or no medicine related to the complaint) and administered to cause the patient to believe he is receiving treatment.

We can divide placebos into three classes. The first is the pure placebo, e.g., the lactose tablet. These lactose tablets have been found to be more effective, if they are coloured either pink or blue, or better still, mottled. Then there is the impure placebo. This is the adulterated placebo, the false placebo, the bastard placebo, you might call it. It is adulterated with a drug which might have some pharmacologic action.

Whereas the patient is deceived by both "pure" and "impure" placebos, the physician may be deceived by the impure variety, attributing to them unwarranted therapeutic properties. The modern clinician-scientist feels uncomfortable in the use of sugar-pills of his frock-coated and bearded predecessor. He, instead, prescribes impure placebos and eases his conscience in the vain hope that some benefit may ensue. Weiss suggests that neurotic patients exhaust their physician's supply of placebos and then get themselves a new doctor.

For the third group there is the universal pleasing element which accompanies every prescription. You cannot write a prescription without the element of a placebo. It carries weight, the weight of two or three thousand years of medicine. The fact that it is signed by a doctor, that it has required a doctor to write out the prescription, that the prescription has to be taken to a drug store to be filled out, that the patient has to pay for it, that it has, perhaps a bad taste; these things are placebo elements in a prescription.

Of course, the history of placebos goes back, way beyond Hippocrates. They are the most ancient drugs and we are safe in saying that in older times and in backward communities at the present, about 90% of the drugs which are given are placebos.

The history of medical treatment, although concordant with scientific progress in general, is at the same time incredible. In ancient Egypt, according to the Ebers Papyrus, in 1500 B.C., patients were often treated with medication such as lizard's blood, crocodile dung, the teeth of swine and fly specs. Few treatments of specific value are found in all the pages of Hippocrates. In ancient Babylonia gastric complaints were treated by pouring burning juice of cassia over the patient. In the 17th century Paul of Aegina outlined the use of blood in treatment, e.g., owl blood for dyspnea. In 1827 in France thirty-three million leeches were imported for bleeding because domestic supplies were exhausted.

Consider the treatment by the physicians of his day that Charles II endured. A pint of blood was extracted from his right shoulder and one-half pint from his left shoulder, followed by an emetic, 2 physics, and an enema comprising 15 substances; the royal head was then shaved and a blister raised; then a sneezing powder, more emetics and bleeding, soothing potions; a plaster of pitch and pigeon dung on his feet, potions containing 10 different substances, chiefly herbs; finally 40 drops of extract of human skull, and the application of bezoar stone; after which his majesty died.

Despite the ignorance and superstition physicians must have benefited their patients because they continued to be held in high esteem.

One may ask how physicians maintained their positions of honour and respect throughout history; in the face of thousands of years of prescribing what we know to-day to be useless and often dangerous medication? Indeed! this would have been a major accomplishment of the physician were it not for the fact that despite the uselessness of the drugs and procedures, physicians nevertheless did help their patients. One must conclude that potent placebo effect which characterizes the history of medical treatment is related in some as yet unelucidated way to the doctor-patient-relationship.

The extraordinary power of placebos merits special discussion. Its size and pervasiveness can best be illustrated by quantitative data from experimental studies.[2] In 15 different studies involving more than a thousand subjects, placebos satisfactorily relieved on the average $35 \pm 2.2\%$ of subjects. The great power of placebos provides one of the strongest supports for the view that drugs which are capable of altering subjective responses and symptoms do so to an important degree through their effect on the reaction component of suffering.

Beecher, in studies of severe post-operative pain extending over a number of years, found that 30% or more of these individuals got satisfactory pain relief from a placebo.[1] This becomes more impressive when one realizes that Lasagna and Beecher found that the average effectiveness of a large dose of morphine

15 mgm/70kg. body weight relieved only 75%. Thus of the average pain relief produced by a large dose of morphine in treating severe pain nearly half must be attributed to a placebo.[3] In another study, evidence was presented that placebos are more effective the greater the stress. This is supported by further observations that placebos are less effective in studies of experimental pain than they are when the pain arises in pathology. They are found to be ten times as effective in relieving pathological pain over experimental. Pathological pain produces more anxiety or stress.

Approximately the same high level of 35% effectiveness was produced whatever the subjective state under examination; pain of angina (26-38%), seasickness (58%), cough (40%), common cold (35%), and tension and anxiety (30%).

In a study of 199 patients with headache, 120 got relief from placebos.

Hillis in studies of inhibition of the cough reflex obtained an effect with placebos as great as that observed with 0.03 Grams Codeine.

Diehl investigated the ability of a vaccine to prevent colds. He found a reduction in the number of yearly colds of 55% among those given vaccine and 61% among a control group who received injections of isotonic Sodium Chloride. Besides these beneficial effects, placebos were held responsible for many untoward effects e.g. insomnia and dizziness.

The "placebo reactor" still remains to be positively identified. There is a great deal of disagreement about placebo reactors; whether they even exist is disputed. Wolf denies the existence of a "placebo reactor" and considers the placebo effect unpredictable and even variable in the same patient; a fundamental point, for Lasagna feels that reactors should be excluded from double-blind studies.[12]

Prior to the study of Lasagna no previous attempt had been made to investigate the distinguishing personality characteristics of the placebo reactor.[10] Lasagna concluded that the reactor is a recognizable type but only with the aid of an intensive interview, plus psychological testing. It was clear that the placebo reactors did not belong to the lunatic fringe of the population, they were neither whiners nor notable incompetents, neither male nor female, neither young nor old. Their average intelligence was the same as that of the non reactors.

Some of the personality characteristics which differed in the reactor and non reactor were as follows. Reactors on the whole tended to be more expansive, cooperative and uncomplaining, regular church goers, and slightly less educated. They used drugs more frequently e.g. aspirin and cathartics.

On psychological testing, reactors were more anxious, more self-centered and preoccupied with internal bodily processes. They are individuals who seem more dependent on outside stimulation than on their own mental processes. Their instinctual needs are greater and their control over social expression of these needs is less strongly defined.

Non reactors are far more rigid and emotionally controlled than the "average" for their age and background.

It may be postulated, that in stressful post-operative situations, placebo reactors behave in immature, dependent and yet more outwardly responsive fashion and thus receive considerable relief of pain through comfort received from attentive nursing care and from their confidence in the effectiveness of drugs. On the other hand, the non-reactors, withdrawn and rigidly clinging to intellectual processes are less comforted by the care received, evidently more critical of drug effect.

Many authors regard the placebo effect as a direct expression of the doctor-patient relationship.

Wolf points out that the placebo as a symbol of the doctor says in effect "I will take care of you."[19] The person reacts to suggestion because what is suggested to him becomes reality. A whole body of knowledge, experience and wisdom is epitomized in that little pill for the patient.

Michael Balint points out that by far the most frequently used drug in general practice is the doctor himself, and that this is a drug without directions as to dosage form or frequency of administra-

tion, without allergic responses or undesirable side effects. Yet, this is an extremely powerful drug and those who use it relieve more suffering than has yet been recorded for the most powerful drug in the pharmacopeia.

Whereas the suffering patient looks to his doctor for comfort, the physician, in turn, is dependent upon his suffering charge. A recovery from illness, besides helping the patient, bolsters the physician's morale.[18] Dichter in a study of the medical personality notes that the physician's personality is a major factor in every cure.[6] But Dichter suggests that the physician is almost narcissistic in his self regard, citing the example of one doctor who said, "When I get a good drug, I feel almost like God." Perhaps, herein lies an explanation of the average physician's weakness for unproven drugs and his prompt rejection of drugs that fail him. Therapeutic failures threaten his self image; therapeutic castastrophes shatter it. Perhaps more than compassion motivates the humble physician and perhaps with each prescription he treats himself as well as his charge.

Failure is an essential part of research but physicians do not like to fail. In practising clinical research, there is an obvious conflict of loyalties which is not shared in purely medical work. Therefore, they avoid controlled clinical research and report primitive clinical trials with never-ending optimism.

Feldman noted that among some researchers their therapeutic success bore a statistical relationship to their enthusiasm for drug therapy. Those who were enthusiastic about the drug seemed to be far more successful than their psychotherapy-oriented colleagues.[8]

A few writers have made a random analysis of segments of the medical literature for evidence of clinical control. Faulds concluded that claims for the success of a treatment are closely associated with absence of the means whereby claims can be scientifically substantiated.[7]

For example, one researcher undertook an exhaustive review of the literature relating to a "shot-gun" tranquillizer. The conclusions reached were that carefully controlled drug studies were a conspicuous rarity (1 out of 37 clinical reports); and that the value of the tranquillizer was nothing more than an expensive placebo. The one double-blind controlled study showed that the drug performed as the other investigators had said but so did the control placebo.

In the U.S. in 1958 an estimated 50 million prescriptions were written for tranquillizers. In the first nine months of that year, one manufacturer of a popular tranquillizer sold 30 billion tablets. The doctors' desks are covered with brochures expensively indicating in carefully scientific jargon that the door of the corner drugstore is the gateway to Nirvana. The eager and gullible public puts its physicians under pressure to supply happiness pills, while the latter all too often succumb to the discovery that here is an effective agent for getting the patient out of the office and the doctor out on the golf course. At some levels the ataractics have become not a new instrument, but successors to the vitamins as facile substitutes for them.[9]

With all this fanfare one would think that the professional literature would be full of studies for the tranquillizer in minor stress states. One learns with amazement that the enormous popularity of these drugs is unsupported by any weight of independent professional opinion.

