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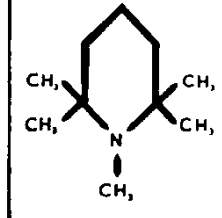

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E L I X I R

Journal of the Hong Kong University Medical Society

PRINCIPAL CONTENTS

The opinions or assertions contained herein are the private ones of the writers and are not to be construed as reflecting the views of the Medical Society, faculty of medicine or the University at large.

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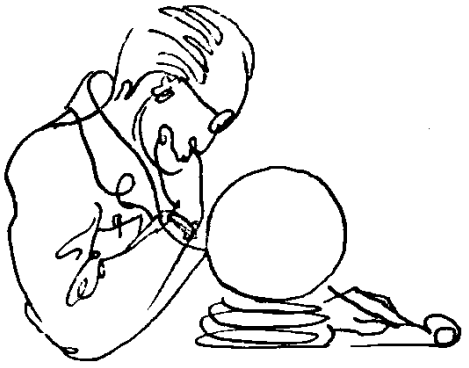

FACT AND OPINION

Instead of the usual beginning with moans and groans of lack of articles, we bring you GOOD TIDINGS OF GREAT JOY—the Elixir Bursary is round the corner! Thanks to our patron and contributors we can proudly say that it has been possible for us to secure a sum of $10,505.80 within a relatively short period. The sum, apparently large, could not help more than one or two needy students from its investment. Certainly, we want to enlarge the sum so that more students can derive benefit. Here, we cannot help being pessimistic—the Elixir Bursary depends solely on the publication of the magazine and now, the future existence of the magazine is questionable. We are not exaggerating the seriousness of the situation. All of us are fully aware of the fact that the number of issues has dropped to one last year, and each issue is thinner than the previous one. If this attitude of indifference still persists, the Elixir will surely GO TO EXTINCTION.

This announcement of the establishment of the Elixir Bursary, we hope, will stir up the intellectual 'stupor' among the student members and reawaken in them new interest for their magazine and concern for their fellow members. Remember the Elixir Bursary is for YOU, the Elixir magazine is the publication of YOUR Society! Their success will reveal nothing but YOUR spirit of cooperation and your enthusiastic support for your own Society.

TOAST TO NEW GRADUATES UNIVERSITY OF HONG KONG

(Given by Prof. L. G. Kilborn, at the Dinner for New Graduates, Nov. 18, 1959)

Your Excellency, Vice-Chancellor Ride, Ladies and Gentlemen:

This is my final appearance at a graduation dinner in the University of Hong Kong, and I very much appreciate the honour of having been asked to propose the toast to this year's graduates. In teaching physiology, one of the facts which I have tried to emphasize is the lack of uniformity in any group of living organisms. But the graduates of this year show a greater than average range of individual variation. Consequently, it is difficult to say anything applicable to all members of a group which includes those who today have received their first degrees, men and women who have been awarded post-graduate degrees and our new Doctor of Laws, Honoris Causa. Therefore, I shall refer specifically to the new bachelors, those upon whom the University is placing its mark of approval for the first time.

I consulted the University Calendar to discover what the Senate regards as essential for graduation, and was not a little disturbed to notice that the only requirements for admission to a bachelor's degree that are common to all the Faculties are expressed in the three words: "comply", "complete" and "satisfy";—to "comply with the General Regulations", to "complete the curriculum" and to "satisfy the examiners". I can think of no worse description of the functions of a university than that embodied in those three words. If we have taught our graduates merely to comply and to satisfy and to develop the self satisfaction that inevitably follows the knowledge that they are now complete, then we have failed deplorably in our responsibility as teachers. I would maintain that the exact opposite of the Calendar Regulations are those with which every university should endeavour to endow its graduates. Non-compliance, a feeling of incompleteness and a sense of dissatisfaction should be the distinguishing characteristics of every university graduate.

Today it is generally accepted that the modern university has what Sir William Osler called the dual functions of teaching and thinking. Some of us do not, perhaps, realize how short is the history of this type of education. The passive acceptance of traditional knowledge is no longer regarded as education, but it is not too long since men were burned at the stake for refusing to comply. Darwin's book "On the Origin of Species" was published in 1859, just one hundred years ago, but his own College, Trinity College, Cambridge, would not permit a copy to be placed in its library, and a review in one of the prominent journals of that day described the book as "utterly dishonourable to science". Fifty years later, Sir William Osler was able to say: "the leaven of science working in the individual, leavens in some slight degree the whole social fabric. Reason is at least free, or nearly so; the shackles of dogma have been removed, and faith herself, freed from a morganatic alliance, finds in the release great gain". Unfortunately, Osler could not today be so optimistic since some countries are now moving backwards, and have made original thought dangerous. Indoctrination, or in physiological terms, the establishment of conditioned reflexes, has become the aim of their systems of education.

A serious handicap which universities may confer on their graduates is indicated in the other calendar requirements for admission to a bachelor's degree—completeness and satisfaction. If today the new graduates feel complacent because they have completed their courses, I hope

that it is not too late to urge the substitution of a sense of incompleteness. Only as one is aware that his education is incomplete is there hope for progress. The University of Hong Kong does not aim to be a "finishing school", rather its purpose is to set the feet of its graduates upon pathways which lead into misty distance, and which each one will be impelled to follow even though he may never arrive at "that untravell'd world, whose margin fades for ever and for ever" when he moves.

Our graduates have satisfied the examiners. Have they satisfied themselves? The late Alan Gregg, for many years director of medical sciences in the Rockefeller Foundation, in speaking to a graduating class in medicine a few years ago, asked from where advance is to come if youth sets no higher standards for itself than those demanded by its elders. Are the new graduates disappointed with their university for having permitted them to graduate when by their own higher standards they should have failed? If not, something is wrong, for a good student is never satisfied with what he has received.

So, I ask you all to rise and drink a toast to our new graduates, and may they always be driven by their own dissatisfaction to ever greater achievement, so that this University will be proud to claim them as her sons and daughters.

The use of meprobamate in the treatment of heroin withdrawal symptoms [1, 2, 3]

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Although addiction to narcotic drugs is common in many areas of the world, ethnological, economic and social factors present in Hong Kong make this a problem of considerable importance in this locality. Prior to 1945 the use of narcotics in this area was confined mainly to the smoking of opium. An analysis of the amounts and manner in which opium was employed and the effects produced by its use suggests that many individuals did not consume sufficient opium to become severely addicted; and, in consequence, the use of opium did not constitute as grave a problem as that at present produced by the consumption of heroin. The smoking of opium has gradually been replaced by the use of heroin, which is now the chief narcotic employed in this area. This change has been accompanied by a marked increase in the use of narcotics by members of the lower income bracket. Numerous addicts spend between 75% and 90% of their income on heroin, and are, therefore, unable to afford adequate food, clothing and shelter for themselves and their families.

Various reasons are given by addicts to explain their initial use of heroin. Some claim that they originally took heroin to relieve mild chest or abdominal pains. Others state that the use of heroin enables them to "work harder for longer periods of time". Still other addicts claim they were introduced to the use of heroin by "bad friends". It is recognized that many of the factors which prompted an individual to begin the use of heroin are also responsible, in part at least, for the continued use of this drug. However, the occurrence of marked withdrawal symptoms following cessation of drug intake represents an additional factor which promotes the further use of heroin. It is felt that, if the withdrawal symptoms could be prevented or markedly alleviated, many individuals might be induced to discontinue the use of narcotics.

Many agents and methods have been employed in the attempt to decrease the severity of the abstinence syndrome (Goodman & Gilman, 1955). These include substitution therapy with methadone, the use of pyrogens, antipyretic analgesics, sedatives (such as paraldehyde, barbiturates or bromides), stimulants (caffeine or amphetamine), anti-cholinesterases, purgatives, anti-diarrhoeal agents, hypertonic glucose or sucrose, calcium or magnesium ions, blistering and various hormonal preparations including insulin, parathormone, adreno-corticotropic hormone and cortisone. The use of so many different substances, many of which have opposing actions, indicates that previous methods of treatment failed to provide rapid relief of the withdrawal suffering.

Recently, both phenothiazine derivatives (Aivazian, 1955; McMahon, 1957; Friegdood & Ripstein, 1955; Hedqvist, 1954; Sainz, 1957) and meprobamate (Thimann & Gauthier, 1956) have been employed to treat narcotic withdrawal symptoms. Unfortunately, the published results do not clearly indicate the value of these drugs in the treatment of the abstinence syndrome, since, in general, other drugs were administered simultaneously, and the symptoms were not

evaluated quantitatively; nor were adequate controls employed. For example, Friedgood & Ripstein (1955) used chlorpromazine in the treatment of five morphine and two demerol (pethidine) addicts whose addiction had followed the medical use of these agents. They reported that the administration of relatively large doses of chlorpromazine following the abrupt withdrawal of the addicting drug prevented the "phenomena that constitute the abstinence syndrome". The patients slept most of the time during the first three days of therapy, and were given intravenous fluids and vitamins concurrently. Although it is likely that the marked "psychomotor-sedative" effect of chlorpromazine was of value, the lack of controls makes it difficult to determine the degree of benefit afforded by this treatment.

In Malacca a regimen has been adopted for the treatment of opium addicts which includes the use of chlorpromazine (McMahon, 1957). In addition, phenobarbitone, butobarbitone, thiamine and amphetamine are employed in the treatment. Although the schedule utilized "proved adequate for most of the patients seen", the lack of data regarding the severity of the symptoms, the use of multiple drugs and the omission of controls make it difficult to evaluate the effects of chlorpromazine in this study.

Thimann & Gauthier (1956) noted "moderate" improvement in three out of four heroin addicts treated with meprobamate after gradual withdrawal of the narcotic. Controlled studies employing placebos in heroin addicts were not reported, so it is difficult to ascertain whether the improvement noted was due to the effects of meprobamate or merely due to the passage of time. It was therefore deemed desirable to conduct a controlled study of the effect of meprobamate in the treatment of the abstinence syndrome.

Subjects and Methods

Fifty-one male patients were included in this study. The individuals were selected during the initial medical examination of inmates shortly after their admission to H.M. Prison, Victoria, Hong Kong. Since approximately forty to fifty addicts are admitted to prison daily, rigid criteria could be adopted for the selection of subjects. Except for six healthy non-addicts employed to evaluate the effects of large doses of meprobamate in normal individuals, all subjects selected had been addicted to heroin for more than eighteen months. The maximum duration of heroin consumption encountered among these subjects was fifteen years, while the average period of use was six years and a half. Nearly half of the addicts selected had used opium for periods ranging between three and forty years (average, eleven years) prior to their employment of heroin.

All addicts selected spent at least HK$4 (5*s.*) per day for heroin. The maximum daily expenditure by a member of this group was HK$15 (19*s.*), while the average outlay for heroin by the addicts included in this study was about HK$7.50 (8*s.* 6*d.*) per day. The cost of heroin varies with the availability of the drug and the quality of the product. The various grades employed in smoking (No. 2 and No. 3 powders) ("yee ho faan, saam ho faan") usually cost HK$5-7 per g. Chemical analysis of "medium grade" samples indicates that this material contains approximately 87%-92% diacetylmorphine hydrochloride (Gruhzit, 1958). Therefore the "smokers" in this study used an average of about 1.1 g per day of this heroin salt. It is estimated that, in the process of smoking, between 50% and 75% of the heroin is absorbed (Gruhzit, 1958). More purified grades of heroin employed for intravenous use cost approximately HK$8-10 per g, but probably provide the user with a greater intake per dollar than that obtained by smokers who use cheaper grades of heroin.

The addicts who participated in this study had been in police custody and had appeared before the appropriate judicial official prior to their medical examination. Therefore, all addicts who were selected had abstained from the use of narcotics for 46-72 hours prior to the onset of treatment. Although this time lapse

made the testing of the ability of drug therapy to prevent withdrawal symptoms infeasible, the marked abstinence syndrome which usually occurs within two to three days after heroin withdrawal facilitated the selection of patients.

Marked withdrawal symptoms were exhibited by all addicts selected for meprobamate evaluation. Individuals who met the criteria discussed and who also, in the opinion of the observers, appeared to be suffering from marked abstinence symptoms, were asked to describe their illness. Only those who voluntarily mentioned the majority of the "major" symptoms were chosen for study. Although it is recognized that some otherwise suitable subjects may have been excluded by this method of selection, it was felt that "prompting" might result in false answers. After selection the patients were extensively questioned regarding the severity of their various symptoms.

As far as could be determined, all persons included in this study were, except for withdrawal symptoms, in relatively good health. Many of the addicts also suffer from tuberculosis, chronic nephritis, gastric ulcers and other major illnesses. Individuals who had a history of any major illness or who showed signs of any serious disease were excluded as subjects for this evaluation. As a further precaution, physical examination and routine urinalysis were done on all subjects.

Care was also taken to select, so far as possible, subjects who would answer questions truthfully. Because many individuals prefer hospitalization to hard labour, and because individuals with even moderate withdrawal symptoms desire treatment, there was a tendency for some of those interviewed to exaggerate their amount of heroin consumption. This was noted especially after this study had been in progress for several weeks, and the information had spread among the inmates that "kai pak faan yuen", or "anti-heroin drug" was available. However, the veracity of the addicts could be checked in various ways. The amount of money claimed to be spent on heroin was compared with the individual's income and family status. The average unskilled labourer earns about HK$3-6 per day. Therefore, unless he has an outside source of income, it is impossible for him to spend more than this amount on narcotics. Unfortunately, many of the addicts do spend up to 90% of their income on heroin. The hands and fingers of the individuals were also examined carefully. Addicts who smoke heroin, as will be described later, usually have marked staining of the fingers and signs of frequent burns. The failure of addicts who claimed to smoke large amounts of heroin to exhibit these signs cast doubt on their truthfulness. The arms of addicts who employed heroin intravenously were examined for signs of sclerosed veins. Lack of sufficient damage to the veins excluded from participation in this study individuals who claimed to have taken heroin intravenously for several years. Since practically all addicts in this area who consume large amounts of heroin for long periods of time suffer a loss of weight ranging from 15 lb. to 40 lb. obesity also disqualified a person as a subject in this experiment. Finally, although there is considerable variation in the severity of withdrawal symptoms among individuals who have consumed similar amounts of narcotics, experience gained in the observation of thousands of addicts during the withdrawal period enables one to estimate the severity of addiction. Individuals were not selected if there was significant discrepancy between the estimated and claimed intake of heroin.

Various methods were employed by the addicts for the administration of heroin. Approximately 10% of the subjects selected self-administered heroin intravenously. This percentage is at least twice that encountered in the general narcotic group in this area, but the increased expenditure and the increased severity of withdrawal symptoms which intravenous users experience influenced the selection of subjects.

Most of the remaining subjects either "chased the dragon"[4] ("chui loong") or "played the mouth organ" ("chui hau kum"). Both of these methods of heroin

If all medical books were condensed into pills!

usage are relatively similar. Several granules of No. 2 or No. 3 powder containing approximately 87%-92% diacetylmorphine hydrochloride are placed, together with approximately four times as much "base powder" ("dai faan"), on a trough formed from cigarette package tinfoil. The material is heated from below with matches or tapers and the ensuing fumes are inhaled. Originally a hollow tube about eight inches long and approximately one-quarter to three-eighths inches in diameter formed from bamboo or rolled-up paper was used to inhale the vapours which arose from the heated mixture. Because of the tendency of the molten mass to flow up and down the tinfoil trough, the source of the fumes also migrates. The moving trail of fumes resembles the classical Chinese concept of the undulating dragon's tail, and the term "chasing the dragon" is therefore employed to describe this method of smoking heroin.