There isn't any good evidence that, in mild dosage for mild disorders, the tranquillizers have any more beneficial action than could be provided by placebos. However, their placebo effect probably produces relaxation and sedation. To millions of people who have to be a bit numb to stand their own company this is enough. It may be concluded that in mankind's naive but age-old search to get happiness out of a bottle, the tranquillizer rates as being a good deal more expensive than placebos and good deal less honest than whiskey.

The epitome of unscientific candour is reported by Rose in one tranquillizer study he reviewed. This worker, obtaining 65% improvement in his study, concluded, "more would have got better, if

it had not been for their neurotic need to remain sick."[14]

Physicians, to some extent, in one form or another recognize the widespread existence and potent influence of placebo effects. However, there is a marked tendency for them to recognize placebo effects more easily in the work and practice of others than in their own work and practice. This is illustrated by the finding, that three times as many physicians are of the opinion that they used placebos less frequently than their colleagues.

Shapiro, "believes that if we keep the thought that perhaps our treatments are only placebos we will appear as wise 100 years from now as do the compilers of the Paris Pharmacologia of a century ago: who said, "What pledge can be afforded that the boasted remedies of the present day will not, like their predecessors fall into disrepute and in their turn serve only as a humiliating memorial of the credulity and infatuation of the physicians who recommended and prescribed them".[13, 15]

Shapiro states "that scientific medicine truly began only 7 or 8 decades ago and therefore, we are led to the inescapable conclusion that the history of medical treatment for the most part until relatively recently is the history of the placebo effect."[15] Although in the last few decades we have developed many scientifically proven and useful drugs e.g., antibiotics, the number of non-scientific and unproven medications is far greater and continuing to grow. Unfortunately, through drug company promotion and the incompetent investigations of clinicians who enthusiastically postulate drug actions and in turn carry out many greatly successful clinical trials — uncontrolled of course! — these drugs take on the guise of scientific medications. Not until we recognize the potent placebo effect, and study and evaluate therapeutic efficacy in the light of the methodological principles stemming from this knowledge, will our faith in current nostrums, differ from that of our forefathers, who avidly digested crocodile dung, blood, and moss from the skull of executed criminals."[6]

This paper has not been presented in any spirit of iconoclasm. What we have attempted to do is to indicate that in our opinion, a more critical attitude is needed towards various treatments. Some of these will prove, in time, to have intrinsic but not specific value.

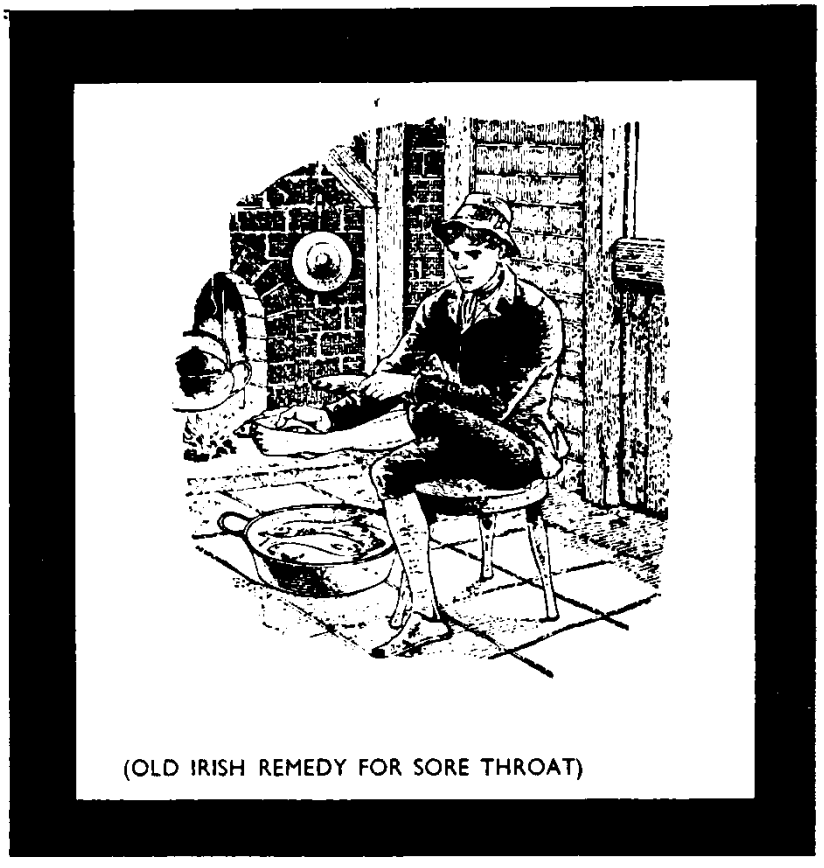
We realize that we have left much unsaid, but I fear to go further. Like Burton in his "Anatomy of Melancholy," "I shall urge these cavilling and contumelious thoughts no further, least some physician deny me physic when I'm ill." In other words, I am well persuaded by physic and when my time comes, I want either my tranquillizer or my stimulant. But I want it administered by a doctor wise in medical lore.

BIBLIOGRAPHY

1. Beecher, H. K., Experimental Pharmacology and measurement of subjective response. Science. 116:157, 1952.
2. Beecher, H. K., The powerful placebo, JAMA. 159:1602, 1955.
3. Beecher, H. K., Am. J. Physiology. 187:163, 1956.
4. Conference on Therapy from Cornell University Medical College and New York Hospitals. Use of placebos in therapy. New York J. Med. 45:1718, 1946.
5. Davidson, A., Canadian Med. Assoc. J., 83:1310, 1960.
6. Dichter, E. A., A research study in pharmaceutical advertising. Institute for Motivation Research, Inc., Croten on Hudson, N.Y., 1955.
7. Editorial. JAMA. 159:780, 1955.
8. Feldman, P. E., Am. J. Psychiat. 113:52, 1956.
9. Friend, D. G., Pure drug therapy. Clin. Pharm. and Therap. 3:557, 1962.
10. Lasagna, L., et al, Am. J. Med. 16:770, 1954.
11. Lasagna, L., A comparison of hypnotic agents. J. Pharm. and Exp. Therap. 111:9, 1954.
12. Lasagna, L., The drug industry and American Medicine. J. Chron. Dis. 7:440, 1958.
13. La Wall, C. H., Four thousand years of pharmacy. Philadelphia and London, J. B. Lippincott Co., 1927.
14. Rose, I. F., Canadian Med. Assoc. J. 78: 144, 1958.
15. Shapiro, A. K., The placebo effect in the history of medical research: implications for psychiatry. Am. J. Psychiat. 116:298, 1959.
16. Starr, J., The use and abuse of mixtures of active drugs. JAMA. 181:106, 1962.
17. Walker, K., Patients and doctors. Penquin Books Inc., Baltimore, Md., 1957.
18. Weiss, E., English, O. S., Psychosomatic Medicine, W. B. Saunders Co., Philadelphia, 1943.
19. Wolf, S., Pinsky, R. JAMA, 155:339, 1954.

ON THE TREATMENT OF SORE THROATS

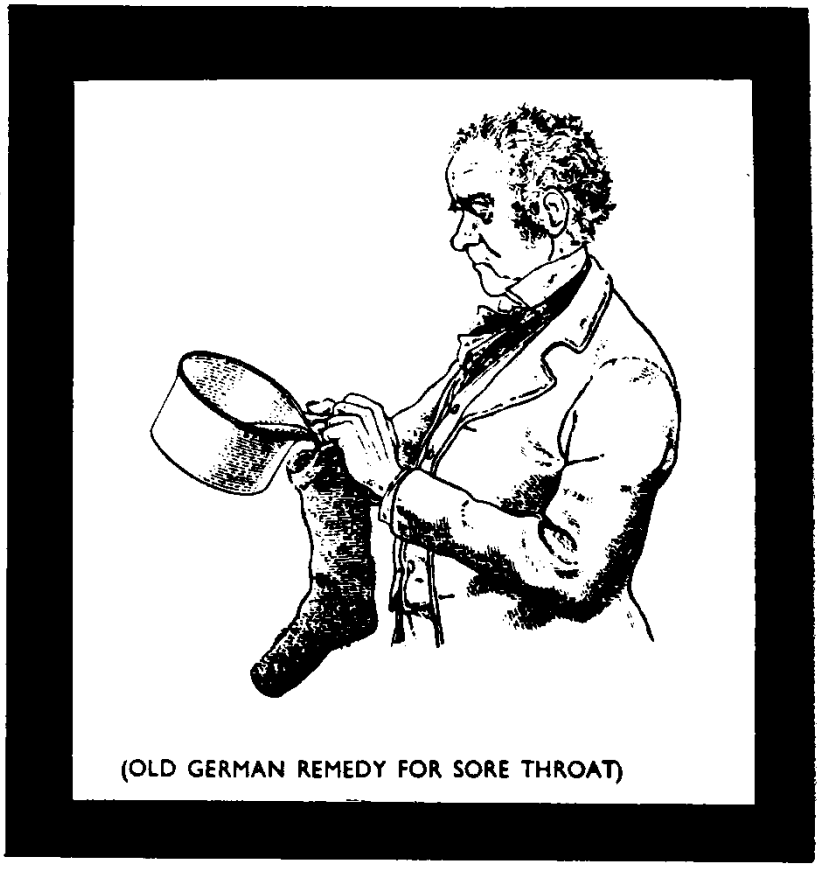
salt herrings applied to the feet . . .



(OLD IRISH REMEDY FOR SORE THROAT)

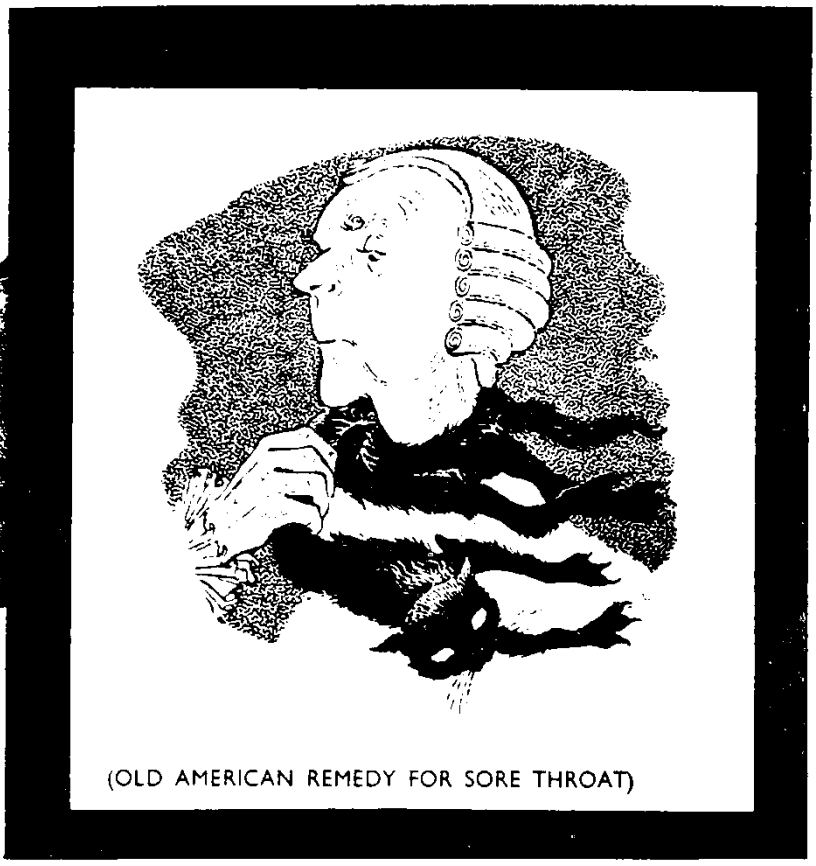
toad's bones, rabbit's gall, cattle urine . . .

and some swallows' nests, boiled in milk, poured in a stocking, and tied round sufferer's throat

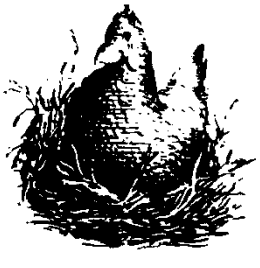


(OLD GERMAN REMEDY FOR SORE THROAT)

the skin
of a
black
cat
wrapped
round
the
throat . . .



a hen's
egg
swallowed
whole . . .



(Courtesy Squibb)

MISERY, SECURITY, HAPPINESS

Everywhere in the world, there seems to be a fad for trying to assess the true meaning behind the commonplace words: misery, security, happiness. The only exception was that when I turned over the pages of even the biggest Medical Dictionary I could not find their presence. Don't they have a place in the heart and mind of a medical student? Four months of claerkship is not too long, really. Well . . . . just long enough to learn the facts of life . . . .

Misery is when one is about to jump for joy because the last five minutes spent in search of the apex beat was not wasted after all, the patient should mumble in a slightly irritated voice, "Hey, the doctor told me that there is nothing wrong with my heart."

Security is the middle seat of the third row every Thursday from 10:30 to 12:00.

Misery is to be taught English at the bedside.

Misery is to receive a phone call from QMH one fine Sunday afternoon when one is all dressed up for a date.

Security is to have blood group AB.

Happiness is the doctor who keeps referring to his watch and comes out with the final question, "How about a coffee break in the canteen?"

Misery is a patient lying in front of a whole class and you know your name is next to be called.

Security is a sense of humour; if you don't know the answer be sure to say something so out of place that everybody starts laughing and forgets your ignorance.

Security is to deny having passed Pharmacology.

UNTRUSTWORTHY

DO YOU REMEMBER . . . . ?

By A 1st Year Medic.

This is dedicated to all the senior medical students to remind them of the happy times spent beside the Anatomy dissection tables.

I

Do you remember
The square tables and the stools,
The yellow cloth that veils the body cool?
Who will be the first to make his move?
Must he be brave, bold,
Or even cold?
Such qualities are not necessary
For eagerness is all that's required.

When the corpse's been exposed,
Most of them begin to cry.
Why are they crying?
Is it that they are all too soft-hearted and kind
That such a sight can easily make them sigh?
It's the gas which hurts their eyes.

II

Do you remember
The tension on your neighbour's face,
When he is suddenly tapped on his back,
Which wakes him from his daily trance?
He must be having some horrible dreams
For, see the fear in his eyes,
See the pallor on his face,
See the heart beating inside his chest.

'Dream no more and show me the spleen.'
He then starts to look in the thorax,
And the abdomen, and pelvis even.
Another will start to turn the Gray's,
But an honest student will only say,
'It can only be found among the waste.'

III

Do you remember
The hammer and the saw?
These are tools used by carpenters.
What have they to do with medical students?
The saw — to saw something, definitely.
But the use of hammer is evident.
It is a substitute
In case modern anæsthetic fails.

Further, medical training must be so complete
That a doctor is able to use these
To make a wooden case
When medical science cannot save
His impatient patient.

IV

Surely you do remember
The viva times
When those who have studied are singled out.
For see how he smiles when the examiner asks,
'Describe the gall-bladder.'
See how he answers,
So fluently, so systematically.
He must be one of those who have studied.
Yes, he must be, for
He speaks of the position, shape, size, weight and all.

Yet he fails!
Prejudice? Jelousy?
It is because he describes the liver instead.

* * * *

. . . . physicians mend or end us,
Secundum artem: but although we sneer
In health — When ill, we call them to attend us,
Without the least propensity to jeer.

— BYRON.

* * * *

If you take people as they are, you make them worse; if you take people as what they ought to be, you help them become what they are capable of becoming.

— GOETHE.

NEWS FROM THE GAZETTE

PERSONALIA

Sister Mary Aquinas, part-time Lecturer in Preventive and Social Medicine, has been awarded the Sir Robert Philip Medal for outstanding anti-tuberculosis work.

Dr. S. M. Bard, University Health Officer, attended a Student Health Conference in New Zealand and visited universities with student health service establishments during January 31 — February 22, 1965.

Dr. W. C. Chan, Lecturer in Pathology, will attend a meeting of the International Academy of Oral Pathology to be held in Melbourne in September 1965.

Professor K. K. Cheng has been elected as a toxicologist, a Founder Fellow of the College of Pathologists.

Professor D. Chun attended a conference sponsored by the Population Council held in New York in October 1964, and read a paper.

Professor Daphne Chun has been invited to read a paper at the third Asiatic Conference on Obstetrics and Gynæcology to be held in Manila during January 1965. Dr. Chung Ho Kei, Lecturer in Obstetrics and Gynæcology, will also attend.

Professor D. Chun has accepted an invitation to read a paper at a conference on family planning to be held in Seoul, Korea, during May 24-29, 1965.

Professor C. E. Field has been granted special leave by the Vice-Chancellor to attend a Tokyo Congress from November 7 to 14, 1965.

Professor A. R. Hodgson has been invited to attend the opening of a new Faculty of Medicine at Kuala Lumpur on August 2, 1965, and will attend a meeting of the Australian Orthopædic Association to be held in October, 1965.

Dr. A. C. L. Hsieh, Senior Lecturer in Physiology, has been invited to read papers at the Third Gunma Symposium of Endocrinology to be held at Ikaho, Japan, and the International Symposia on Environmental Physiology to be held at Kyoto during September.

The degree of Doctor of Sacred Letters was conferred on Professor Leslie G. Kilborn, former Professor of Physiology, by the Victoria University, Canada, on May 5, 1965.

Dr. C. C. Liang, Lecturer in Physiology, will attend the 23rd International Congress of Physiological Sciences to be held in Tokyo during September.

Professor A. J. S. McFadzean has been elected Fellow of the American College of Physicians.

Professor A. J. S. McFadzean, Professor of Medicine, and the Hon. P. Y. Tang members of the Court, have been appointed by His Excellency the Governor to be unofficial Justices of the Peace.