From the addict's standpoint this method offers various advantages—the equipment required is easily obtained and cannot in itself be used to incriminate him. However, although it is estimated that the more adroit addict can inhale approximately 50%-75% of the fumes evolved from the mixture, the use of a narrow tube is relatively inefficient. A small matchbox cover is now usually substituted for the hollow tube, since its increased cross-sectional area facilitates the inhalation of a greater percentage of vapours. The resemblance of a matchbox cover to the musical instrument has resulted in this method's being known as "playing the mouth organ".

Since heroin granules have a tendency to char and decompose when heated, it is necessary to employ a base powder, or "dai faan", as a vehicle when heroin is smoked in the methods described above. Barbitone or, less frequently, phenobarbitone are commonly employed as base powder. These substances are readily volatilized and inhaled together with the heroin fumes. Previous investigation (Gruhzit, 1958) indicates that, in general, insufficient amounts of the base powder are inhaled by the average heroin addict to produce concomitant barbiturate addiction. However, individuals who smoke large amounts of heroin, and therefore employ large amounts of base powder, may have combined heroin-barbiturate addiction. It is likely that the increased incidence of "non-epileptic" withdrawal convulsions which has been observed since the introduction of barbitone as a base powder is the result of barbiturate addiction.

The remainder of the individuals selected for study (less than 10%) combined heroin usage with cigarette smoking. Granules of heroin imbedded in the tip of a cigarette are volatilized and inhaled as the cigarette is smoked. The cigarette must be held in a vertical position to prevent the heroin granules from falling out. Because of this position the use of heroin in this manner is known as "firing the ack-ack gun" ("dah fay gay"). Recently, various modifications in this technique have been noted. Some individuals employ a pipe-type cigarette holder which allows the cigarette to remain in a vertical position without tilting the head. In addition, the use of relatively pure heroin granules has been superseded in part by the use of a "cut" mixture which contains a smaller percentage of heroin but readily adheres to the tip of the cigarette.

Although all the addicts included in this study employed one of the methods described above, other procedures for the utilization of heroin were used by some of the individuals interviewed. "Red pills" ("hung yuen"), containing a relatively small quantity of heroin together with a variety of other ingredients, are smoked or, quite rarely, taken orally. Occasionally one encounters an addict who injects heroin intramuscularly or subcutaneously. The relatively slow absorption occurring with oral, subcutaneous or intramuscular administration of heroin makes these methods less popular than intravenous injection or the inhalation of heroin fumes.

Following selection, the patients were hospitalized and given bed rest, routine diet and water *ad libitum*. A quantitative estimate of the abstinence syndrome was made by grading the severity of the withdrawal signs and symptoms as absent

(O), minimal (+, −), mild (+), moderate (++), severe (+++) or very severe (++++). Two points were given for each "plus" associated with "major" withdrawal symptoms—i.e., those symptoms which produce great discomfort; nausea, vomiting, diarrhoea, abdominal pain, anorexia, insomnia, twitchings and headache. Each "plus" associated with a "minor" complaint—i.e., increased perspiration, increased pilomotor activity, lacrimation, coryza, sneezing, hoarseness, dyspnoea and a feeling of cold, was assigned a value of one point each. Although the latter group of signs and symptoms are useful in evaluating the severity of the abstinence syndrome, they do not cause serious discomfort. Weakness, especially of the extremities, also represents a major complaint during the withdrawal period; however, this symptom was not included in the quantitative evaluation of the abstinence syndrome, since meprobamate itself, in the doses employed, produces weakness of the extremities (*vide infra*). Nocturnal seminal emissions may also cause the individual considerable concern. Their incidence, however, is relatively low, and this complaint, although noted, was therefore omitted from the quantitative evaluation.

Since withdrawal symptoms will abate merely with the passage of time, the effects of meprobamate administration were compared with those produced by the administration of placebos. Following the initial studies in which a suitable dose of meprobamate was determined, patients were selected at random to receive either meprobamate or placebo therapy. A "double blind" study—i.e., a study in which neither the evaluators nor the subjects are informed of the nature of the medication administered—was not employed owing to the lack of trained assistants and because those patients receiving meprobamate therapy could be readily recognized, not only by the alleviation of their symptoms, but also by the changes in the tendon reflexes which occurred (*vide infra*). Drug therapy was initiated at approximately 10 a.m. on the day of selection and was continued at four-hour intervals (except for the 2 a.m. dosage) during the course of therapy, which normally lasted five days. Detailed analysis of the patients' response to therapy was made twice daily, at 10 a.m. and 4 p.m. Interim reports by hospital orderlies, warders and dressers were made at more frequent intervals.

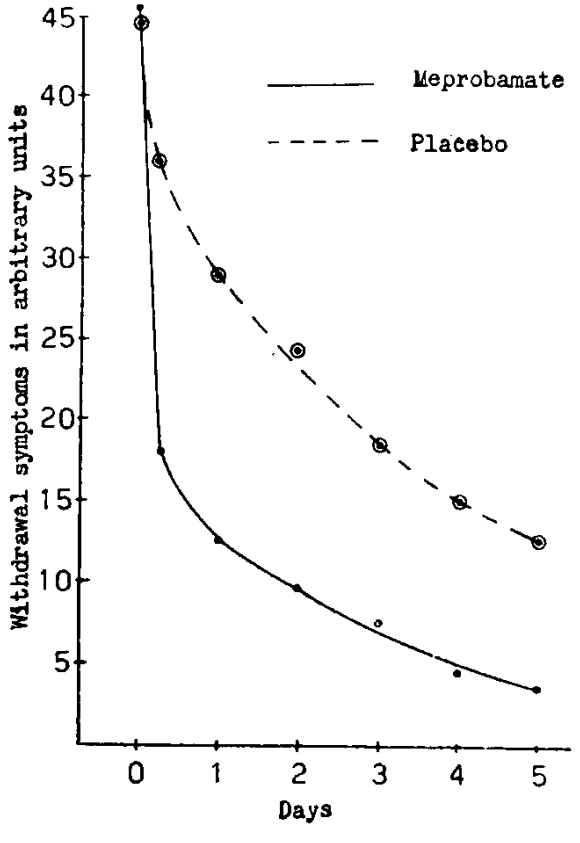
Various doses of meprobamate were employed in the first ten patients, in an effort to determine the regimen which would produce the maximal relief of withdrawal symptoms without inducing significant side effects. As a precautionary measure against hypersensitivity, the initial dose was limited to 0.4 g. Subsequent administration of 1.6 g every four hours produced dramatic alleviation of the withdrawal symptoms in several patients, but the maintenance of this dosage schedule caused one of these individuals to become semi-comatose within forty-eight hours after the initiation of therapy. Meprobamate administration was discontinued and twenty-four hours later this patient appeared relatively normal, but experienced a recurrence of his withdrawal symptoms. Maintenance doses of 0.4-0.8 g every four hours produced marked relief in several patients, but only slight to moderate relief in others. As a result of these initial studies, a regimen was selected which employed an initial dose of 0.4 g followed by a "priming" dose of 1.6 g and the subsequent administration of 1.2 g of meprobamate at four-hour intervals during the remainder of the five days of treatment. The 2 a.m. dosage was omitted if the patient was asleep. Fifteen addicts receiving this dosage were compared with a comparable group of fifteen patients who received placebos. Patients on placebo therapy received the same number of tablets which looked and tasted like the meprobamate tablets but contained inert substances. Unless otherwise noted, all numerical evaluations of results are based on these thirty patients.

Results

As shown in fig. 1, six hours after the initiation of therapy patients who had received meprobamate had approximately a 60% reduction in the severity of their abstinence syndrome. As would be expected, patients who received placebo

therapy and its associated hospitalization and bed rest also had some alleviation of their complaints. The average percentage recovery in the placebo group at this time, however, was less than a quarter of that present in the meprobamate group. Five days of placebo therapy were required to produce a similar degree of recovery as that observed after one day of meprobamate treatment. When the severity of specific withdrawal symptoms is compared in the two groups (table 1) it is apparent that meprobamate markedly alleviates those abstinence symptoms associated with the gastro-intestinal and neuromuscular systems. Daily measurements of body weight were made in all subjects in an effort to obtain additional evidence of the relief of gastro-intestinal complaints. During the short period of hospitalization the maximum weight change which occurred in any patient under study was less than 6 lb. Nevertheless, the average weight gain in the meprobamate group was nearly twice that in the placebo group.

FIG. 1. *Average severity of heroin withdrawal symptoms in patients receiving meprobamate or placebo therapy.*



The effect of meprobamate on respiratory symptoms was less dramatic. During the period of treatment there was no significant difference in the incidence or severity of sneezing and hoarseness in the two groups. Coryza and "air hunger" were less intense in the group treated with meprobamate, but the degree of benefit was not marked. During the course of observation no significant variations in the resting respiratory rate were observed in patients who participated in this study. The severity of "air hunger", which is experienced by most addicts during withdrawal, could not be closely correlated with changes in respiratory rate. This suggests that the shortness of breath is not due to abnormalities in pulmonary function, but rather involves higher brain centres.

Although headaches, when they occur, represent, from the standpoint of the patient, a serious withdrawal symptom, their incidence was not sufficiently great in either group to allow an evaluation of the effect of meprobamate on this symptom. It was likewise impossible to evaluate the effect of meprobamate on perspiration. Normally, increased perspiration occurs during the withdrawal period. This study, however, was conducted during the summer months, and even the investigators themselves showed hyperhydrosis.

Slight decreases (5-20 mm of Hg) in systolic and diastolic blood pressures occurred in approximately 75% of the addicts during the course of therapy. However, since the average decrease in addicts who received placebos was similar to that observed in patients who received meprobamate, it is likely that the observed changes in blood pressure are due, in part at least, to hospitalization and bed rest and not to a specific drug action. Although Himmelsbach (1936) noted that a slight rise in blood pressure frequently occurs during the abstinence syndrome, all individuals included in this study had initial blood pressure readings within the range usually observed in non-addicts of comparable age and racial characteristics. It is

TABLE 1

Comparison of the effects of meprobamate and placebo therapy on the severity of heroin withdrawal symptoms

	AVERAGE SEVERITY OF SYMPTOMS*					
	Meprobamate			Placebo		
	Initial	6 hours	24 hours	Initial	6 hours	24 hours
Major symptoms						
Insomnia	3.2	0.9	0.4	3.1	3.1	2.8
Anorexia	2.8	1.3	0.8	2.4	2.0	1.7
Nausea	2.8	0.8	0.4	2.6	1.8	1.1
Vomiting	1.8	0.4	0.3	2.1	1.1	0.8
Diarrhoea	1.9	0.1	0.2	2.1	1.2	1.1
Abdominal pain	2.0	0.6	0.6	1.8	1.2	1.0
Twitchings	2.3	1.0	0.7	2.2	2.1	1.8
Headache	0.4	0.3	0.3	0.5	0.4	0.2
Minor symptoms						
Coryza	1.3	0.6	0.4	1.5	1.2	0.7
Dyspnoea	1.3	0.8	0.6	1.2	1.0	0.9
Sneezing	1.3	1.2	0.8	1.3	1.3	0.9
Hoarseness	1.0	0.8	0.7	1.0	0.9	0.8
Lachrymation	1.4	0.8	0.7	1.4	1.2	1.1
Chills	2.3	1.3	0.7	2.0	2.1	1.9
Pilomotion	1.2	0.6	0.2	1.0	0.9	0.7
Perspiration	1.8	1.6	1.3	1.7	1.6	1.4

*Average of fifteen subjects in each group before treatment and six and twenty-four hours after initiation of therapy. Symptoms graded as absent (0), mild (1), moderate (2), severe (3) or very severe (4).

possible, however, that the observed decreases in blood pressure during the course of therapy might be due in part to the waning of the abstinence syndrome.

The meprobamate regimen adopted after the initial trials produced relatively few side effects when it was employed in the treatment of the abstinence syndrome. Three addicts complained of slight dizziness forty-eight hours after the initiation of meprobamate therapy. Two of them also were mildly ataxic. These side effects, which were not severe enough to cause a cessation of drug therapy, subsided during the period of continued meprobamate administration. One individual who had been selected to participate in this study developed polyopia monopthalmica within twenty-four hours following the initial dose of meprobamate. Although it is not known whether this condition represents a bizarre withdrawal symptom or was due to meprobamate administration, it was deemed advisable to discontinue drug administration and to exclude this patient from further participation in the study. Normal vision returned approximately seventy-two hours later.

Most individuals who received meprobamate for the treatment of withdrawal symptoms showed mild evidence of somnolence. It is difficult, however, to estimate whether this increased tendency to sleep was the direct result of the sedative effect of the drug or was the normal bodily reaction to the elimination of the withdrawal symptoms, which in some cases had prevented sleep for more than forty-eight hours.

One patient on placebo therapy developed an acute psychotic state on the fourth day of hospitalization. During this period he attempted suicide and later became moderately violent. He had marked delusions of persecution and accused fellow inmates of attempted extortion and of causing all his relatives to

be incarcerated. There was, of course, no substance in fact to these claims. An attempt was made to transfer this patient to meprobamate therapy, but he refused to swallow the tablets. Paraldehyde was therefore used to sedate this patient temporarily and he was subsequently transferred to a psychiatric hospital, where he recovered in approximately one week.

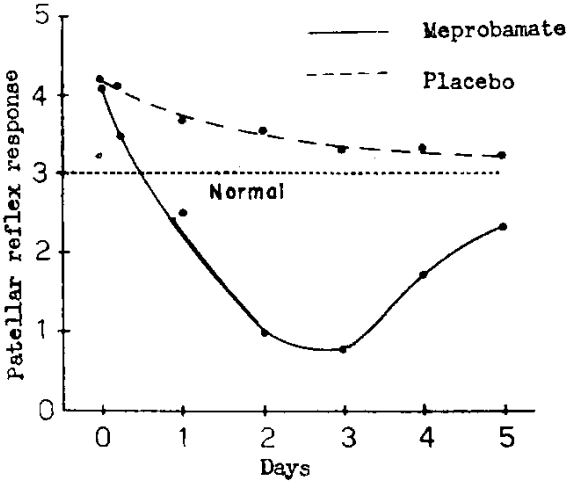
Similar psychotic states have been observed in other untreated individuals during the withdrawal period. From a scientific aspect it is fortunate that this patient had received placebos rather than meprobamate therapy. It is possible that meprobamate therapy might have prevented the development of this psychotic state; if, however, such a condition had occurred during the course of meprobamate therapy one might be prone to incriminate the drug as an agent which produces suicidal tendencies. In the light of this experience one must also wonder about the validity of statements which suggest that other tranquillizing drugs produce suicidal tendencies.

Four patients, not included in the numerical evaluation of the results, were treated with meprobamate because of convulsive states or fits which occurred during the withdrawal period. These individuals had clonic-tonic convulsions, with unconsciousness lasting from thirty to sixty minutes. Although these convulsions resemble to some extent those observed in *grand mal* epilepsy, these patients had no previous history of epilepsy. After the cessation of the initial convulsions these patients were given 1.2-1.6 g of meprobamate every four hours for periods up to five days. No further convulsions were observed in any of these patients. Although the relative infrequency and emergency nature of this condition prevented a controlled study employing placebos, previous experience indicates that these convulsive states usually recur frequently during the subsequent twenty-four hours even when barbiturates are employed as sedatives. The absence of additional convulsions following the administration of meprobamate gives additional suggestive evidence of the ability of this drug to alleviate withdrawal symptoms.

Two additional patients were treated with meprobamate because of acute psychotic symptoms attributed to narcotic withdrawal. Apparent recovery occurred within twenty-four hours following the administration of meprobamate. It is not possible, of course, to be certain that this drug therapy shortened the duration of these psychotic states; however, the psychotic symptoms which occur during drug withdrawal normally persist at least four or five days.

The patellar, achilles, biceps and triceps reflexes were tested in all patients receiving meprobamate or placebo therapy. Marked differences were noted between the tendon reflex responses in these two groups (fig. 2). Initially both groups had hyperactive tendon reflexes which were especially noticeable in the lower extremities. In the placebo group these reflexes gradually returned towards normal during the period of hospitalization.

FIG. 2. *Comparison of the effect of meprobamate and placebo administration on the patellar reflex response during the heroin abstinence syndrome. Analysis of fifteen subjects in each group. Reflex response graded as absent (0), very sluggish (1), sluggish (2), normal (3), brisk (4), very brisk (5).*



In contrast, reflexes were usually hypoactive twenty-four hours after the initiation of meprobamate therapy. Maximum depression of reflex activity was noted

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after 48-72 hours of treatment. During this period the patellar reflex could not be elicited in five of the fifteen meprobamate patients even when reinforcement techniques were employed. In four patients a response was obtained only when reinforcement techniques were used. In all but one of the remaining individuals in the meprobamate group the patellar reflex response was markedly diminished.

Other stretch reflexes were also obtunded, although the changes were not as marked as those observed in the testing of the patellar reflex. The ankle jerk was absent or very sluggish in approximately 60% of the patients during the administration of meprobamate. The biceps and triceps reflex responses were usually sub-normal, but could still be elicited in all except three patients. In two of these the biceps reflex was absent, and in the third patient the triceps reflex could not be elicited. The depression of tendon reflex responses persisted during the course of meprobamate administration, although there was a slight tendency for reflexes to return towards normal on the fourth and fifth days of therapy.

Because of the ability of meprobamate therapy to depress reflex responses, it was thought possible that the failure of meprobamate to relieve the general weakness characteristic of the abstinence syndrome might be due to the substitution of a "drug-induced" weakness for that normally present during the withdrawal period. In an effort to substantiate this hypothesis, doses of meprobamate similar to those employed in addicts were administered to six normal volunteers. All of them developed marked weakness, dizziness and ataxia during the first twenty-four hours of drug administration. Meprobamate was discontinued at this time in two individuals who could no longer walk more than a few feet without support. The remaining four persons were able to tolerate these large doses of meprobamate for three days before it was necessary to discontinue this drug. The ankle and knee jerks were absent, and the biceps and triceps reflexes were markedly diminished in all these patients. Reflexes gradually returned to normal and the dizziness, weakness and ataxia disappeared within 72-96 hours following the cessation of meprobamate therapy.

Comment and Discussion

Although the method of analysis employed in this study clearly indicates the beneficial effects of meprobamate in the treatment of withdrawal symptoms, it probably minimizes the actual value of this drug in the therapy of the abstinence syndrome. During the withdrawal period addicts suffer severe "mental torture". It is difficult to describe and perhaps impossible to quantitate this symptom. De Quincey, in his *Confessions of an English Opium Eater,* gives some indication of the nature of the mental suffering experienced by addicts. Although we were unable to obtain such adequate descriptions from the subjects employed in this study, their remarks indicated that meprobamate therapy alleviated their mental distress. Most patients had experienced withdrawal symptoms several times previously during periods of incarceration. Subjects treated with meprobamate stated that "the suffering was much less than on previous occasions" and that "at other times the 'confusion' lasted about ten days, while now it was gone in less than two days". It is possible that mere hospitalization and bed rest contributed to the benefit which these patients received. However, patients on placebo therapy complained, "Why don't I feel better and why can't I sleep? The other people who are being treated have improved. What is wrong with me?" The patients on placebos, of course, did not know that they were being administered inactive tablets.

Although the use of a constant meprobamate regimen in the study facilitated the comparison of the effect of meprobamate and placebo therapy, it is recognized that a more flexible schedule would be advantageous when treating individual addicts. During the abstinence syndrome addicts show hyperactivity of the neuromuscular, gastro-intestinal and secretory systems. Meprobamate administration depresses these systems. The optimal dose of meprobamate, therefore, would be one which reduces the

activity of these systems to normal, but does not produce hypofunction. The dose of meprobamate should therefore be graded in accordance with the severity of the withdrawal symptoms and the response of the individual to treatment. All patients selected for inclusion in this study had severe abstinence symptoms. Nevertheless, it is likely that those individuals who developed ataxia would have received significant relief with smaller doses of meprobamate. It is also probable that certain subjects, especially those who injected large doses of heroin intravenously, would have experienced more rapid improvement if larger doses of meprobamate had been employed. Unfortunately, there does not appear to be any simple criterion on which to base meprobamate dosage. Within limits, however, it appears that the continued presence of hyperactive tendon reflexes indicates inadequate dosage and the occurrence of ataxia and dizziness suggests supra-optimal dosage. It should be noted that the average weight of the patients included in this study is significantly less than might be expected in a comparable group in some other areas of the world. It is possible that even larger doses of meprobamate would be required to produce similar results in other racial groups who have a significantly larger stature.

The duration of treatment in this experiment was limited to five days, since the majority of the symptoms had disappeared during this period and because it was felt that longer periods of meprobamate therapy might result in meprobamate addiction (Lemere, 1956). One patient in the present study had *grand mal* type convulsions approximately twenty hours following abrupt meprobamate withdrawal. Although there were no sequelae following this convulsive episode, it would appear preferable gradually to decrease the dose administered over a period of several days in order to prevent the possibility of meprobamate withdrawal symptoms.

Adjunctive therapy was not employed in this study, because of the possibility that it might interfere with the evaluation of the effects of meprobamate. All the individuals selected for study were relatively healthy. Most addicts, however, have sub-standard diets, and it is likely that the anorexia which accompanies withdrawal produces further vitamin deficiencies which may contribute to a portion of the withdrawal symptoms, especially the generalized weakness. The concomitant administration of vitamin therapy should therefore prove beneficial in some cases. Other adjunctive therapy appears unnecessary in most cases, since adequate meprobamate dosage quickly relieves the withdrawal symptoms.

Although a direct comparison was not made with other methods employed in the treatment of heroin withdrawal symptoms, previous experience and an evaluation of published results indicate that meprobamate appears superior to other types of therapy utilized for this purpose. In general, most methods employ hospitalization with abrupt, rapid or gradual withdrawal of the narcotic with or without prior substitution therapy. Supplementary measures, including the use of sedatives, antispasmodics and anti-diarrhoeal agents, are employed to treat the specific symptoms which occur. Although controversy exists regarding the specific value of some of the agents employed in the symptomatic treatment of the withdrawal syndrome, it is apparent that many of these measures provide some degree of relief. With most of the regimens employed, however, significant withdrawal symptoms usually persist for several days to several weeks following the initiation of therapy. This is in marked contrast to the meprobamate therapy employed in this study which produced a dramatic reduction in the severity of withdrawal symptoms within six hours. Although Zucker, Machlin and Scott (1958) recently reported that "meprobamate is not of value as an adjunct in the management of the opiate withdrawal syndrome" the dose of meprobamate which they employed (1.6 g per day) was only approximately one-fourth of that which was selected in the present study. Our initial findings indicated that even 4 g per day of mepro-

bamate may fail to provide adequate relief of the heroin abstinence syndrome. It is likely, therefore, that the failure of Zucker et al. to observe a beneficial effect of meprobamate may be attributed to the dose which they employed. One cannot exclude the possibility, however, that methadone substitution therapy, which they used, may significantly alter the response to meprobamate.

Recently various phenothiazine derivatives have been employed in the treatment of addicts (*vide supra*). Unfortunately most of the published results do not give sufficient data regarding the selection of patients, the severity of addiction, the dose schedule employed, the manner of evaluation, the degree of response or the controls employed. It is likely, however, that these "tranquillizing" drugs may produce results comparable to those observed with meprobamate. However, serious toxic reactions, including jaundice (Penber, 1955) and agranulocytosis (Hodges & Lazerte, 1955; Boleman, 1955), have been observed following the administration of phenothiazine derivatives. In contrast, the incidence of serious toxic effects with meprobamate is relatively low (Selling, 1955; Borrus, 1955; Lasagna, 1956) although various allergic reactions have been observed (Borrus, 1957). In view of the effectiveness and relative non-toxicity of meprobamate it appears that this agent may represent the drug of choice in the treatment of the abstinence syndrome.

All addicts employed in this experiment had been withdrawn from heroin for more than forty-six hours. Although this circumstance facilitated the selection of subjects for study, it precluded the testing of the ability of meprobamate to *prevent* withdrawal symptoms. It is felt likely that meprobamate would be effective in preventing abstinence symptoms in heroin addicts if the administration of suitable doses was initiated at the onset of withdrawal. Arrangements are contemplated which will allow the testing of this hypothesis.[5]

From a sociological standpoint, however, the complete prevention of abstinence symptoms might prove detrimental. Although previous reports indicate that the relapse rate among treated addicts is high (Vogel et al., 1948), the experience of withdrawal symptoms might act as a slight deterrent to the resumption of the use of narcotics. The present study has been conducted during a relatively brief period of time (three months) and it is as yet impossible to evaluate the effect of meprobamate treatment on the narcotic relapse rate. Many of the addicts who have been interviewed express an apparently sincere desire to break the habit ("kai tuen yuun"). There are, however, many factors which make it difficult for a former addict to abstain from the use of narcotics following his release from confinement. Many individuals return to their old environment and associates and are under considerable pressure to resume their old habits. Nevertheless, it is felt that in many cases hospitalization and treatment, even with placebos, will act as a definite deterrent to the resumption of narcotic usage. It is likely that if one believes he has received treatment for the "drug habit" this belief will act as a crutch which will, especially in borderline cases, strengthen the will power sufficiently to resist the temptation to resume the use of narcotics.

The marked inhibition of tendon reflexes produced in humans following the administration of large doses of meprobamate may represent a similar type of action of this drug on synaptic transmission as observed in animal experiments. Various investigators (Berger, 1954; Hendley et al., 1954) have shown that in cats meprobamate inhibits polysynaptic reflexes, such as the crossed extension reflex, but has an insignificant effect on monosynaptic reflexes, such as the patellar reflex. Unfortunately, no convenient method was available to test the effect of meprobamate on polysynaptic reflexes in humans. It is possible that the ataxia observed in some of the addicts and in normal volunteers may have been related to the inhibition of polysynaptic reflexes. However, the occurrence of diminished or absent patellar

reflexes without evidence of ataxia perhaps suggests that in humans meprobamate has a greater tendency to affect monosynaptic reflexes than polysynaptic reflexes.

Since the physiological basis of withdrawal symptoms is unknown, it is impossible to reach any definite conclusions regarding the mechanism of action of meprobamate in the treatment of withdrawal symptoms. Tatum et al. (1929) and Seevers & Woods (1953) have suggested that the withdrawal symptoms might be due to the persistence of the stimulating effects of narcotics after the depressant effects have worn off. This theory has been criticized on the basis that certain drugs, such as the barbiturates, which have no significant stimulating action, may also produce withdrawal symptoms. The stimulatory effects, however, may not necessarily be due to the direct action of the drug, but rather to various bodily compensatory mechanisms which tend to counteract the depressant effects of the drug. Compensatory adjustments occur frequently following the administration of drugs. These are perhaps most often associated with the use of hormones, where the mechanisms of compensatory action are relatively well understood. They also occur with drugs which alter the blood pressure. Reflex bradycardia and vasodilatation may follow the administration of hypertensive agents. In many cases the compensatory mechanisms persist for a considerable time following the withdrawal of the initial stimulus. Thus hypothyroidism is frequently observed following the cessation of thyroxine therapy. Hypotension may result following the stoppage of adrenaline or noradrenaline infusions. It is possible that the compensatory mechanisms may account, in part at least, for the tolerance which occurs with continued administration of narcotics, and the persistence of compensatory readjustment after the termination of the direct effect of the drug might be responsible for the occurrence of withdrawal symptoms.

Unfortunately the mechanisms, if they do in fact exist, involved in the production of compensatory readjustments following the administration of narcotics are unknown. It is tempting to theorize that they involve facilitation of synaptic transmission and that meprobamate is effective because it alters synaptic transmission (Berger, 1954). Although the effect of meprobamate on synaptic transmission in the spinal cord may play a significant role in decreasing twitchings, the relatively uniform suppression of many of the withdrawal signs and symptoms by meprobamate indicates that it must also involve other areas of the central nervous system. The relatively selective effect on meprobamate of the electrical activity of the ventrolateral nucleus of the thalamus, reported by Hendley et al. (1954), suggests that this area might be primarily involved in the action of meprobamate. However, doses of meprobamate comparable to those employed in the present study also produce electro-encephalographic changes in other areas of the brain resembling those obtained after the administration of secobarbitone, phenobarbitone or paraldehyde (Pfeiffer et al., 1957). The effect of meprobamate cannot be explained merely on the basis of its sedative action, because sub-hypnotic doses of barbiturates fail to produce significant relief of many symptoms, especially those involving the gastro-intestinal tract, which occur during withdrawal.

Summary and Conclusions

1. The administration of large doses of meprobamate to fifteen hospitalized heroin addicts suffering severe withdrawal symptoms decreased the average severity of the abstinence signs and symptoms more than 60% within six hours. At the end of five days of meprobamate therapy the withdrawal symptoms had decreased to less than 10% of the initial values. Significantly less improvement occurred in a comparable group of addicts who received placebos.

2. The administration of large doses of meprobamate to normal volunteers produced marked vertigo, ataxia and weakness. Vertigo and slight ataxia was observed in approximately 20% of the addicts who received meprobamate therapy.

3. Meprobamate produced marked inhibition of the patellar, achilles, biceps and triceps reflexes in both addicts and normal individuals.

4. It appears likely that meprobamate represents the drug of choice in the treatment of the heroin abstinence syndrome.

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[1] We wish to thank Mr. C. J. Norman, Commissioner of Prisons, and Dr. D. J. M. Mackenzie, Director of Medical and Health Services, for their permission to conduct this study. In addition, we would like to acknowledge the kind co-operation of Superintendent T. G. Garner, Chief Officer E. M. Gemmell and the other officers and staff of H.M. Prison, Victoria, whose assistance materially facilitated this investigation. Finally, we would like to express our appreciation to Senior Superintendents A. A. Shaw and T. Cashman and Superintendents A. A. Baggott and J. F. Ferrier, of the Police Anti-corruption and Narcotics Bureau, for their aid in the investigation of many facets of the addiction problem.

[2] The meprobamate ("Miltown") and placebos employed in this study were kindly supplied by the Lederle Laboratories Division of the American Cyanamid Company, New York.

[3] The opinions expressed in this paper are those of the authors, and do not necessarily reflect the views of the Hong Kong Government.

[4] See *Bulletin on Narcotics*, vol. X, No. 3.

[5] Preliminary studies now being conducted indicate that meprobamate is capable of preventing many of the abstinence signs and symptoms in heroin addicts undergoing withdrawal.