Professor G. B. Ong has been appointed Government Consultant in Surgery from May 26, 1964.

Professor G. B. Ong has been elected a member of the Editorial Committee of the British Journal of Surgery.

COUNCIL

Office of Dean

Professor A. R. Hodgson, re-elected Dean of the Faculty for three years from March 1, 1965.

Professor A. J. S. McFadzean appointed as Vice-Chancellor from July 1, 1965 until the arrival of Professor K. E. Robinson.

University representatives

Professor G. B. Ong, at a conference to commemorate the introduction of antiseptic wound treatment by Lord Lister on August 12, 1865, to be held at the Univer- of Glasgow during September 27-29, 1965.

Emeritus Professor

The title of Emeritus Professor has been conferred on Sir Lindsay Ride, C.B.E., E.D., LL.D., Professor of Physiology from 1928 to 1952 and Vice-Chancellor from 1949 to 1965, on his retirement in January 1965.

Honorary Visiting Research Fellow

Professor Robert M. Worth, Professor in Public Health of the University of Hawaii, has been appointed Honorary Research Fellow in the Department of Preventive and Social Medicine for six weeks from July 1, 1965.

SENATE

Honorary Visiting Professor

Miss Gladys Dodds, M.D., F.R.C.S., F.R.C.O.G., retired Senior Consultant to the Hackney Group of Hospitals, appointed as Honorary Visiting Professor of Obstetrics and Gynæcology from September 1965 to August 1966.

Visiting external examiners

Professor R. C. Garry of the University of Glasgow, for the degree examinations in Physiology during the three academic years 1964-67, to visit once during this period.

Professor W. S. Peart of the Medical Unit at St. Mary's Hospital Medical School, London, for the degree examinations in Medicine in May 1965.

APPOINTMENTS

Carolina Augusta Braga, M.B., B.S. (Hong Kong), M.R.C.O.G., Lecturer, appointed Senior Lecturer in Obstetrics and Gynæcology from September, 1, 1964.

(Miss) Chung Ho Kei, M.B., B.S. (Hong Kong), M.R.C.O.G., Assistant Lecturer, appointed Lecturer in Obstetrics and Gynæcology from December 1, 1964.

Appointment

Professor R. Lin Chun-Yu, Professor of Pharmacology, University of Singapore, appointed as Professor of Pharmacology.

Tso Shiu Chiu, M.B., B.S. (Hong Kong), M.R.C.P. (Edinburgh), Assistant Lecturer, appointed Lecturer in Medicine from November 1, 1964.

LEAVE OF ABSENCE

The following have been granted long leave:

Dr. C. C. Gruhzit, Lecturer in Pharmacology, from April 10, 1965; Professor K. K. Cheng, from May 1, 1965; Professor C. E. Field, from May 9, 1965; Dr. J. H. Y. Fung, Senior Lecturer in Surgery, from May 31, 1965; Dr. D. E. Gray, Senior Lecturer in Biochemistry, from June 1, 1965.

Dr. Y. Y. Huang, Assistant Lecturer in Biochemistry, from July 1; Dr. Dr. M. M. C. Lee, Senior Lecturer in Anatomy, from August 1; Dr. E. Lee, Lecturer in Surgery, from August 1; Dr. P. S. Kan, Lecturer in Obstetrics and Gynæcology, from September 1.

F. W. P. Li, Lecturer in Surgery an extension of one month's unpaid leave from February 16, 1965, to enable him to visit various centres in the U.S.A.

P. N. Mo, Demonstrator in Physiology, special leave from September 1, 1964, to June 30, 1965, to enable him to take up a China Medical Board Fellowship in the United States of America.

RESIGNATIONS

Dr. Y. N. Chau, Assistant Lecturer in Medicine, from October 31, 1965.

Dr. Ma Lin, Lecturer in Clinical Pathology, from December 19, 1964.

Dr. L. Ma, Lecturer in Pathology, from September 1, 1965.

EVENTS

20th January, 1965, Inaugural Lecture from the Chair of Surgery by Professor G. B. Ong on "The Role of Surgery in the Treatment of Cancer", at 5 p.m. the Lecture Theatre, Pathology Building.

March 3, 1965, Inaugural Lecture from the Chair of Pathology by Professor J. B. Gibson on "Against Infection and the Hand of War", at 5 p.m. the Lecture Theatre, Pathology Building.

April 5, Opening of the Li Shu Fan Building by the Chancellor, at 4 p.m.

GIFTS, etc.

The China Medical Board: US$7,500 for the period ending December 31, 1967, for supplies and equipment for teaching in the Department of Pathology.

The Li Shu Fan Medical Foundation: $20,500 for research in the Faculty of Medicine.

HONOURS AND PRIZE

Degrees of Bachelor of Medicine and Bachelor of Surgery

Honours 1964

Marion Goh Mei Ling,
Lillian Lee Ching Woo.

Prize

The Li Shu Fan Medicine Foundation Prize in Pharmocology has been awarded to Chang Fuk To on the results of the M.B., B.S. Second Examination held in January 1965.

PUBLICATIONS

Department of Anatomy

M. M. C. Lee (with D. P. C. Chan): 'A report of a case of ischiopagus tetrapus', *Singapore Medical Journal* Vol. 5, No. 3 (September 1964).

W. D. Low, S. T. Chan, K. S. F. Chang and M. M. C. Lee: 'Skeletal maturation of Southern Chinese children', *Child Development* No. 35, pp. 1313-1336 (1964).

Department of Biochemistry

E. O'F. Walsh: 'The hormonal basis of drug addiction', *Medical News* No. 136, pp. 13 and 29 (May 1965).

E. O'F. Walsh, C. H. Lee Peng, and M. L. Ng: 'Reversal of hormonal effects as a result of chronic morphinization', *Nature* Vol. 204, p. 698 (1964).

D. E. Gray and J. Chisholm: 'Metabolic effects of ∝ tocopheryl acetatem VI. The paradoxical effect of ∝ tocopheryl acetate in activating latent adenosine triphosphatase, and of inhibiting 2:4-dinitrophenol-stimulated adenosine triphosphatase in mitochondrial and homogenate systems of rat liver', *Journal of Vitaminology* Vol. 10, pp. 184-191 (Sept. 1964).

Department of Medicine

A. J. S. McFadzean: 'Fibrinolytic activity and oxygen desaturation in venous blood', *Lancet* ii, p. 970 (1964).

A. J. S. McFadzean: 'A eunuch takes the gout' *British Medical Journal* i, p. 1038 (1965).

A. J. S. McFadzean and R. T. T. Yeung: 'Hypoglycaemia in suppurative pancholangeitis due to clonorchis sinensis', *Transactions of the Royal Society of Tropical Medicine and Hygiene* Vol. 59, p. 179 (1965).

A. J. S. McFadzean and D. Todd: 'The distribution of Cooley's anæmia in China', *Transactions of the Royal Society of Tropical Medicine and Hygiene* Vol. 58, p. 491 (1965).

D. Todd (with A. S. McFarlane and S. Cromwell): 'Fibrinogen catabolism in humans', *Clinical Science* Vol. 26, No. 3, pp. 415-420 (June 1964).

T. K. Chan, D. Todd, and C. C. Wong: 'Erythrocyte glucose-6-phosphate dehydrogenase deficiency in Chinese', *British Medical Journal* Vol. 2, No. 5401, p. 102 (July 1964).

K. S. Lai: 'A method of biological assay of gastrin', *Gut* Vol. 5, No. 4, pp. 327-333 (August 1964).

K. S. Lai: 'Quantitative study of the distribution of gastrin-like activity along the gut', *Gut* Vol. 5, No. 4, pp. 334-336 (August 1964).

K. S. Lai: 'Gastrin-like activity in stomachs of patients with peptic ulceration and gastric carcinoma', *Gut* Vol. 5, No. 4, pp. 337-341 (August 1964).

S. C. Tso (with T. Ghose): 'Uptake of protein by regenerating liver cells', *Nature* Vol. 204, p. 1220 (1964).

Department of Obstetrics and Gynæcology

D. Chun: 'The Hong Kong Chinese female bony pelvis and its influence on labour', *The Journal of Obstetrics and Gynæcology of the British Commonwealth* Vol. LXXI, No. 4, pp. 556-564 (August 1964).

D. Chun, P. S. Kan, and H. K. Chung: 'Treatment of malignant trophoblastic disease with pulmonary metastases', *Proceedings of the Third Asiatic Congress of Obstetrics and Gynæcology*, pp. 195-201 (January 165).

C. A. Braga and P. S. Kan (with K. H. Lee): 'Menouria—an unusual complication of curettage', *Journal of Obstetrics*

and Gynæcology of the British Commonwealth Vol. LXXI, No. 5, pp. 790-799 (October 1964).

M. Strickland (with G. S. Banwell): 'Hæmoglobinopathy associated with recurrent stillbirth', *Journal of Obstetrics and Gynæcology of the British Commonwealth* Vol. LXXI, No. 5, pp. 788-790 (October 1964).

P. S. Kan (with D. P. C. Chan and B. K. Y. Chan): 'Nægele pelvis', *Journal of Obstetrics and Gynæcology of the British Commonwealth* Vol. LXXI, No. 3, pp. 464-468 (June 1964).