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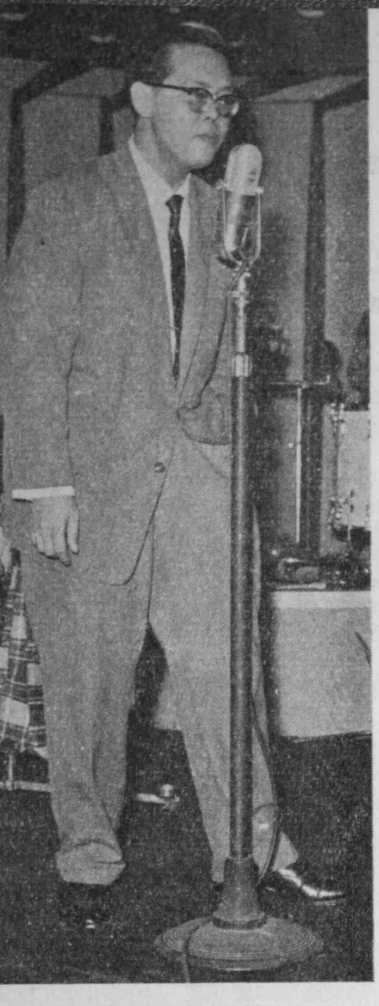
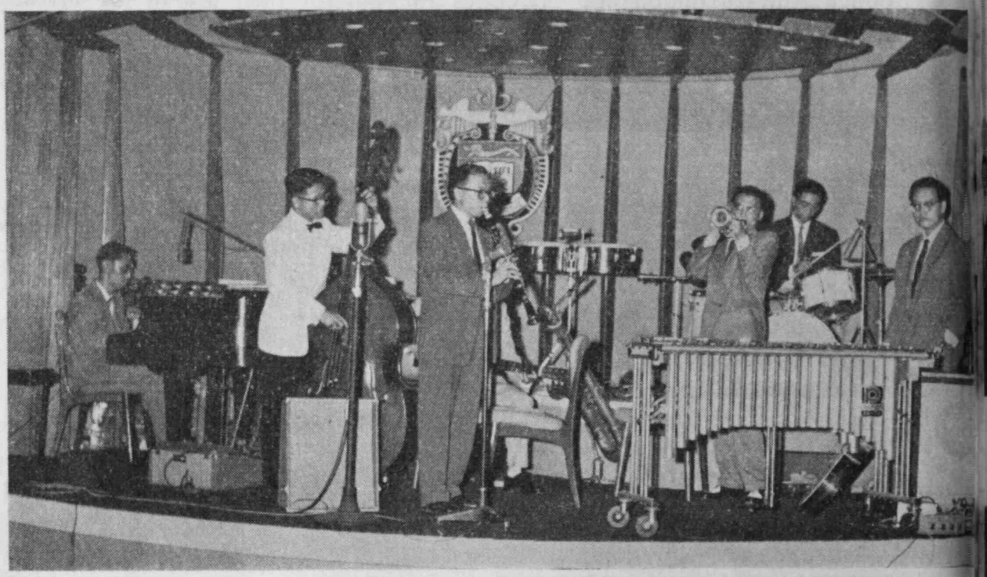
(Reprinted from United Nations, Bulletin on Narcotics Vol. XI. No. 2, April–June 1959.)

THE SOCIETY HOP

The climax of a very successful year came on 1st June, 1959 w more than one hundred couples attended the Annual Medical da held at the Paramount Night Club . . . . A special feature of evening was the half-an-hour of 'melodious' music provided by members of the 5th year band with the Chairman himself at Double-bass . . . .



A certain smell . . . .



Tinnitus—the 5th year band.

A bouquet for Mrs. Wong.

Oh, no! Not the surgeons again (prize-giving)

Easy does it!
(Chairman at the Double-bass)

When boy meets girl . . . .

The Intruder.

MEDICAL SOCIETY ANNUAL REPORT 1958—1959

Our Society's achievements for the session 1958–59 can be humbly described as not too bad. In a relatively short span of 8 months we managed to pack a well-spaced programme consisting of a Christmas party for the sick children at Sandy Bay and Queen Mary Hospital, the Med-Nite, two film shows, a picnic, the Presidential Address, a pipe-smoking symposium, and the Medical Dance.

We medical students are seldom welcomed around the wards; least of all by the patients. This was not so on 23rd December, 1958 when a Santa Claus was born in the Pediatrics wards of Queen Mary Hospital and the Convalescent Home for Children in Sandy Bay, through the kind and generous donations from members of the Society. This is the second year that the Society has carried out such a project, and we hope that it will become a tradition.

Medical Night was held on 30th January, 1959 in St. John's College. The night's programme consisted of items presented by the various classes. The highlight of the evening was the item presented by the 4th year students re-enacting a scene at a Teaching Clinic. Although the acting was not realistic and frightful enough to make our preclinical colleagues change their profession before it is too late, it certainly drove home the point that all is not over after the 2nd M.B.

On 12th April, 1959 the Society organised a picnic to the leprosy asylum at Hay Ling Chau. Dr. Harman, the Medical Superintendent, took us on a detour of the island and gave us a talk on the Medical and Surgical management of the leprous patient and their eventual rehabilitation. At this juncture, the Society would like to record our thanks to Dr. and Mrs. Harman for providing us tea.

Two films were shown to members in the Anatomy Lecture Theatre on 26th February, 1959. They are: 'Repair of a Post-Operative Ventral Hernia' and 'Early Management of the Severely Burned Patient'.

The Presidential Address was delivered by Dr. C. C. Wong on 23rd April, 1959 on 'Pain'. A big crowd (partly due to the tea, of course) jammed the Chemistry Lecture Theatre to listen to a most interesting talk. A group photograph of members was taken before the talk at 5.30 p.m.

This year a new item was added to the Annual Activities of the Society in the form of a 'Pipe-smoking Symposium'. A handful of members on 11th May, 1959 sat around the library of Morrison Hall, enjoyed quality tobacco and discussed high philosophy. Unfortunately I cannot report on what was discussed; being bound by medical ethics to preserve professional secrecy.

The climax of a very successful year came on 1st June, 1959 when more than 100 couples attended the Annual Medical Dance held at the Paramount Night Club. Much to the delight of the President and the Chairman (not excluding the members) formal speeches were deleted from the programme. A special feature of the evening was the half-an-hour of 'melodious' music provided by members of the 5th year band, with the Chairman himself at the double-bass. Without fear of exaggeration, this year's dance can be considered a very successful one as most of those present were members of the Society. We all enjoyed the evening. Some of our members were so warmed up that they decided to stay in Paramount for the night. They were, however, prevented from doing so.

Sd. TAN THIAN CHYE,
Hon. Secretary.

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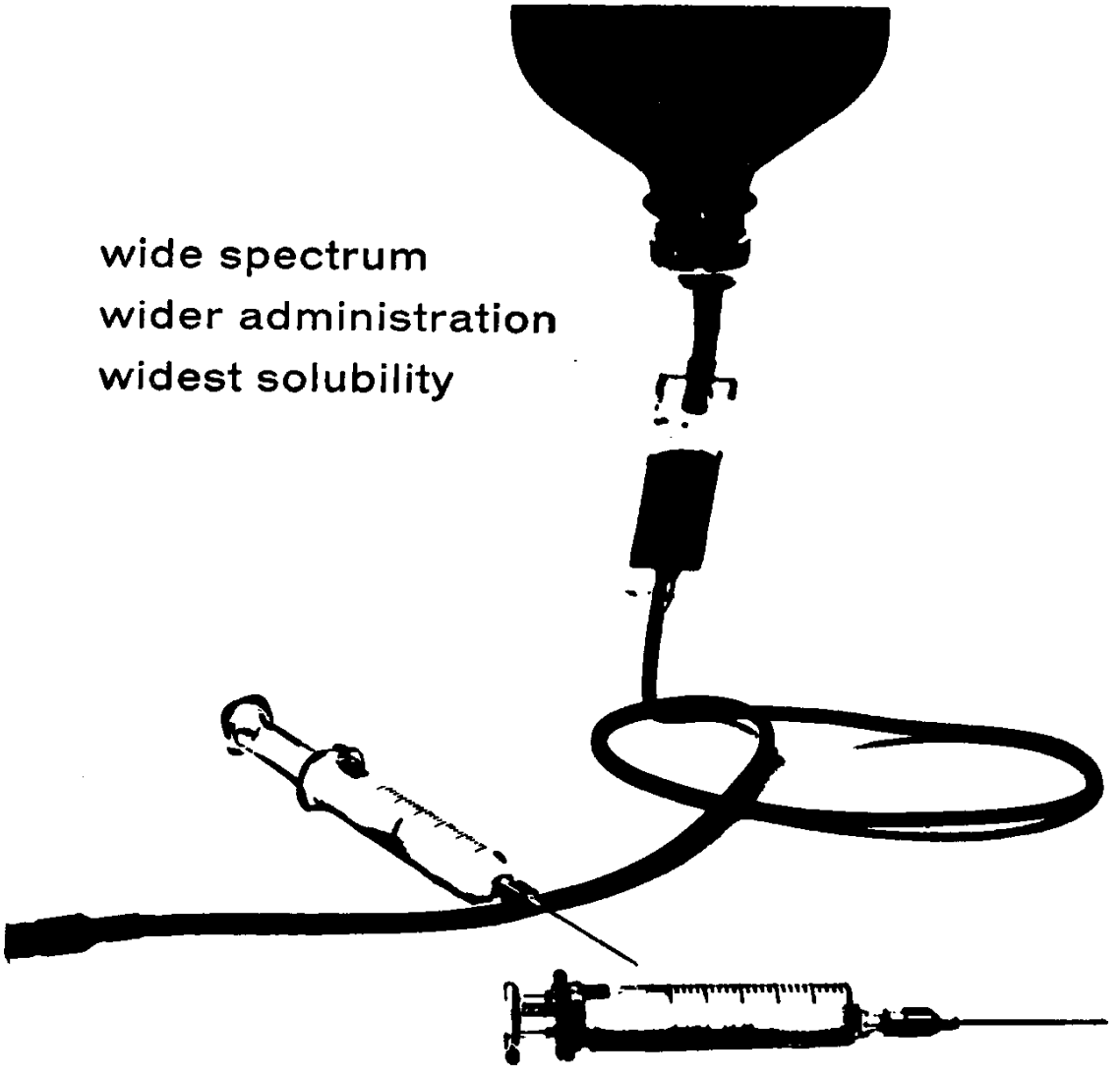
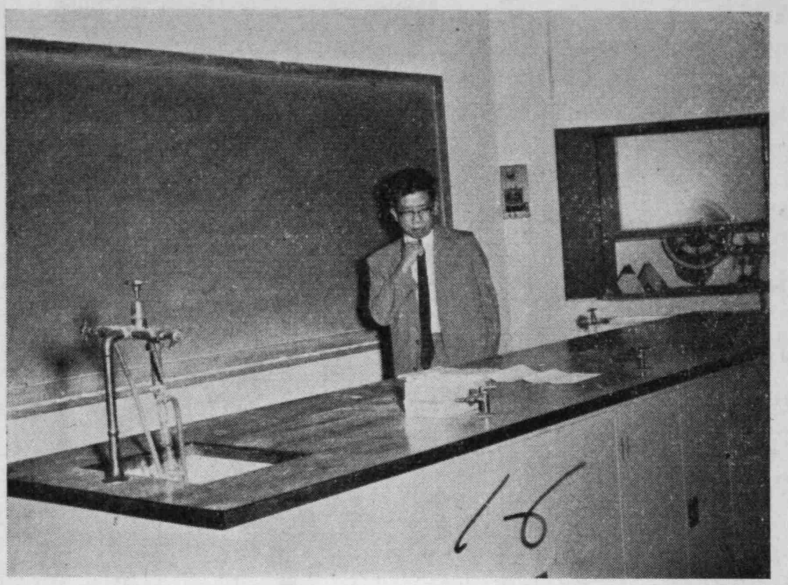


CHLOROMYCETIN SUCCINATE

- INTRAVENOUSLY
- INTRAMUSCULARLY
- SUBCUTANEOUSLY

Parke-Davis

PAIN



Pain is a primitive sensation, and man through the centuries had been curious about it. Man's earliest concept of pain is that it is a manifestation of divine wrath. Certain pains are easily explained by physical means, such as when an arrow, a needle or a piece of wood pierced the body. Certain other pains are not so easily explained by such obvious causes, and an analogy is drawn that it is due to the invasion of the body by a spirit, either as a punishment from God, or introduced by magical means. The method of treatment accordingly is either to atone for our sin or to use stronger magic to remove the causal agent. We can still find evidence of this belief among the more primitive races inhabiting the earth, though it is rash to say that the belief of primitive races needs necessarily be that of our forefathers, for during the process of evolution, degeneration does often occur, and what we meet in the primitive races are but the results of degeneration.

In the evolution of man's idea on pain from this primitive concept we shall find that it is influenced by his thoughts on his search for his soul, on the working of nature, and the working of his body under normal and abnormal conditions.

The Ancient Chinese concept of man is that he is composed of two principles; Yang and Yin, and health is a balance between these two principles, whereas disease is an imbalance. In man there are five organs—heart, liver, spleen, lungs and kidneys. The heart is the organ for understanding and emotion, in which is the vital principles, and the vessels carry the vital principles to all parts of the body. Pain is caused by an imbalance of the two principles, with an excess of the yang principle. The heart is the organ where pain is felt. This concept that the heart is the seat of pain is found in other ancient civilisations. The Ancient Egyptian teaching, as is shown in the Edwin Smith and Ebers papyri, is that the heart is the centre of all sensations. This concept of pain and diseases is found among the Chinese people. This is the rationale for the relief of pain by acupuncture, to drain off the excess heat in order to restore the equilibrium.

The brain as an organ has been neglected by the ancient civilisations, and it is only when we come to the Ancient Greeks do we find any mention of the brain as the seat of sensation and emotion. Even during this period it is not generally accepted, with many dis-

puting its place of importance. The doctrine of the four elements; air, water, earth and fire, was probably introduced to Greece by Pythagoras from the East. Alcmaeon (500 B.C.) a disciple of Pythagoras, taught that sensations were due to invasion of the body by these elements, and different elements produced different sensations. The end organ for sensations was the brain. Democritus (460 B.C.) introduced the idea of atoms, the four elements were made up of atoms. In the body there were two types of atoms, the body and the soul atoms. Sensations are produced by the intrusion of foreign atoms into the body, which on contact with the soul atoms produced sensation. The types of sensation produced depend on the shape and size of the intruding atom. Sweetness is produced by round atoms, bitterness by angular atoms and pain by sharp, irregularly hooked angular atoms. The soul atoms are found in all parts of the body, but they are specially concentrated in the brain, and thus the seat of sensation and consciousness.

The opposing school of thought unfortunately was led by Aristotle (384 B.C.). Aristotle ignored the brain as playing any part in the vital process of the body. He considered the brain as a cooling apparatus. He emphasized the heart as the organ for sensation, and the blood vessels the conducting system, and the immediate sensitive agent is the vital heat in the blood. The main function of the brain is to cool the body when there is an excess vital heat. This teaching of Aristotle greatly influenced the thought of later thinkers, because of which man's knowledge of sensation is probably delayed for more than 20 centuries.

Herophilus (335 B.C.) was the first man to have dissected the brain and the spinal cord, and traced the course of the cranial and spinal nerves and recognised them as instruments of movement and sensation. This teaching of Herophilus appears to be last to later teachers, and it is not till Galen (A.D. 130) did we find the re-establishment of the physiological importance of the central nervous system. Galen, besides resurrecting the teaching of Herophilus, was the first person to undertake not only dissection, but also animal experimentation to support his theoretical postulation. He was probably the first person to do laminectomy, transection of the cord, and hemisection of the cord, thus anticipating the experiment of Brown-Sequard by 15 centuries. In transection of the cord he described complete loss of sensation and movement below the level of lesion, and in hemisection he noticed loss of movement on the same side, but failed to notice the contra-lateral loss of sensation.

After the death of Galen in 210 A.D. until 14 centuries later did we have any advance in our knowledge on the mechanism of pain, though during this period there were great advances in our knowledge of anatomy of the nervous system, speculation during this period was closely linked with contemporary advances in physics and chemistry.

Vesalins (1514) described in detail the anatomy of the brain. Valcher Coiter (1534) described the anterior and posterior roots of the spinal cord. In 1628, after the invention of the microscope, Marcells Malpiphi described the histology of the cortex, but he erroneously described the cells of the grey matters as glands and the nerve fibres as ducts, and pain as due to the obstruction of the flow of nerve juice.

It is of interest to note that though the spinal cord had been studied by Galen by animal experiments, and the spinal nerve by Coiter, nothing seem to have been done to elucidate their functions until Charles Bell (1809) described his experiments on the V and VII cranial nerves, section of the V produced loss of sensation in the face, but no paralysis of the face. Similar studies were made at about this period by Magendie. The names of these two were linked together in the Bell-Magendie Law of the functions of the spinal nerve roots.

After Bell and Magendie great strides were made in the mapping out of the pain pathway from the posterior root to the higher centres in the thalamus and the cortex. This work of mapping of the pain pathway was greatly helped by the progress in other fields of science; the development of more precise microscopes

and improved histological techniques especially the methods of staining of nerve tissues. These enabled Waller to study the degeneration of the nerves after sectioned, Brown-Sequard (1860) in hemisection and transection of the cord. These helped in the work of Gower, Edinger, Bechterev and other neurologists in the latter part of the 19th century, so that by the end of the 19th century the spino-thalamic tract was well mapped. This was the anatomical basis for the performance of the first cordotomy for the relief of pain by Martin in 1911, with very good results. The demonstration of the cortico-thalamic tract and the hypothalamic pathway by Flechsig and von Monakow in the early part of this century completed the terminal part of the pain pathway.

The anatomical basis for pain was known by the beginning of this century, but on this alone cannot be explained the great varieties of pain sensation that can be experienced by the individual. In order to try to explain this different neural organisation within the nervous system have been postulated; Mackenzie's cerebro-spinal and autonomic systems, Head's protopathic and epicritic systems, Leriche's sympathetic nervous system, Lewis's nocifensor system, and the more recent reticular neuron formation system. On the surface it appears that we know almost everything about pain, but if we analyse what we know of pain, we shall find only a few tracts, but nothing much of how these tracts function or what pass through them, or where they really end. We have still a great deal to learn about pain in this very narrow aspect of its anatomy and physiology.

By Dr. C. C. WONG.

Pain?

Group photograph taken before the Presidential Address on 23rd April, 1959.

RESEARCH IN OBSTETRICS

by A. M. THOMSON

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About 25 years ago, when I was a medical student in the City of Glasgow (a place which Professor MacFadzean has made familiar to students in Hong Kong), maternity was a dangerous and discouraging business. Sepsis, haemorrhage and eclampsia were encountered almost daily. They appeared mysteriously and suddenly and neither prevention nor treatment seemed particularly effective. Labour was often a fearful ordeal for the mother, from which she had to be rescued by means of difficult and clumsy manipulations, wherein brute strength seemed to be at least as important as the proverbial delicacy of the surgeon. At least one mother in each 200 died, and at least one baby in each 20.

All that has changed. Thanks to the discovery of the sulphonamides and the antibiotics, sepsis is rarely serious now. Blood transfusion has greatly reduced the danger of haemorrhage. Eclampsia can usually be prevented by careful antenatal management and by induction of labour when pre-eclampsia cannot be satisfactorily controlled. The worst forms of difficult vaginal delivery can be avoided with almost complete safety to mother and child by resort to the lower segment Caesarean operation. A maternal death is a rare disaster calling for a careful review of the case to see if any mistake has been made.

The problems of research in obstetrics.

The early obstetricians were preoccupied with the problem of difficult labour. When labour came to a standstill, how was one to get the baby out? To solve this difficulty, the Chamberlens invented, and a long line of successors improved, the obstetric forceps. Numerous manipulations were described to manoeuvre the foetus into the most favourable position for delivery. Instruments, with names as formidable as their appearance (cephalotribe, craniocclast), were invented to destroy the unborn baby when necessary, in the interests of the mother.

Slowly, Caesarean section came to provide an acceptable way of avoiding the worst forms of mechanical difficulty, but it only became a really safe procedure when modern anaesthetics and way of overcoming infection had been developed.

The problem of difficult labour, taken together with the primarily operative nature of most forms of gynaecological treatment, explains why the outlook of obstetric specialists has for long been dominated by surgery, to the extent that even today the more ambitious members of the speciality consider it necessary to obtain an F.R.C.S. as well as an M.R.C.O.G.

But the main problems of today are medical and physiological rather than surgical. The origins of pre-eclampsia and eclampsia—the main causes of maternal mortality—are as mysterious as those of puerperal sepsis a century ago. To uncover them, the obstetrician needs to have a sound knowledge of the hypertensive and renal diseases, and of the factors which alter water and electrolyte metabolism. Prematurity has replaced birth trauma as the main reason for losing babies. Although much progress has been made in the management of the live-born premature, we know little about the reasons why foetal growth is sometimes seriously impaired, or why labour sometimes starts long before term. We do not even know exactly how normal labour at term is started.

The pathologist has proved to be unusually powerless in determining the causes of stillbirth and neonatal death. The most careful autopsy will show, in a majority of cases, that the "cause" was asphyxia, atelectasis, immaturity, or intra-uterine death with maceration. It cannot show *why* the baby was asphyxiated, or was born immature, or why it died in utero. A different approach is necessary.

Reference to any standard textbook of obstetrics or physiology will show that we know very little about problems such as these. Indeed, few textbooks of physiology have much to say about human reproduction, after they have dealt with fertilisation and endocrine changes. Yet there are many strange phenomena which demand study in the human subject. For example, the average mother puts on roughly twice as much weight during pregnancy as can be accounted for by the foetus, placenta and liquor amnii. What is the explanation and purpose of this disproportionate gain? What happens if the mother gains much more or much less than the average amount? Does the well-being of the foetus depend mainly upon the nature and quantity of the diet taken by a pregnant woman, or can it ensure its own survival by growing, when necessary, at the expense of the maternal tissues?

In addition to these medical and physiological questions, psychology and sociology are growing in importance in relation to obstetrics. Much has been written in recent years about "natural childbirth": it is claimed that the confident, relaxed mother will have an easy and painless delivery compared with a worried, tense mother. Is this a psychosomatic truth, or a wild exaggeration of the axiom that a humane obstetrician will gain the patient's complete confidence, so that she can at least face the ordeal of labour in a cheerful and philosophical frame of mind, caring more about the happy outcome than the present pain? In modern industrial society, the more ambitious and educated parents want no more babies than they can reasonably expect to rear satisfactorily; only the ignorant and unambitious are content to have another baby every year or two, until a merciful menopause supervenes. In a society such as that of Hong Kong, what do parents at different levels *want*? Is there a discrepancy between what they want and what they achieve? I think it is generally true that if parents seriously want to curtail their families, they will mostly do so, even when methods of birth control are (as at present) expensive and clumsy. The birth rate is falling even in countries such as Eire, where contraceptives are illegal. Conversely, large families will be common even if contraceptives are readily available, if the parents have no strong desire to limit their families.

The main problem of obstetrics in Hong Kong is the torrent of babies. So long as these babies are wanted, and can be decently reared and reasonably well fed and educated, no one can possibly object. But how many babies are unwanted, and thereby deprived of their true birthright? Can the parental outlook which was essential during centuries of civil strife, rural economy and high mortality survive in a peaceful milieu, with large numbers living in the concrete boxes of urban housing, and with a benevolent medical service striving very successfully to reduce the wastage by death? Obstetricians ought to be very interested in problems such as these, if only for the reason that social and psychological changes will sooner or later cause dramatic changes in the practice of obstetrics. Already, in Hong Kong, post-partum sterilisation, and resort to Caesarean section in the interests of the baby, are becoming much more common than they were. It may be that, as in Britain, the grand multipara will become much less common during the next decade or two.

Research and the clinician.

It is true that much of the research that has to be done calls for highly specialized techniques and facilities, and that relatively few busy clinicians can either master the skills or obtain the time and resources which are needed. But much can be done by the systematic study of ordinary clinical records. Such

study not only helps to push back the frontiers of knowledge and to indicate the problems which require intensive investigation by laboratory or other methods; it is also of direct clinical value. Regular study of case-records improves the standard of observation in the wards and the operating theatres, and leads to the maintenance of more clear and complete and thoughtful records. It enables tendencies and trends to be discerned, which sharpens clinical judgement and in many instances shows how treatment may be improved. The clinician can appeal to objective fact, instead of having to rely on subjective impressions. How many clinicians can justify a statement beginning with "In my experience . . . ", by quoting their experience in precise numerical terms?

The epidemiological approach.

Epidemiology is classically associated with the infectious diseases, where its triumphs are well known. Thus, it showed that cholera and typhoid fever can be prevented by the provision of a clean water supply, long before the organisms causing these diseases were identified. More recently, the method has been applied to non-infectious diseases, perhaps the most striking example being the demonstration of a relationship between cigarette smoking and lung cancer.

In essence, the epidemiologist asks the following types of question:

What is the incidence of a given disease or condition?

Is the incidence influenced by geography, or by time?

What kind of people have a high incidence and what kind a low incidence?

Given clear answers to questions such as these, it is often possible to deduce a great deal about the nature of the disease and to suggest methods of prevention. The essential point to notice is that the epidemiologist thinks primarily in terms of incidence, so that he must consider not only actual cases of the disease but also the population from which they are drawn.

I will illustrate the uses of epidemiology by giving a brief account of some studies in the field of obstetrics. It is perhaps worth stressing that none of these studies call for a knowledge of statistical mathematics. The clinician is too often frightened away from figures by a vague feeling that statistics are difficult; or by the irrational prejudice concerning "lies, damned lies, and statistics". The fact is that most epidemiological studies call for less mathematical skill than the keeping of accounts; and figures cannot mislead unless they are badly presented or badly interpreted.

First of all, an example of work done 170 years ago.

Puerperal fever.

We are so accustomed to the idea of infection nowadays, that it is difficult to imagine why puerperal fever was such a mystery before Pasteur. Yet, it was just as much of a mystery in the 18th century as pre-eclampsia is today, and much more dangerous. Great epidemics would appear mysteriously in towns, and especially in hospitals, and after killing many mothers would as unaccountably disappear.

Most obstetrical text-books say that Semmelweiss was the first to show that puerperal fever was an infectious disease. This is not true. This was established about 50 years before Semmelweiss by Alexander Gordon, an obstetrician in Aberdeen, Scotland. Reduced to its essentials, Gordon's method was extremely simple. He kept careful notes of all cases occurring in Aberdeen, and by studying these notes was able to draw two conclusions. First, puerperal fever was often associated with erysipelas, and was therefore presumably due to the same underlying cause, though the portal of entry was different. Second, "this disease seized such women only as were visited or delivered by a practitioner, or taken care of by a nurse who had previously attended patients affected with the disease. In short, I had evident proof of its infectious nature".

Gordon showed a fine example of scientific honesty by confessing that he himself must have unwittingly spread the disease on occasion, and he suggested that "the nurses and the physicians who


1
ISOLATION
CHILDREN
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13
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SCOTCH

have attended patients affected with the puerperal fever ought carefully to wash themselves and to get their apparel properly fumigated before it be put on again". This must be one of the earliest references to the importance of disinfection, and it is necessary to remember that it was made nearly a century before the great discoveries of Pasteur and the application of antiseptics to surgery by Lister.

It would be pleasant to record that Gordon's very excellent work was received with the acclaim it deserved. But in fact the doctors and midwives of Aberdeen were scandalized by the suggestion that they had been responsible for spreading a dangerous disease, and they made known their opinion of Gordon in no uncertain manner. He had to give up his practice, became a naval surgeon, and died within a few years of tuberculosis, a disappointed man. Even his *Treatise on Puerperal Fever* (1795) was soon almost forgotten. This story no doubt indicates that research workers should not necessarily expect to be thanked for their trouble!

Dystocia.

Epidemiology is not simply a matter of assembling some records and looking through them in the hope that something will turn up. Alexander Gordon no doubt had a strong clinical impression that puerperal fever was infectious, and that the medical attendant might be responsible for its spread, before he sought confirmation from his records. Certainly it is always helpful to have a hypothesis which can be supported or refuted by appealing to the facts. In the absence of a hypothesis, epidemiology may result in what has been described as "vast hunks of data untouched by human thought"!

Before I visited Hong Kong, my colleagues in Aberdeen had established two facts about difficult labour in Scottish mothers. One was that its incidence is much higher in elderly primigravidae, and the other that, irrespective of age, tall mothers are much less liable to dystocia than short mothers. I knew that Chinese mothers are as a rule shorter than Scottish mothers, and that they usually have their first babies at a younger age. It therefore seemed interesting to find out whether age and height have the same kind of influence upon difficult labour in Hong Kong as in Scotland.

The first step was to find a group suitable for study. Ideally, an epidemiologist likes to study the whole of a defined population. It was clearly impossible to study all births in Hong Kong, nor could I isolate any smaller defined population. In practice, it was necessary to restrict operations to the Tsan Yuk Hospital, where heights of mothers have been recorded since the beginning of 1958, and where case-records are exceptionally complete and accurate. But even the whole of the Tsan Yuk records could not be studied in a limited time, and it was necessary to simplify the problem. Simplification was achieved by ignoring the following groups of records:

(a) All undelivered cases. The records are incomplete.
(b) All unbooked cases. These are highly selected.
(c) All multiparae. Because of the pressure on beds, it is necessary to select multiparae at booking.
(d) All multiple pregnancies. These are relatively rare and in any case present many special features. Their inclusion would only complicate matters.

After excluding these groups, I was left with booked primiparae having a single birth. During the 18 months from January 1958 to July, 1959, there were 3534 such births, of which 114 (3.2%) were delivered by Caesarean section.* It seemed reasonable to use the Caesarean section rate as a rough index of difficult labour. Examination of the records showed that in the great majority of Caesarean sections there had been an element of mechanical difficulty or uterine inertia, or both. So the problem could now be phrased as follows. Does age, in primigravidae, affect the Caesarean

*Figures given in the text and tables are provisional.

section rate? When the influence of age has been taken into account, does the height of the mother have any effect on the rate?

The first question was readily answered. Table (1) gives the incidence of Caesarean section in age groups and shows that it is nearly 20 times higher in primiparae aged 36 years or over, than in primiparae aged 20 years or less.

TABLE 1

Incidence of Caesarean section in primiparae, by age.

Mother's age	Caesarean section rate, %
-20	1.14
21-25	1.87
26-30	4.75
31-35	9.45
36 and over	17.6

This finding is not entirely unexpected, since it is well known that the elderly primipara is a poor risk in labour. But what do we mean by an elderly primipara? Why, for example, is the Caesarean section rate nearly five times as high in primiparae aged 26-30 years as in the youngest group? The steady increase in the rate suggests a rather rapid decline in the ability to deliver *per vaginam,* a decline which begins very soon after sexual maturity is attained. This is not likely to be due to an increase with age in the incidence of disproportion or malposition, but rather suggests that uterine action is becoming less efficient, or that the pelvic ligaments are becoming less elastic. At all events, the trend is clearly very similar in Chinese mothers to that in Scottish mothers. I have no space to discuss the matter further, but if you are interested, you can consult the review by Baird, Hytten & Thomson (1958) which shows, among other things, that a whole range of phenomena, and not merely the ability to deliver spontaneously, deteriorate with increasing age in primiparae.