DEPARTMENT OF ORTHOPÆDIC SURGERY

A. R. Hodgson and A. Yao (with D. Kim and J. S. Kwan): 'A clinical study of 100 consecutive cases of Pott's paraplegia', *Clinical Orthopædics and Related* Research No. 36 (September - October 1964).

DEPARTMENT OF ORTHOPÆDIC SURGERY AND DEPARTMENT OF SURGERY

A. R. Hodgson, G. B. Ong, and H. Y. S. Fung: 'Anterior spinal fusion — the operative approaches', *Clinical Orthopædics* No. 35, pp. 16-33 (1964).

DEPARTMENT OF PATHOLOGY AND BACTERIOLOGY

C. T. Huang and C. H. Chan-Teoh: 'Shigella species isolated in Hong Kong with special reference to drug-resistance of strains', *Endemic Diseases Bulletin of Nagasaki University* Vol. 7, No. 1, pp. 64-70 (March 1965).

C. T. Huang and C. H. Chan-Teoh: 'Salmonella serotypes isolated in Hong Kong', *Journal of Tropical Medicine and Hygiene* Vol. 67, No. 4, pp. 95-99, (April 1964).

P. C. Wong: 'Anonymous mycobacteria isolated from clinical specimens in Hong Kong', *Journal of Tropical Medicine and Hygiene* Vol. 67, No. 4, pp. 100-102 (April 1964).

C. H. Teoh-Chan: 'Salmonella blegdam meningitis: a study of two cases with necropsy findings', *Journal of Pathology and Bacteriology* Vol. 88, No. 2.

DEPARTMENT OF PHYSIOLOGY

A. F. M. Driver: 'Sensitivity to heat and cold of summer and winter preferrers', *Ergometrics* Vol. 7, pp. 475-479 (1964).

A. C. L. Hsieh (with T. Nagasaka and L. D. Carlson): 'Effects of immersion of the hand in cold water on digital blood flow', *Journal of Applied Physiology* Vol. 20, pp. 61-64.

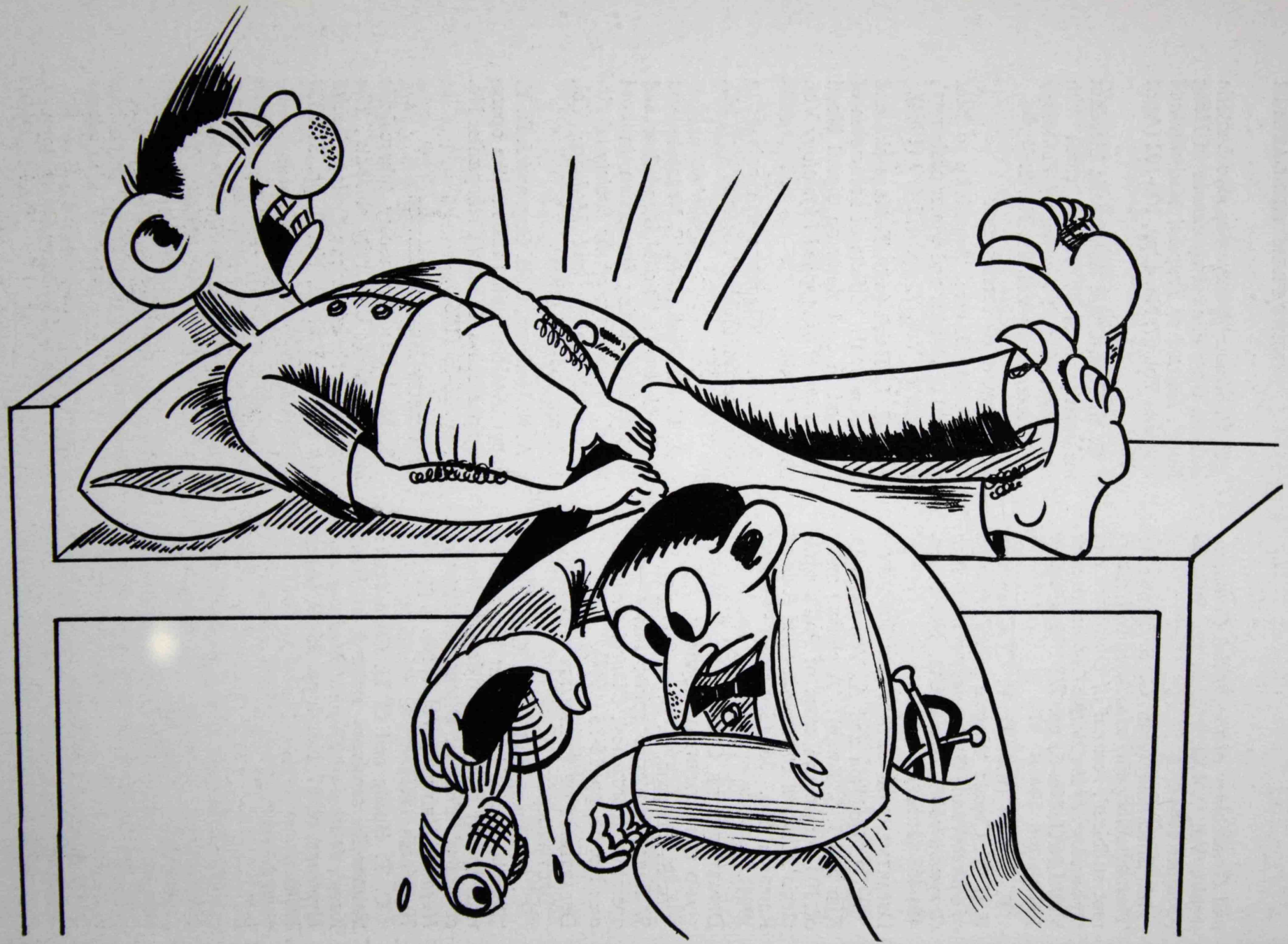
K. M. Li: 'Ciguatera fish poison: a cholinesterase inhibitor', *Science* Vol. 147, pp. 1580-1581.

A. C. L. Hsieh (with T. Nagasaka and L. D. Carlson): 'Digital blood flow and distensibility during immersion in cold water', *Proceedings of the Society of Experimental Biology and Medicine* Vol. 117, pp. 105-107 (1964).

A. R. Hodgson, G. B. Ong, and J. H. Y. Fung: 'Anterior spinal fusion—the operative approaches, *Clinical Orthopædics* No. 35, pp. 16-33 (1964).

UNIVERSITY HEALTH SERVICE

S. M. Bard: 'Pulmonary tuberculosis in Hong Kong University students', *The Journal of the American College Health Association* Vol. 13, No. 3, pp. 319-330 (February 1965).



The result of Colostomy.

Why DETTOL is a textbook antiseptic

EFFICIENCY. 'Dettol' is an efficient antiseptic which, moreover, retains a high degree of efficiency in the presence of organic matter.

TOLERATION. Dettol is well-tolerated on the skin and tissues in high concentrations. Moreover, its non-toxicity offers a high degree of safety to doctor, nurse and patient.

USE. The fact that Dettol is well-tolerated by the tissues permits dilutions to be recommended for clinical purposes which provide a margin of safety even when a reasonable amount of organic material is present.

ACTIVITY. Dettol is active against both Gram-positive and Gram-negative micro-organisms. Under standard conditions of test a dilution of 1 in 200 kills Staph. aureus in 10 minutes at 18 C. and similarly a dilution of 1 in 500 kills Strept. pyogenes in 10 minutes.

COMPATIBILITY. Dettol is not incompatible with soap, traces of which need not be removed before application.

PLEASANTNESS. Dettol is non-poisonous, safe, pleasant and economical in use. It has an agreeable smell.

Literature is available on request.

DETTOL REGD
antiseptic

Reckitt & Sons Ltd., Hull & London
(Pharmaceutical Dept., Hull)
Export Distributors: Reckitt & Colman, (Overseas) Ltd.

The result of Colostomy.

'DISPRIN'

Soluble, substantially neutral and palatable aspirin in stable tablet form

Great difficulty has hitherto been encountered in providing soluble aspirin in tablet form which will remain stable under ordinary conditions of storage. This difficulty has now been overcome.

'Disprin' has all the valuable qualities of calcium aspirin —analgesic, antipyretic and anti-rheumatic. Since it is soluble, it is more rapidly absorbed and consequently more speedy in its clinical effect. Moreover, it is unlikely to irritate the gastric mucosa.

'Disprin' tablets readily dissolve in water to form a substantially neutral palatable solution of calcium aspirin.

Soluble, stable, neutral, palatable calcium aspirin

***Made by the manufacturers of* 'DETTOL'**

Reckitt & Sons Ltd., Hull & London
(Pharmaceutical Dept., Hull)

Export Distributors: Reckitt & Colman, (Overseas) Ltd.