The next problem is that of height. It is commonly believed that the Chinese, and especially the southern Chinese, are relatively shorter than Europeans for genetic reasons. If they are short simply as a matter of race, this should have no significance from the point of view of child-bearing. But it is also commonly stated that the diets of Chinese in the poorer classes are unsatisfactory. If this is so, some of their shortness may be due to impairment of growth, to malnutrition, and stunting may lead to difficulty in labour.

Analysis of the Tsan Yuk Hospital records showed that about 30% of primiparae were less than 60 inches in height and about 30% 62 inches and over. In the series, there were 102 cases of Caesarean section where the height was recorded. If height has no importance in relation to labour, it would be expected that the heights of these 102 cases would be distributed in the same way. Table (2) shows the expected numbers and the numbers actually found. It is clear that there are nearly twice as many sections in women under 60 inches in height as would be expected on a random basis. The right hand side of Table (2) shows, further, that the proportion of Caesarean sections in which there was a mechanical factor fell from 90% in the shortest group to 30% in the tallest group.

These findings suggest strongly that the relatively small average stature of primiparae in the Tsan Yuk hospital is by no means entirely a matter of race. It is highly probable that many of these women were stunted during growth, with the consequence that they have pelves which are not sufficiently capacious to permit spontaneous delivery. The trends shown in Table (2) are repeated within age-groups, so that they are not attributable to a concealed influence of age.

These findings point to the importance of a study of pelvic size and foetal size in Chinese mothers. Professor Chun has a large amount of data, and her conclusions, when available, should be very illuminating.

Meanwhile, if you are interested, some aspects of height in Scottish mothers have been discussed by Baird (1952),

TABLE 2

Expected and observed incidence of Caesarean section, by height.

Mother's height	All Primiparae	Caesarean section		Percentage of Caesarean
		Expected No.	Observed No.	Sections where mechanical difficulty present
Under 60″	30%	31	58	90%
60-61″	40%	30	31	61%
62″ and over	30%	31	13	30%
	100%	102	102	

Bernard (1952) and Thomson (1959). Among other curious findings is the one that tall women are more liable to have twins than short women (Anderson, 1956). It seems that good growth has much greater importance than in the field of pelvic anatomy.

Discussion.

Medicine will retain its claim to be a science as well as a humane art only if it continuously refreshes itself by establishing and studying new facts. The practice of medicine, without research, would soon become bogged down in static authority, as happened for many centuries in Europe between classical times and the Renaissance. It has been well said that research is to a University department what morale is to an Army.

It is not necessary to restrict research to the laboratory. The examples given in this paper (and many more could have been cited) show that clinicians, using ordinary case records and simple methods of analysis, can give precision to their experience and can quite readily discover trends of considerable interest and importance.

I would like to express my gratitude to Professor Daphne Chun and her colleagues, and to members of the Records Department of the Tsan Yuk Hospital, for their interest and help.

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"THE PRIVATE".

THE MEDICAL WORKSHOP

By

S. K. F.

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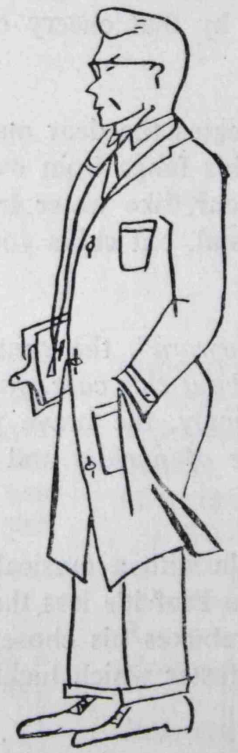

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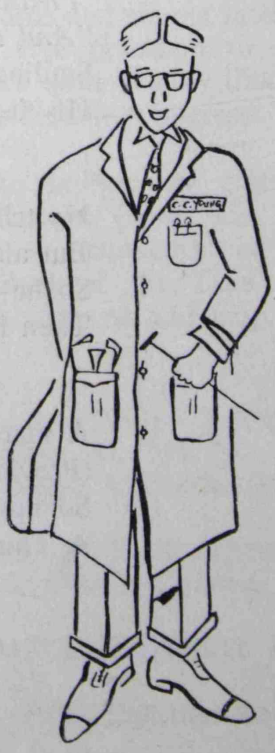

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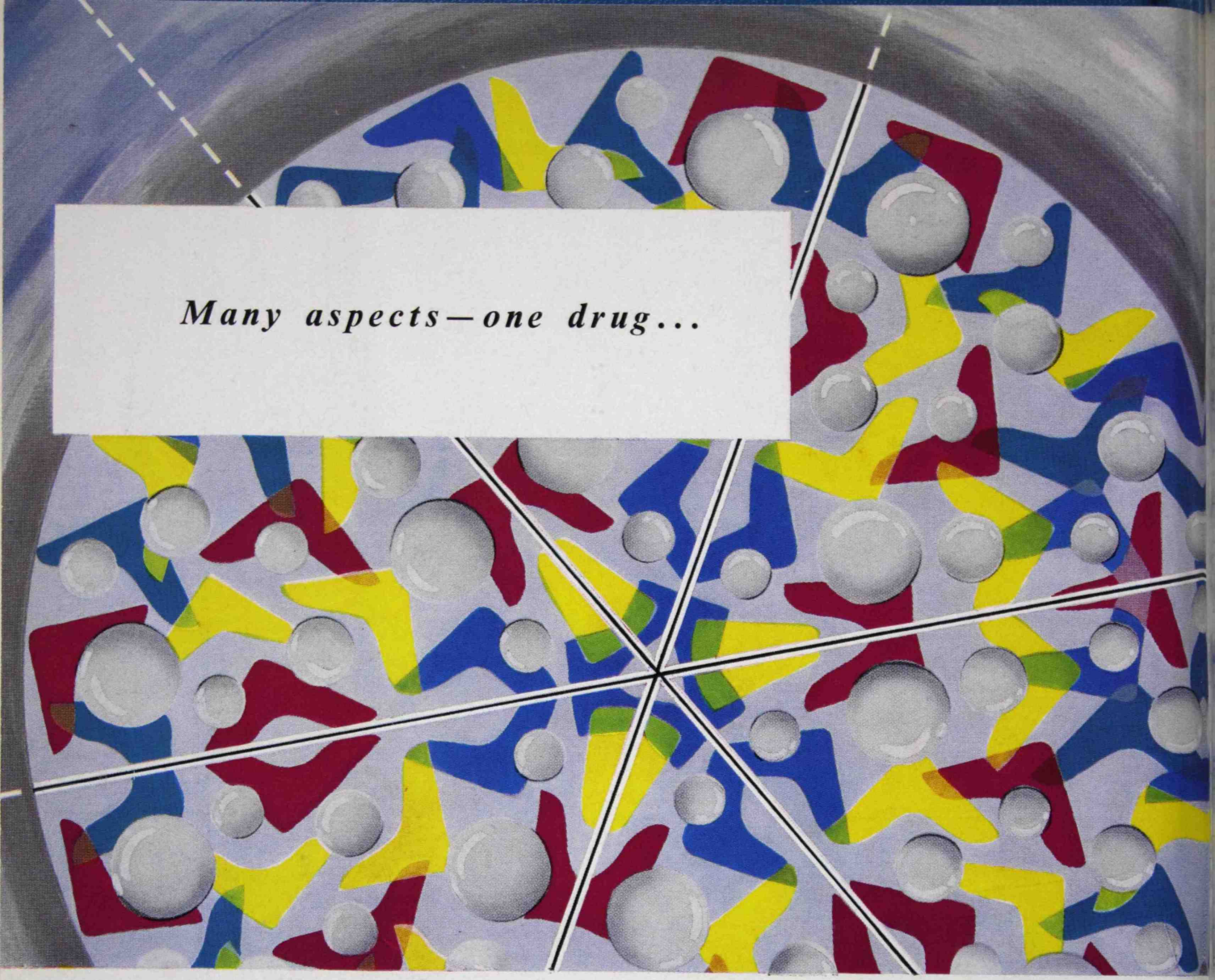

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NOTES ON THE TREATMENT OF OPIUM ADDICTION

By

J. E. McMAHON, M.B., B.CH.

Chief Medical Officer, Malacca

Introduction

During the 1929-1932 slump a considerable number of Chinese labourers found themselves unable to afford the luxury of opium smoking and sought to be cured of their addiction. The writer, both in Taiping and Labuan, had a fair amount of success with the blister and atropine method of treatment. Briefly, this consisted of raising a large blister on the abdomen with Liq. Epispasticus and injecting intradermally about 5 c.c. of the blister fluid; in addition Inj. Atropine was given twice daily in doses increasing from gr. 1/100 to gr. 1/33 during the first week of treatment, and in doses decreasing from gr. 1/33 to gr. 1/150 during the second week.

In Malacca during 1956 when illicit opium was in short supply and therefore very expensive, an opportunity again arose for treating these opium addicts. Initially it was decided to try atropine and chlorpromazine (Largactil) as over the years it had become apparent that the blister fluid had only a psychological value. A few treatments sufficed to show that chlorpromazine was much more useful than atropine, and eventually atropine was discontinued altogether except in patients complaining of abdominal gripes, when it was given in the form of Mist. Mag. Trisilicate C. Belladonna (10 mins to Z1). The treatment now given relies largely on chlorpromazine.

Procedure

On admission each patient is given a thorough physical examination which includes a Mass Miniature Radiograph of the chest. Particular attention is paid to any complaint such as epigastric pain, lumbago, sciatica, or other painful condition which might have been the original cause of the addiction. A short history is taken noting the amounts of opium smoked and eaten and for how long, also the reasons for starting to smoke. After admission, the use of opium is forbidden, and patients are warned that possession will mean discharge. A treatment schedule has now been developed which has proved adequate for most of the patients seen. It is mainly symptomatic in nature, and has been evolved gradually to deal with the most common complaints during the withdrawal period. It consists of chlorpromazine as a replacement tranquillizer, phenobarbitone as a sedative, butobarbitone (soneryl) and occasionally pethidine for insomnia and vitamin B_1 to counteract thiamine deficiency and to ease the pains in the legs. Amphetamine is given in the morning to counteract the hangover and to waken up the patients, as otherwise they sleep during the daytime and find it difficult to sleep at night. Incidentally it was also found to reduce the damage caused to linen by cigarette burns. Dosages vary according to the daily consumption of opium, as recorded below:

Patients smoking less than 15 grains of opium daily are given:—

(1) Tab. Chlorpromazine ... 25 mgm. Q.I.D. for 4 days followed by
Tab. Chlorpromazine ... 25 mgm. T.I.D. for 3 days followed by
Tab. Chlorpromazine ... 25 mgm. B.I.D. for 3 days.

(2) Tab. Butobarbitone gr. 3 at 9 p.m. for 10 days and repeated if necessary during the night.

(3) Inj. Vit. B_1 ... ... 25 mgm. B.I.D. for 12 days followed by
Inj. Vit. B_1 ... ... 25 mgm. Daily for 4 days.

(4) Tab. Phenobarbitone ... gr. I.T.I.D. for 12 days followed by
Tab. Phenobarbitone ... gr. I.B.I.D. for 6 days followed by
Tab. Phenobarbitone ... gr. I.O.N. for 10 days.

(5) Tab. Amphetamine 10 mgm. @ 8 a.m. for 12 days.

Those taking more than 15 grains are given:—

(1) Tab. Chlorpromazine ... 50 mgm. Q.I.D. for 4 days followed by
Tab. Chlorpromazine ... 50 mgm. T.D.S. for 3 days followed by
(times 10 a.m., 4 p.m. and 9.30 p.m.)
Tab. Chlorpromazine ... 25 mgm. Q.I.D. for 3 days followed by
Tab. Chlorpromazine ... 25 mgm. B.I.D. for 4 days.
(times 10 a.m. and 9.30 p.m.)

(2) Tab. Butobarbitone gr. $4\frac{1}{2}$ at 9 p.m. for 7 days Repeated P.R.N. at 11 p.m. for 10 days.
Tab. Butobarbitone gr. 3 at 9 p.m. for 7 days Repeated P.R.N. at 11 p.m. for 10 days.
Inj. Pethidine 100 mgm. After 12 midnight if patient still awake.

(3) Inj. Vit. B_1 ... ... 25 mgm. B.I.D. for 14 days followed by
Inj. Vit. B_1 ... ... 25 mgm. Daily for 4 days.

(4) Tab. Phenobarbitone ... gr. I.T.I.D. for 12 days followed by
Tab. Phenobarbitone ... gr. I.B.I.D. for 2 days followed by
Tab. Phenobarbitone ... gr. I.O.N. for 10 days.

(5) Tab. Amphetamine 10 mgm. @ 8 a.m. and 10 mgm. @ 12 noon for 10 days, followed by 10 mgm. @ 8 a.m. for 7 days.

The Withdrawal Stage and Its Management

If opium consumption has been at all heavy, the patients are miserable during at least the first three days. They find it difficult to sleep at night, they waken early in the morning and disturb other patients, and they are very bad-tempered. They may be stuporous, feel giddy and fall out of bed, or fall down in the bathroom or on the way to the lavatory. Although watering of the eyes and nose is reputed to be a fairly constant withdrawal sign, less than 20 per cent of these patients were troubled with this; the outstanding constant symptom noticed was aching pains in legs and back and less frequently pain in abdomen, chest and upper limbs.

The patients are difficult to manage during this early period, if not firmly handled they will be extremely rude to the female nursing staff. On one occasion when there were ten patients in the ward, all in their first week of treatment, ward discipline broke down completely and the police had to be called in to restore order. On other occasions even hospital assistants were threatened with

physical violence. However, if patients are warned on admission that any infringement of ward discipline will result in immediate discharge, and if this promise is kept, trouble should be minimised.

Most opium addicts seem to smoke cigarettes, and during the first week in their stuporose condition cigarette burns of the hospital linen, pyjamas, sheets, and mattresses, are a very frequent occurrence. It was found necessary to introduce a system of fines to make them more careful and to help pay for the damage. Towards the end of the first week there are less complaints about their aches and pains, their outlook is brighter and they enter the second week as convalescents.

Later Stages and General Remarks

During the second and third week of treatment there is usually a noticeable fullness of the face (moon face), this does not seem to be entirely due to an increase in body weight, although the appetite which is usually poor in the first week is voracious in the second week. The moon face disappears some 3-4 months after treatment and was often useful as a check in the follow-up clinic.