OUNDWORMS & THREADWORMS

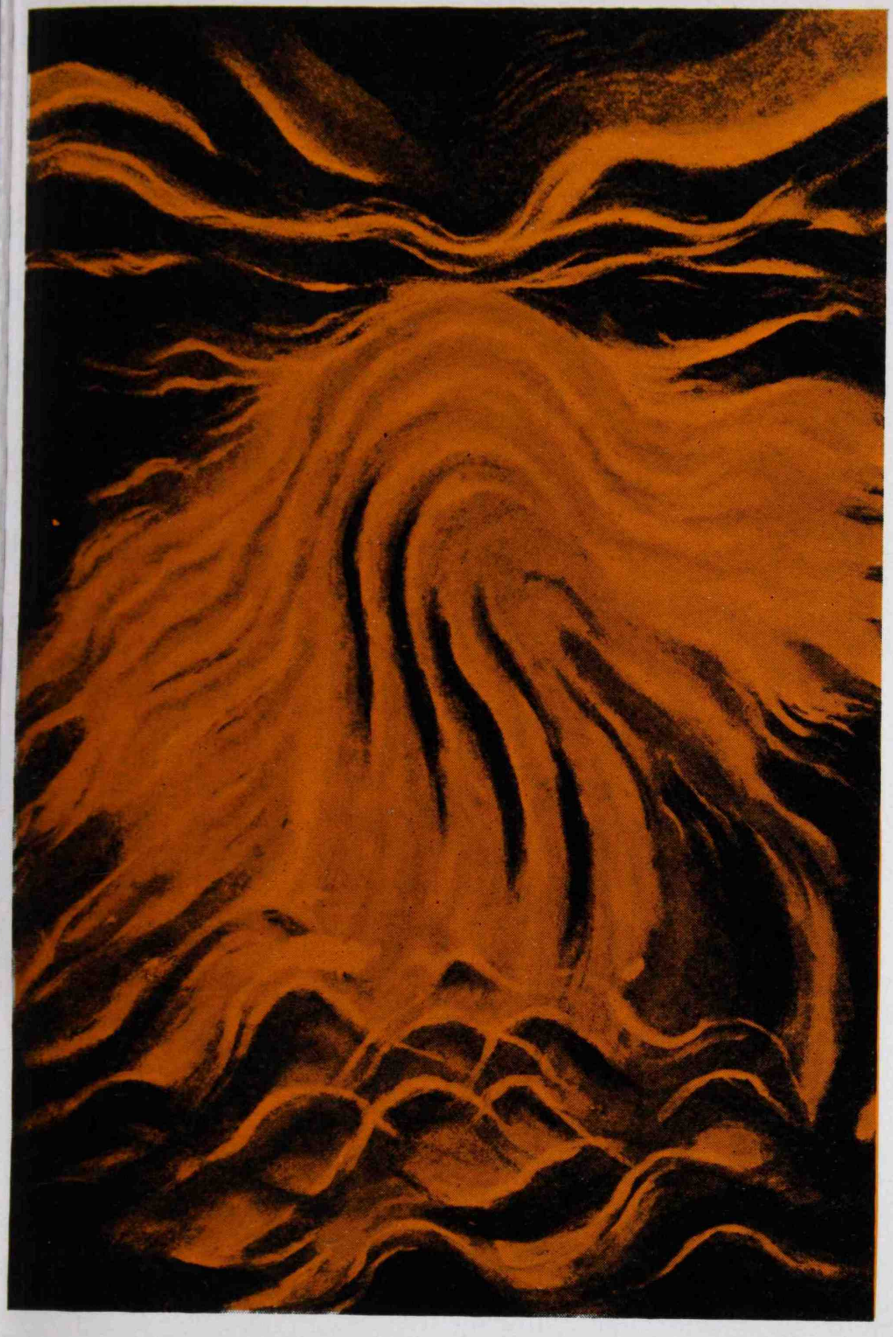
NEW! ONE-DAY TREATMENT

de in England by WESTMINSTER LABORATORIES LTD, London N.W.1

Senokot

STANDARDIZED SENNA GRANULES AND TABLETS

WESTMINSTER LABORATORIES LTD., LONDON N.W.1

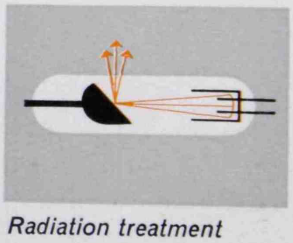


In nausea and vomiting whatever the cause

Travel

Anaesthesia

Pregnancy



Radiation treatment

'AVOMINE'* PROMETHAZINE THEOCLATE TABLETS B.P.

Established over fourteen years as an effective and well tolerated preparation

Available as 25 mg. tablets * *trade mark* *An* **M&B** *brand medical product*

Manufactured by

MAY & BAKER LTD . *Dagenham* . *England*

Branch Office P.O. Box 599 Hong Kong

The May & Baker Research Institute at Dagenham, England

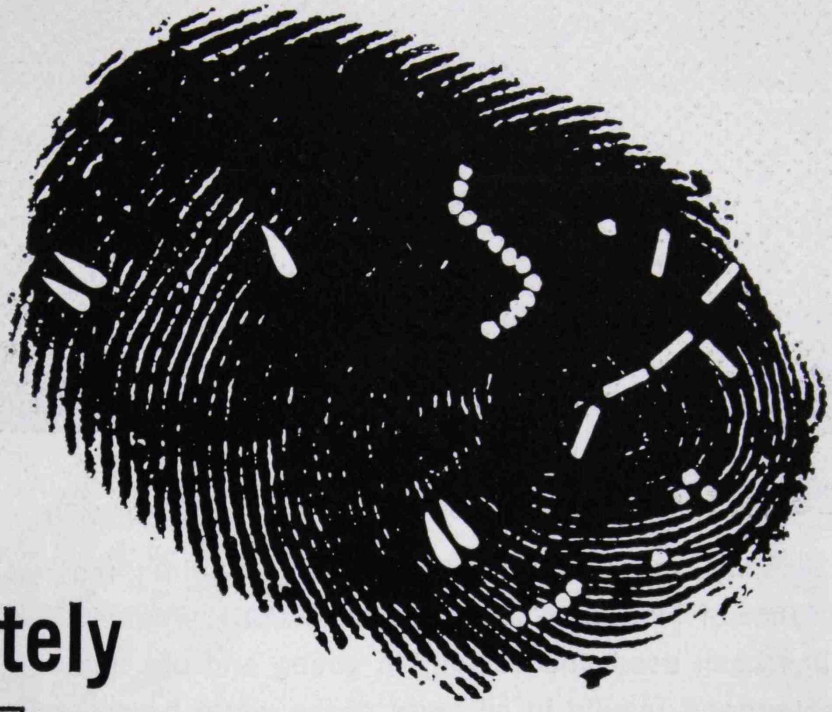
M&B increase research investme

At a cost of £1 million May & Baker Ltd have recently erecte new Research Institute at Dagenham, England - a significant tribution to the unceasing quest for new and better method controlling disease and another step towards a healthier wor

MAY & BAKER LTD . DAGENHAM . ENGLAND

BRANCH OFFICE P.O. BOX 599 HONG KONG

suddenly
Gastroenteritis



immediately

ORAL

Guanimycin Suspension Forte

Controls it in 24 hours

The wide spectrum of GUANIMYCIN SUSPENSION FORTE enables treatment to be started in all cases without delay and before a precise bacterial diagnosis has been reached.