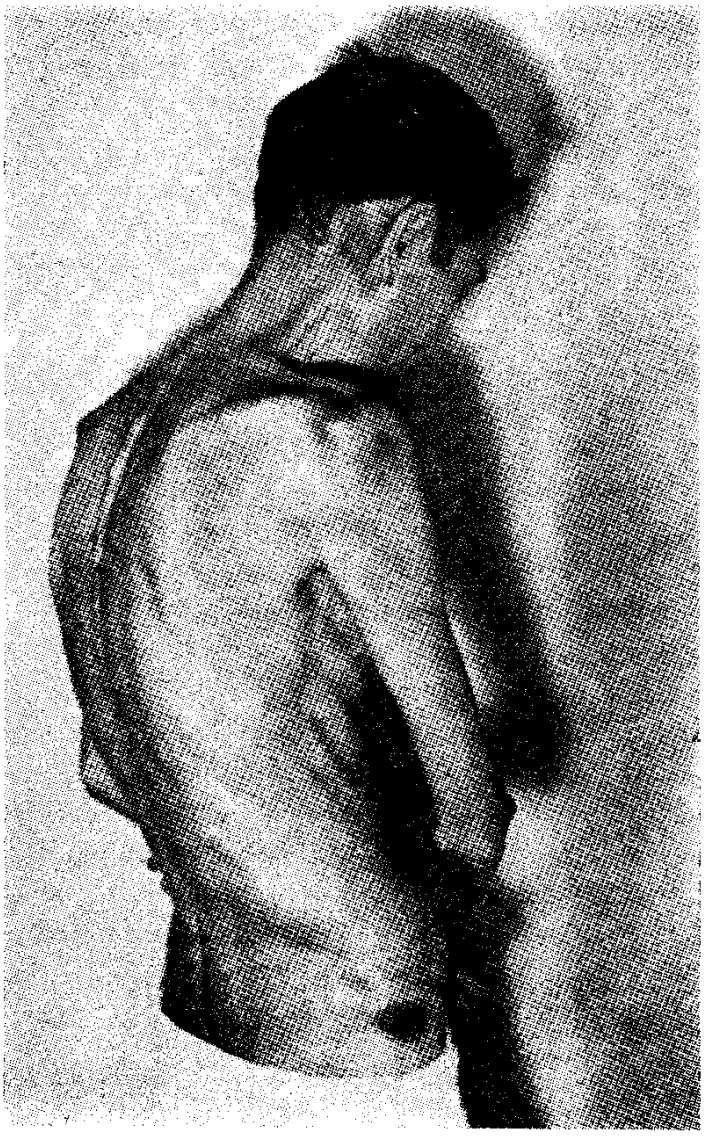


FIG. 1. *Opium addict showing stigmata.*

Patients with a record of heavy consumption of opium were kept in hospital usually for 20 days, whereas those with a smaller consumption were discharged at the end of the second week. On discharge all patients were given a small supply of luminol and Vitamin B_1 tablets to enable them to settle down at home. A follow-up clinic was held in the ward daily for the treatment of general complaints of the ex-opium addicts. This was established to try and help them over any illness which might start them off again, and at the same time to keep in touch with them in order to assess the value of the treatment.

Most opium addicts are rather thin, and due to lying on their side during and after smoking they often develop discoloured wrinkled patches overlying the mastoid process, the angle of the acromion and the anterior part of the iliac crest (see Fig. 1). This sign was sometimes useful in the follow-up clinic as an indication of a relapse. Only four patients out of 200 were discovered to have active pulmonary tuberculosis, a much smaller number than had been expected.

Some Reasons for Addiction

Many Chinese labourers are convinced they can do more hard work with the help of a few pipes of opium and when used in this way is analogous to a British working man's beer.

Patients of a higher social standing gave a history of starting to smoke for pleasure, and on further interrogation it transpired that this was often with the idea of increasing sexual pleasure; opium has a similar effect to alcohol in prolonging the sexual act for the male. Another reason for starting the opium habit was to suppress nocturnal seminal emissions. Apparently some Chinese believe that these are extremely harmful and opium is well-known as a means of preventing them. At the follow-up clinic several patients were very worried at the recurrence of emissions after being cured of their addiction.

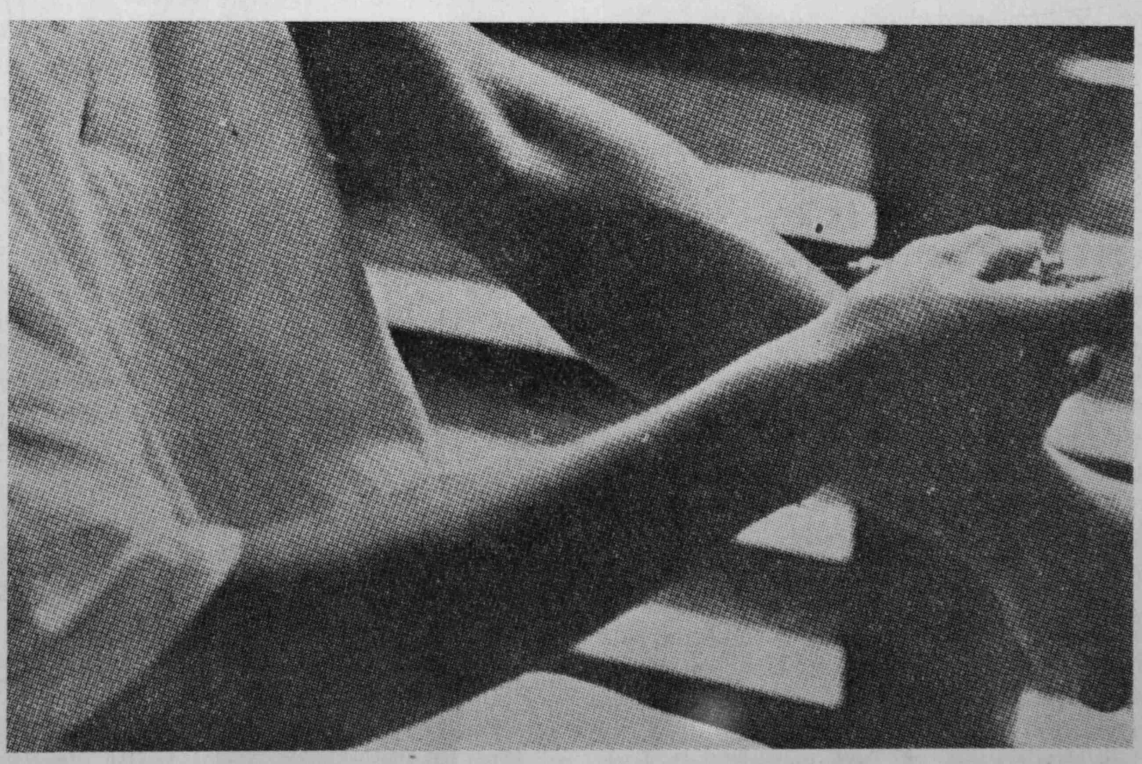


FIG. 2. *A technic of Self-injection.*

FEATURES OF INTEREST

The Addict Who Did Not Want to be Cured

One patient who got himself admitted for opium addiction but actually wanted treatment for another condition, was found to be having his opium sent into the ward in the draw string of his underpants, which were washed at home. This string was heavily impregnated with opium and the patient merely cut off the required dose and swallowed the piece of string!

Morphia Addiction

There were two examples of intravenous crude morphia addiction, both of whom had learnt to self-administer the injection in Singapore. The photograph (Fig. 2) illustrates the technique adopted and also the fine scarring of the skin overlying the vein, caused by multiple punctures during the five years of the addiction. One patient when asked to describe his sensations after an injection made the apt reply "Macham kapal terbang"! (flying like an aeroplane); he also volunteered the information that this self administered intravenous crude morphia was a common form of addiction in Singapore, but it does not seem to have spread into the Federation yet. However, it would seem that the law regarding the possession of hypodermic syringes might require revision.

The Financial Angle

Illicit opium is sold to the consumer in small plain greaseproof paper packets. The price of the packet is always $1.00, the usual amount of raw opium in the packet is about 7½ grains (or a little over one "hoon"), but when the wholesale price of opium rises the amount in each $1.00 packet is correspondingly decreased. The wholesale price varies between $500.00 and $800.00 per pound.

Table 1 shows the amounts spent on opium for smoking and eating by one hundred and six patients treated in 1957. Five patients stated that they ate opium but did not smoke it; and eighteen stated that they smoked, but did not eat it. Wealthy addicts do not eat opium whereas the poorer classes tend to eat more and smoke less, the average addict in this series smoked about $3.00-$5.00 worth and at the same time ate about $1.00-$2.00 worth daily ($1.00=2s. 4d.).

TABLE 1

Estimated amount spent per day in: Smoking		Eating	
No. of Patients	Amount $ cts.	No. of Patients	Amount $ cts.
5	Nil	18	Nil
1	50	1	25
4	1 00	8	50
1	1 50	28	1 00
13	2 00	5	1 50
1	2 50	22	2 00
22	3 00	11	3 00
16	4 00	3	4 00
15	5 00	1	5 00
14	6 00	1	7 00
2	7 00	1	8 00
4	8 00	7	(Variable)
2	10 00		
1	20 00	106	
1	30 00		
4	(Variable)		
106			

Summary and Conclusions

A method of treatment for opium addiction is described which has been used for some two hundred patients who came voluntarily for treatment during the last twelve months. The treatment is popular and apparently effective. Although there is difficulty in ascertaining how many patients relapse, the numbers who attend the follow-up clinic, and can be observed and questioned, indicate that a good percentage have remained free from the habit, or at least have been able to reduce their consumption to a less harmful level.

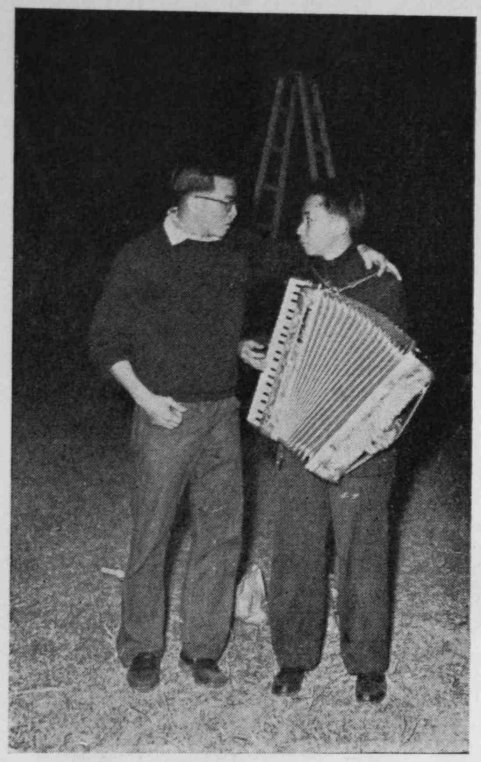
Acknowledgements

I wish to thank the staff of the General Hospital, Malacca who helped me in preparing these notes and the Director of Medical Services for permission to publish.

REFERENCE

LEONG HON KOON (1956). Proc. Alumni Assoc. Malaya 9, 20.

(Reprinted from the Medical Journal of Malaya, Vol. 12, No. 1, 1957.)



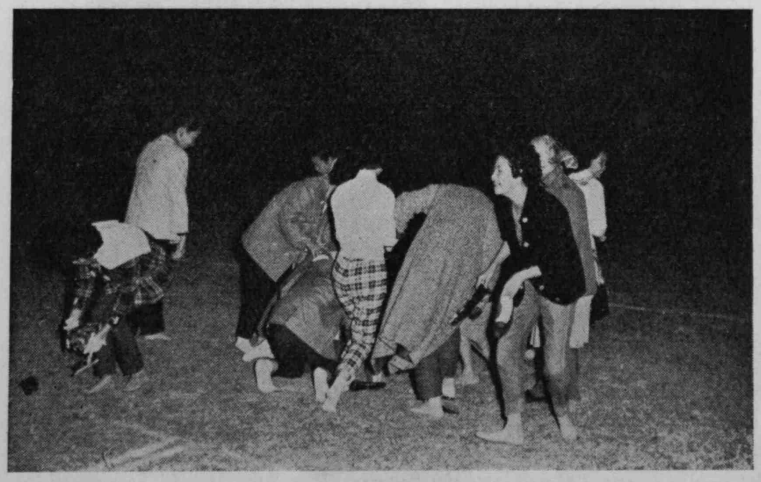
"Who is to blame?"

Medical Society Barbecue

The first Society function of this academic year and the first of its kind to be held by the Medical Society took place on 28th Dec., 1959 at the University Pavilion.

The highlight of the night was undoubtedly the "chow" but what is more important is the development of a relationship, the possibility of a "get-togetherness" in an informal way which the members seldom have a chance to enjoy both amongst themselves and with individuals of other fields.

Recess for "Chow".



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First Year Notes

We have had a very interesting term, which you might like to know about:

Beauty contests have continually been held, under the guise of research etc. . . . photographs have repeatedly been taken of us, our smiles have been admired, our fascinating winks appreciated, and even our tongues and teeth judged.

Quote: five minutes before class: "I think I can begin now"; and the usual greeting for the "punctual" student is a whole blackboard of "knowledge".

Some of our classmates seem *literally* extremely tickled by our Professor's "little stories".

At dissection time, one of the propping blocks always crashes to the floor . . . we seem to miss it very much if this does not happen.

Dafynitions.

Lovers' embrace—an act which enthusiastic students do to hold their cadavers in place or which disinterested students find themselves doing when the cadavers roll in their sleep.

"Arc de Triomphe"—the arch under which man triumphantly enters the world.

Tail—a thing that offers moral support from below.

"A little"—an expression for shyness, exemplified by a person with a little finger placed at the lips.

Very soon, our "efficiency chart" will have to be cased too—itchy fingers have exchanged the "distinction" square with the "fail badly" one.

Some dissection tables are more glamorous than others, and attractive power is correspondingly much greater.

Quotable quotes:

"*Our* Professor likes . . . "

"You must work steadily, like a heart, pumping, pumping, pumping . . . "

Life is not dull at all!

EGI

US

Of course nobody appreciates the medical student.

Why these chaps can't even see that there's always something different about us:

Who stays up later at night than everyone else?

Who gets up before everyone else in the small hours of the morning?

(No need to answer of course!)

Who walks about with such a nicely ironed shirt and dignified tie?

Who else would carry those neat blue cases?

Who wears those fragrant blood-stained lab coats?

(No question to it.)

Who do you think is quickest at grabbing a seat in a lecture theatre?

Who can take down lecture notes and fall asleep at the same time?

(Well, perhaps I shouldn't say this.)

Who'd make the best butchers after failing 1st M.B.?

Er. . . . well, . . . better stop now, eleven weeks left you know!

F. W.

This is my Line

Ignoramus: So you're in University are you?
H.K.U. Medical Student: Yes.
Ig: What are you reading?
Hkums: Gray's.
Ig: What's that?
Hkums: A book.
Ig: Oh, what do you do that for?
Hkums: To pass the first M.B.
Ig: Really? And what do you do after that?
Hkums: Then we go up to "clinical".
Ig: What's that?
Hkums: The next course, I suppose.
Ig: That's interesting, and what do you do after that?
Hkums: Then we take some more exams.
Ig: Don't you ever finish taking exams?
Hkums: Well, not until we've passed our finals.
Ig: And what happens then?
Hkums: Well what do you think, we graduate!
Ig: What as?
Hkums: A doctor, of course.
Ig: Dear me, don't you have to be trained for that?

H.K.U.M.S.

CASE PRESENTED TO YOU BY THE CHAIRMAN

The greatest resistance offered to me on my way to serve the Medical Society as a Chairman was not the wrenching of the brain for a sound plan for the year, not the formation of an efficient cabinet, nor the election rivalry, but a crying patient of the Medical Society by the name of Elixir. Elixir had not been well taken care of of late by the members of the Medical Society. He had been treated lightly and negligently, so he was unhappy and he fell seriously ill. No doubt, you can see that he was lonesome and crying.

For six long years, Elixir has been a bosom friend of the members of the Medical Society. Through him members obtain, from time to time, first-hand medical and pharmaceutical knowledge, amusement of the sorts of jokes and cartoons, and reports of functions of the Society. He has served the Society not only as a bond of unity but also a collector of bursary fund which goes by his honourable name. No wonder, his well-being is the Chairman's concern, and his ill-being, the latter's headache.

The case of Elixir:

Important and relevant points in the patient's history were as follows:—

Chief complaints:

(i) Gradual thinning out and loss of body weight.

(ii) Insidious onset of irregular pulsation.