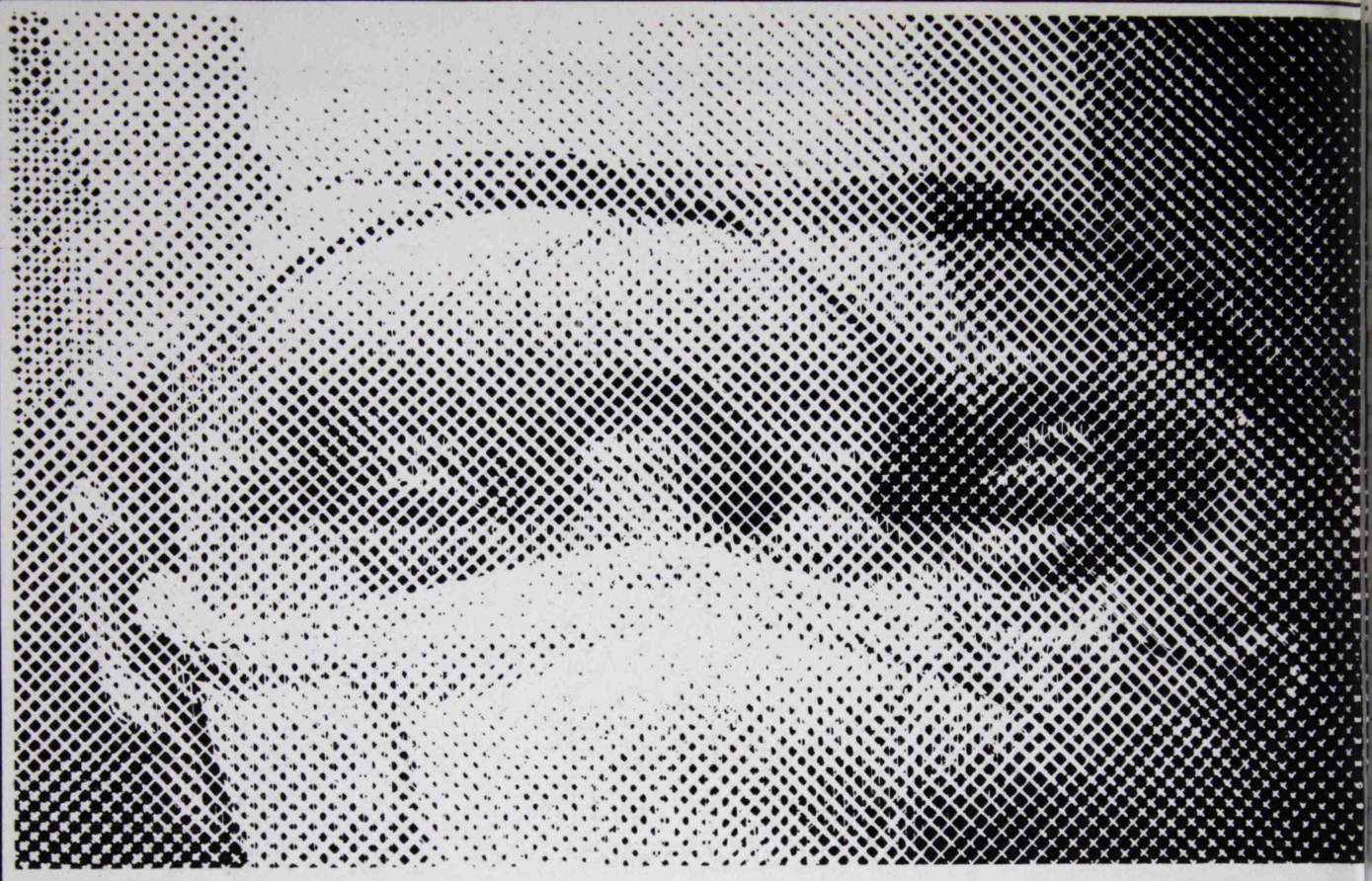
PRESENTATION

Guanimycin Suspension Forte is supplied in bottles containing 114 ml. Each two tablespoonfuls (28.4 ml) contain:—

Dihydrostreptomycin Sulphate BP 1958	500 mg
Sulphaguanidine BPC	3.97 g
Light Kaolin BP	8.5 g

Made in England by ALLEN & HANBURYS LTD LONDON E2

Agents: Danby & Hance, Ltd., P.O. Box 2419,
405 Edinburgh House, Queens Road Central, Hong Kong.



A Milestone in Anaesthesia

Efficiency, reliability and safety are the important factors responsible for the widesprea clinical acceptance of 'Fluothane' in modern anaesthetic practice. This outstanding inhalation anaesthetic has been used successfully in young and old undergoing all types of surger and consistently good results in all parts of the world have drawn attention to its valuab advantages.

FLUOTHANE

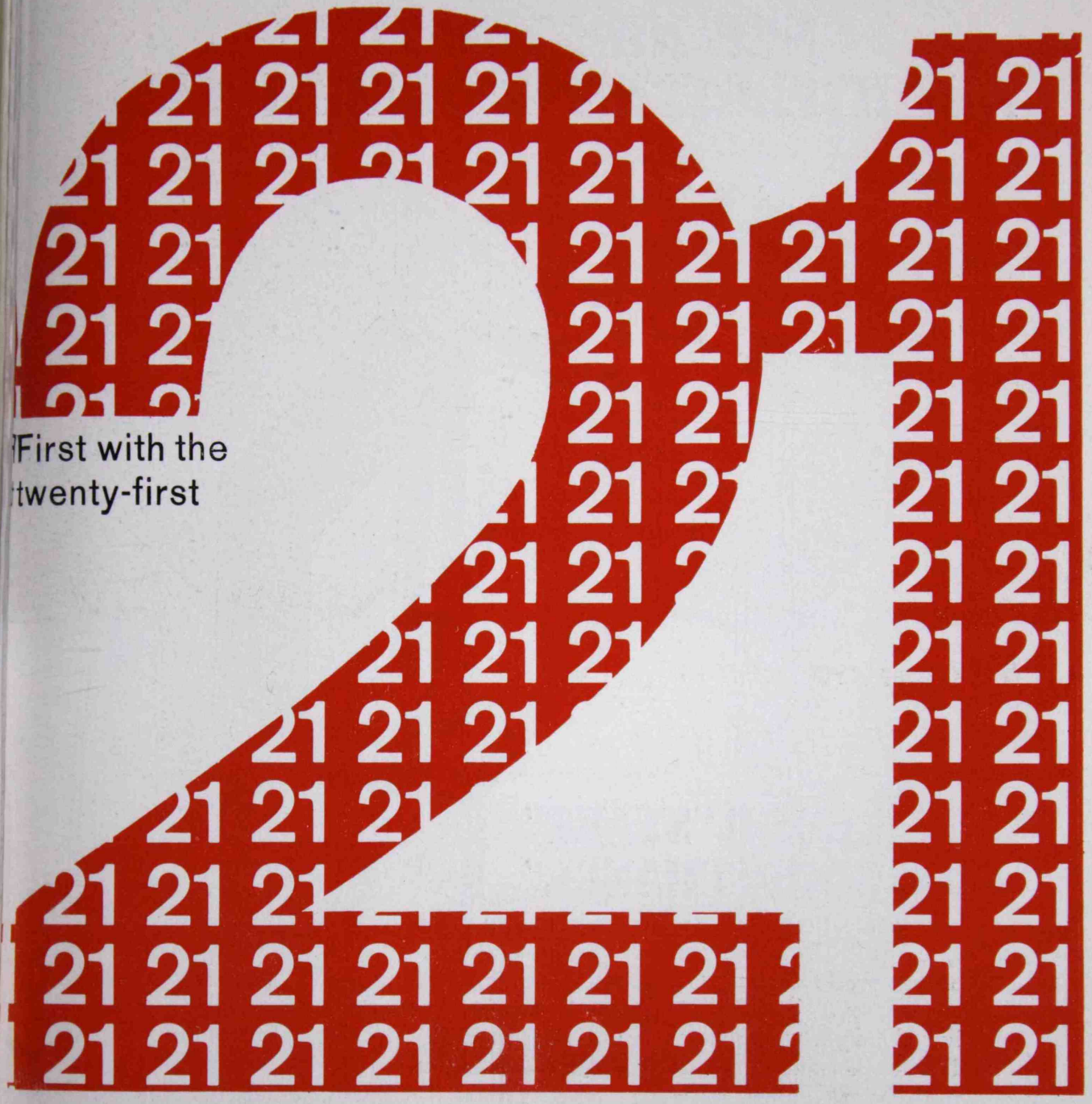
HALOTHANE B.P. TRADE MARK

Notable Characteristics

- ✱ No risk of ignition or explosion.
- ✱ Rapid, smooth induction.
- ✱ Anaesthesia easily maintained, easily controlled.
- ✱ Good muscular relaxation.
- ✱ Prompt, comfortable recovery.
- ✱ Minimal post-operative vomiting.
- ✱ Allows full oxygenation.
- ✱ Reduces need for ancillary agents.

Sole Distributors :—

Imperial Chemical Industries (China) Limited
Union House,
P.O. Box 107, Hong Kong.



Gynovlar 21

It is the 21st tablet which brings a new simplicity to oral contraception

3 weeks' treatment 1 week's interval

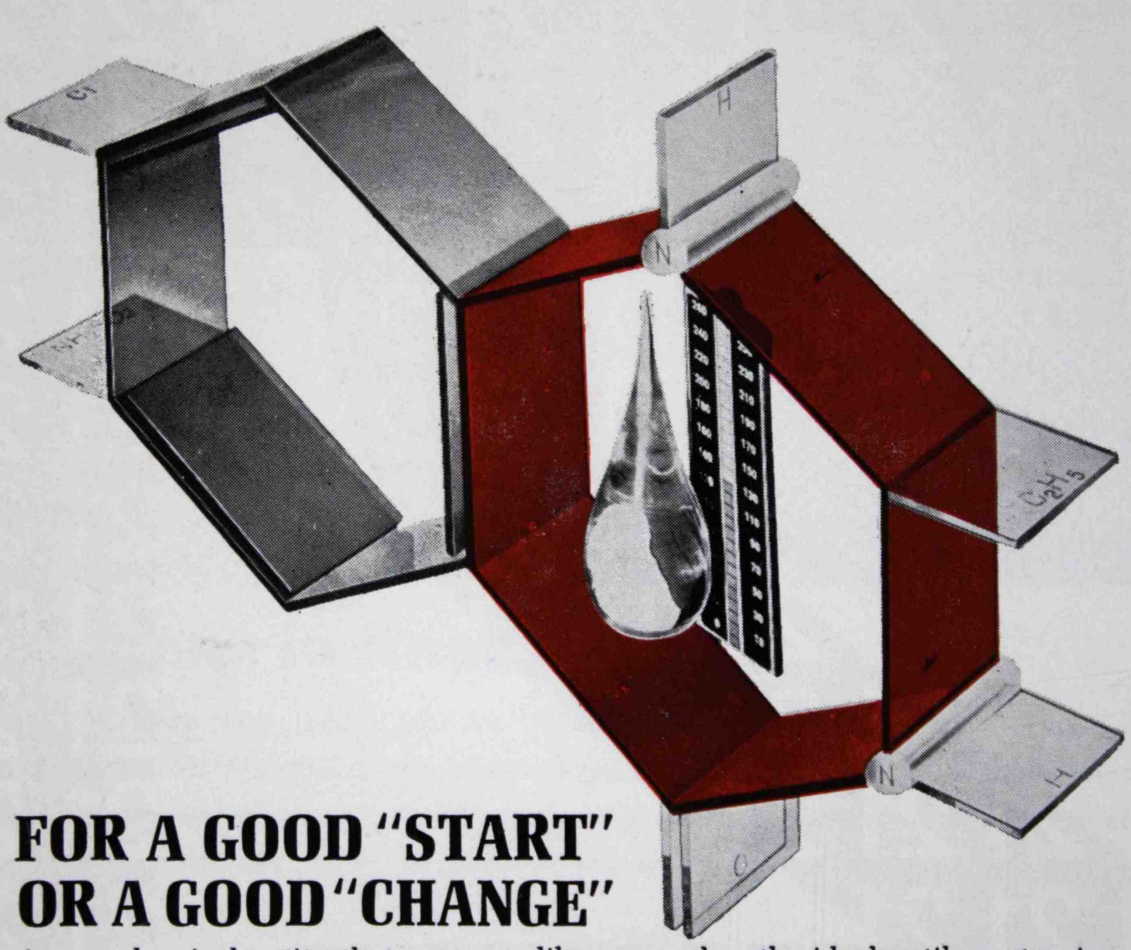
Dispensed in the unique memo-pack

Schering

Schering A. G. Berlin

Sole agents: JEBSEN & CO. (Pharmaceutical Dept.)
Prince's Bldg., 23rd Fl., Hong Kong. Tel. 225111 (30 Lines)
P. O. Box No. 97

NEW NON-THIAZIDE ANTIHYPERTENSIVE DIURETIC Lederle



FOR A GOOD "START" OR A GOOD "CHANGE"

A new chemical entity that more readily approaches the ideal antihypertensive diuretic agent. ■ Prompt and prolonged saluresis. ■ Gradual, physiological action. ■ Well tolerated; G.I. disturbances and other side effects seldom complicate therapy. ■ Higher Na:K excretion ratio. ■ Precipitation of gout is not likely. ■ No postural hypotensive effects reported. ■ Enhanced control when used with other antihypertensive drugs and diuretics.

AQUAMOX*

*Trademark

QUINETHAZONE TABLETS LEDERLE

ONE OR TWO 50 MG. TABLETS ONCE DAILY

LEDERLE LABORATORIES • CYANAMID INTERNATIONAL Lederle

Sole Distributors: A. S. WATSON & CO., LTD. Tel: 700231

TERRA-CORTRIL*

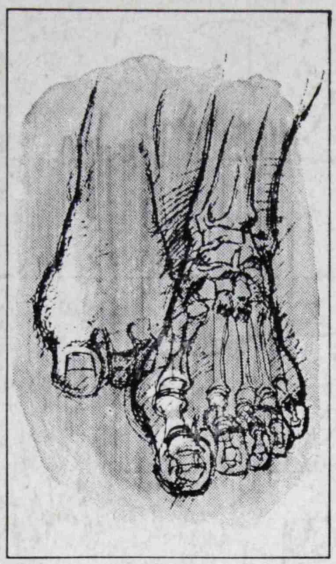
OXYTETRACYCLINE AND HYDROCORTISONE

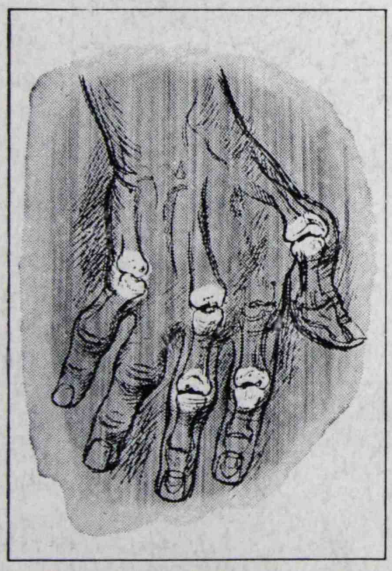
SPRAY

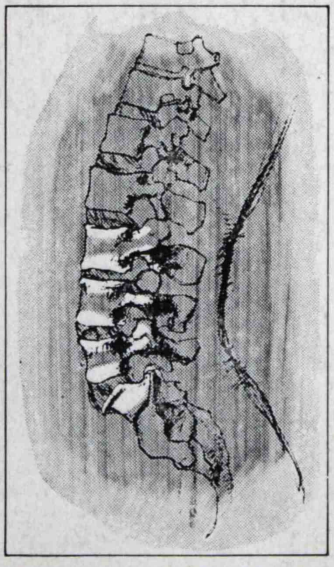
Today's non-touch technique for burns, bed sores, leg ulcers and infected dermatoses. Prevents infection, reduces pain and inflammation, checks scar tissue development and accelerates healing. Ideal for modern exposure techniques.

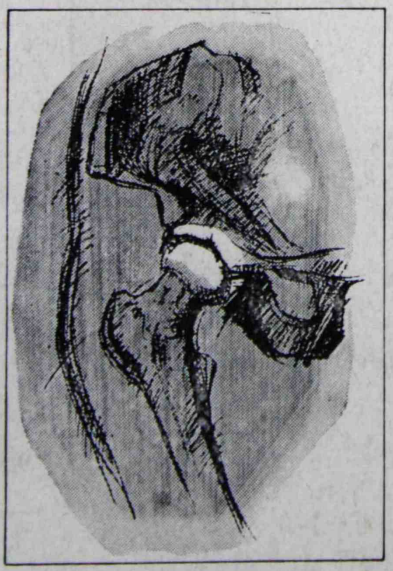
Terra-Cortril Spray is available in 1 fl. oz. aerosol canisters.

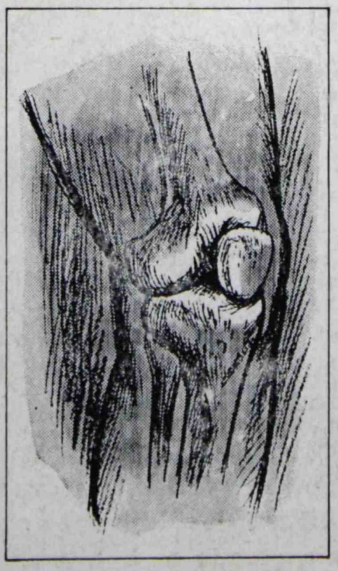
*Trademark











CAPSULES

INDOCID

TRADEMARK

(INDOMETHACIN MSD)

NEW, HIGHLY EFFECTIVE NON-STEROID ANTI-INFLAMMATORY AGENT WITH ANALGESIC AND ANTIPYRETIC PROPERTIES AND STEROID-SPARING ACTION

OBJECTIVE AND SUBJECTIVE EVIDENCE OF IMPROVEMENT "Clinical response as reflected by both measurements and subjective criteria indicate that this drug has a prompt and striking beneficial effect....Objective measurements included chest-expansion, finger-tip to floor distance and walking time."[1]

WELL SUITED TO EXTENDED THERAPY "Indomethacin appears to us at this time, after eighteen months' continuous clinical usage in 200 patients, as an effective antiphlogistic antipyretic and analgesic substance."[2]

STEROID-SPARING ACTION "It was possible to discontinue or significantly reduce long-term adrenocortical steroid therapy in 11 of 17 rheumatoid patients."[3]

USEFUL IN TREATMENT OF PATIENTS OF ANY AGE "The patients comprised eight men and ten women whose ages ranged from 50 to 83 years (mean 65). . . . We have used a gradually increasing dosage scheme . ... without the development of serious toxic effects during the initiation of treatment or its subsequent long-term maintenance."[4]

Supplied: INDOCID is supplied as capsules 25 mg. indomethacin each, in bottles of 30, 100 and 500.

Note: Detailed information is available to physicians on request.

References: 1. Smyth, C. J. and Godfrey, R.: The treatment of rheumatoid spondylitis with indomethacin, Arthr. and Rheum. **7**:345, June 19 (Proceedings of the Annual Meeting of the American Rheumatism Association, San Francisco, June 18-19, 1964).

2. Hart, F. D. and Boardman, P. L.: Indomethacin, Practitioner **192**:8 832, June 1964.

3. Norcross, B. M.: Treatment of connective tissue diseases with a non-steroidal compound (indomethacin), Arthr. and Rheum. **6**:290, J 1963. (Proceedings of the Annual Meeting of the American Rheuma Association, Atlantic City, June 13-14, 1963). (Also in: Abstracts of C munications — Fifth European Congress on Rheumatic Diseases, Au 25-28, 1963, Stockholm, Sweden.)

4. Wanka, J., and Dixon, A. St. J.: Treatment of osteo-arthritis of the hip v indomethacin. A controlled clinical trial, Ann. rheum. Dis. **23**:288-294, 19

MERCK SHARP & DOHME INTERNATIONAL

Division of Merck & Co., Inc., 100 Church Street, New York 7, N. Y., U. S. A.