Present illness:

The patient has always enjoyed good appetite, but in recent years, as a result of the negligence of those who are responsible to feed him properly and regularly, he has been weakened internally through a lack of ARTICLES rich in bulk and nutrition. He thus has become lighter in weight and thinner in build. Externally, his pallor and cachetic appearance have made him unpopular among, and unwelcome to his old friends and former acquaintances. Loss of prestige gives him a pessimistic psychological make-up, and a sensation of impending death is one of his chief symptoms.

Past health:

Said to be good.

Examination of patient:

Chief physical findings were those of starvation.

General condition:

Poor, patient looks pale and THIN.

C.V.S.:

Diminished and retarded general CIRCULATION. Dropped beats detected.

Pulse rate—one per year: Rhythm—irregular.

Other systems:

N.A.D.

Diagnosis:

Deficiency disease secondary to starvation.

Discussion:

The patient has been so weakened by STARVATION through lack of food ARTICLES that he has developed partial heart block which is responsible for the DROPPED BEATS OF 2 out of normally 3 per year. The general CIRCULATION of Elixir is thus diminished and retarded, and ischaemia of the myocardium further aggravates the partial heart block and also gives rise to cardiac arrhythmia which is the cause of IRREGULAR PULSE. Therefore, when starvation is well established, its ill-effects build up a vicious cycle and the patient's condition steadily goes downhill. For Elixir, it is the worst of times and it is the season of darkness, it is the winter of despair and it is the eve before an epochmaking event which must happen in the history of Elixir.

Management:

This must be effective, life-saving, and poly-dimensional or the prognosis of the patient would be poor.

Vitamin A:

Putting the Elixir Bursary Fund into function to answer the generosity of donors and to invite deeper interest and greater support from friends and members of the Medical Society.

Vitamin B complex:

To establish a new post of Managing Editor in the Elixir Editorial Board, and to separate the Elixir account from that of the Society. The Managing Editor shall be responsible for the keeping of the Elixir account, and in joint capacity with one of the two Chief Editors, he is to sign the cheques. Above all, the Managing Editor's office is to promote the general circulation of Elixir. It was a resolution in the 2nd Committee Meeting on 28 Nov., 1959 that subsequent committees shall be advised by the out-going committee to appoint one of the out-going editors to be the Managing Editor so that policy for the management of Elixir may be little affected by the election of a new society committee each year.

Vitamin C:

A campaign for associated members which include:

(1) Graduates.
(2) Teaching staff.
(3) Practitioners.
(4) Medical officers.
(5) Those decided by the Committee.

This is an important project, for these honourable people comprise the vascular beds, where most of our Elixir is circulated to and whence Elixir Bursary Fund comes. They are also a rich source of articles and entries for Elixir.

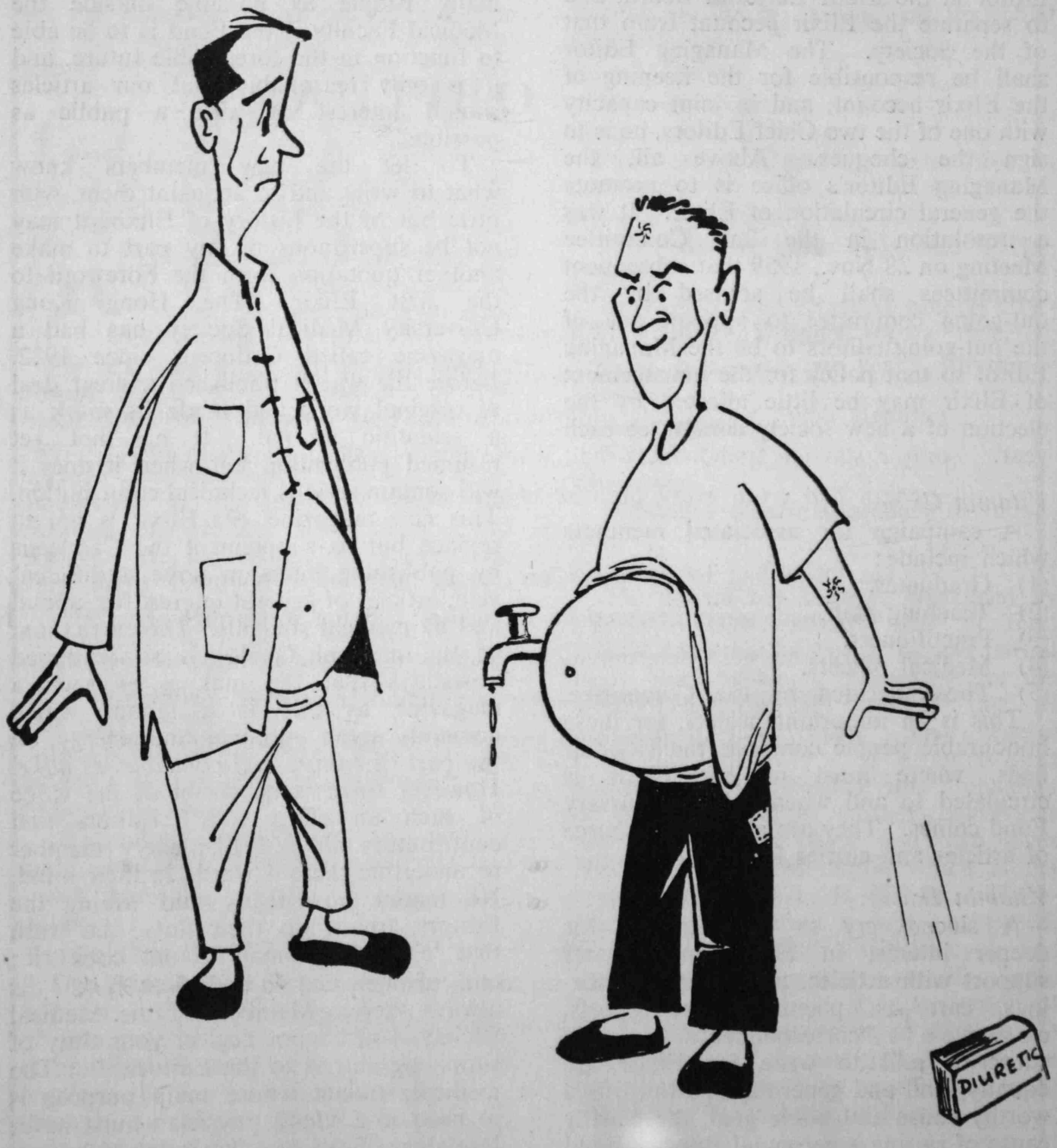
Vitamin D:

A sincere cry to all members for deeper interest in Elixir and greater support with articles, photographs, drawings, cartoons, poems, jokes, reports, comments, correspondence, etc. To subscribe and to write for Elixir are equally kind and generous acts towards a worthy cause and noble goal, the worthy cause of raising a perpetual Bursary Fund for the Medical Society and the noble goal of helping the needy, which is the highest degree of humanity obtainable.

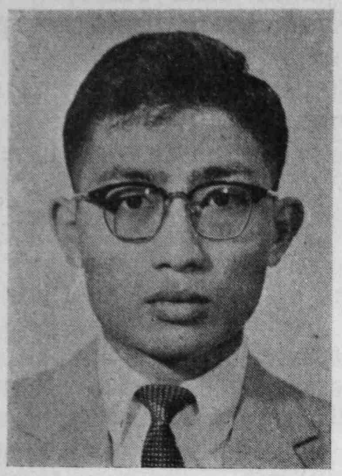
To introduce Elixir to the new and welcome members of the Medical Society. I like to quote that "Elixir is a journal of the H.K.U. Medical Society. It is a social journal whose purpose is to act as a focus for the Medical Society. Since we are non-profit-making, and we devote all the surplus income to the Bursary Fund, we must endeavour to interest as many people as possible outside the Medical Faculty if the Fund is to be able to function in the foreseeable future, and it is only reasonable that our articles should interest as wide a public as possible".

To let the new members know what to write and to acquaint them, with little but of the history of Elixir, it may not be superfluous on my part to make another quotation from the Foreword to the first Elixir "The Hong Kong University Medical Society has had a magazine called Caduceus since 1922. Before the war it published a great deal of original work and made its mark as a scientific journal. It has not yet resumed publication but when it does it will contain serious technical contribution. This new magazine, the Elixir is not to replace but to supplement the Caduceus by publishing items in quite a different vein, articles of general interest for, about, and by medical students. The curriculum of the medical faculty is so crammed nowadays that the making of such a magazine as this is a labour which demands great initiative and energy on the part of *editors and contributors alike.* However there is no doubt of the value of such an effort . . . " Editors and contributors alike, I like every member to underline these 4 words in their mind. No matter how ready and willing the Editors are to do their duty, the truth that 'a clever woman cannot cook rice out of no rice 巧婦難爲無米炊' is always there. Members of the Medical Society, you cannot neglect your duty of supplying entries to the Editors. "...The medical student whose main purpose is to become a sound physician must never lose sight of the fact that a broad human knowledge and understanding will help him to achieve that end and he ought to take every opportunity the University

affords of living a full life. The Elixir provides one of these opportunities". Dear members, Francis Bacon said that "Reading maketh a full man, conference a ready man, and WRITING an exact man". Every medical student is already a full man and we must at the same time be an exact man. Therefore, friends, take up your pen and write articles for your Elixir right now and as long as you are a member of the H.K.U. Medical Society! ! !



If cirrhotic patients have taps!



OBITUARY

Dr. Chan Yue Bun, a Demonstrator in Anatomy, H.K.U., passed away at Queen Mary Hospital on Oct. 19th 1959 at the age of 27. His untimely death was deeply mourned by all of us. We have lost not only a staunch friend but a man whose intellectual capacity and moral strength had given every promise of greater achievements.

Dr. Chan had to surmount very great financial difficulties in his pursuit of medical studies, and he succeeded in doing so through sheer hard work and stern determination. The irony of fate in bringing the results of this labour to nought, seemingly making a mockery of honest efforts, has stunned all those who knew him intimately, with the impact of a close personal tragedy.

It was some twelve months ago that Dr. Chan learned that he had contracted Aplastic Anaemia, a disease which virtually spelled his death sentence. Yet his fortitude, an outstanding example of his moral caliber, had enabled him to face up to this grim revelation and to carry on his normal way of living with no signs of despair.

May his soul rest in peace!

K. C.

Life in the Medical Field

Medical student answering 1st. M.B. examination in Physiology:

Pavlov, the Russian physiologist, used "SHAME FEEDING" to study Psychic secretion in the stomach.

* * *

Semidelirious Malarial strickened patient, after a heavy dose of quinine remarked:

"Doctor I am *dumb*"

* * *

Patriotic industrialist when visiting a friend under local anaesthesia.

Industrialist: "Nurse, what are you giving him"?

Nurse: "Local anaesthetic, Sir."

Industrialist: "Very good nurse, we must encourage home industries".

Two junior class Anatomy students, while examining a display of preserved human embryos:

1st. Student: 'Look at this one, the face is not yet fully formed!'

Wise-guy: (Pointing at much larger embryo): 'Here is the same fellow at term with his face fully formed.'

* * *

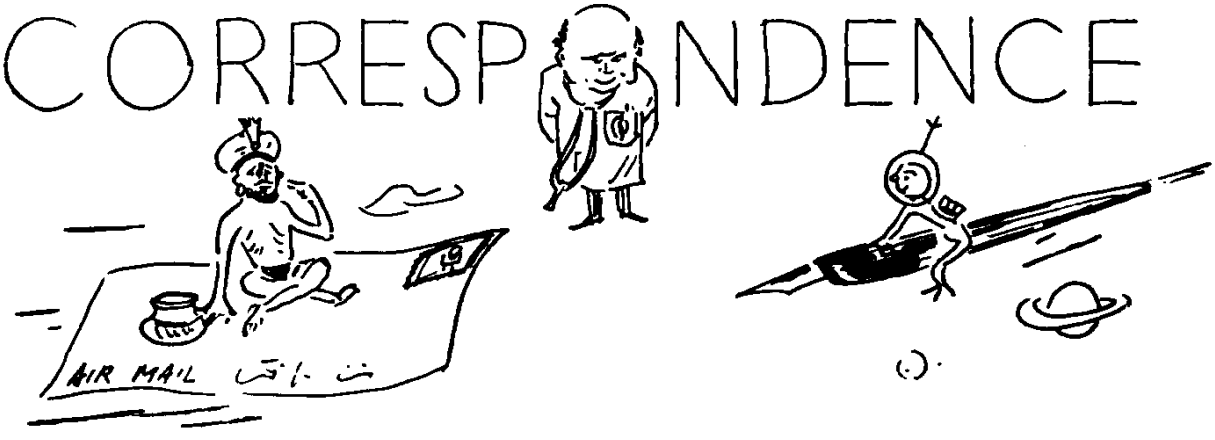
A class of fresh clinical students, examining some male patients and being questioned by stern Professor:

Prof. "Well, young man what is your diagnosis?"

Flabbergasted student, furiously palpitating large lump in patient's abdomen:

"Sir I think it is an enlarged foetus."

* * *



Dear Editor,

I would like to make some comment concerning the article "Setting Up Practice", which appeared in the last Elixir. If the writer has intended the article to be humorous, I certainly am not aware of it. If the article is meant to be serious, I consider it to be an insult to the medical profession. In the article, the much honoured medical profession has been degraded into a cheap business, with profit making as the chief and only concern. It seems to me that such an attitude toward the medical profession is disgraceful and should not be encouraged, therefore I do not understand why such an article should be accepted and printed *without any comment* from the editorial board. Doesn't the editorial board feel any obligation toward the establishment of pride and respect for our own future profession among the medical students?

Yours sincerely,
A STUDENT.

NOTES AND NEWS

CHAIR OF PREVENTIVE MEDICINE

Dr. P. H. Teng, (M.B., B.S., Hong Kong, D.P.H., London), who has been acting Head of the Department of Social Medicine since the retirement of Professor K. C. Yeo in July, 1957, has been appointed to the Chair of Preventive Medicine from July 1st, 1959.

Dr. Teng graduated from the University in 1937 in the same year joining the Fukien Provincial Government, China, to be Director of the South Fukien Plague Station, and later appointed Chief Medical Officer of Unit 1 League of Nations Epidemic Commission in North West China. In January, 1939 he was appointed Chinese Medical Officer of the Hong Kong Government until the outbreak of the Pacific War. During the Japanese occupation of the Colony he left Hong Kong to join the National Health Administration of China and in 1944 became Field Director of the South West Plague Prevention Unit. For the eight years following the end of the war he took charge of the Port Health Office in Hong Kong. From 1954 to March, 1955 he was the Senior Health Officer, from March, 1955 to February, 1959 Assistant Director of Health Services and Vice-Chairman of the Urban Council, and since then has been Assistant Director of Medical Services. His new appointment to the Chair is held concurrently with his post in the Medical and Health Department. He has been an Official Justice of the Peace since June, 1947.

CHAIR OF PATHOLOGY

Professor Robert Kirk, (O.B.E., B.SC., M. D. Glasgow, F. R. C. P. London, F.R.F.P.S. Glasgow, F.R.S. Edin.), has been appointed to the Chair of Pathology to succeed Professor Hou Pao Chang after his retirement in 1960.

He comes to Hong Kong from the University of Malaya where he has occupied the Chair of Pathology since 1955. After twenty-two years of distinguished service in the Sudan, he became, in 1952, the first Professor of Pathology at the University College, now the University of Khartoum.

Professor Kirk's interests are wide and in his special fields of entomology and parasitology his authority is acknowledged.

PUBLICATIONS

R. B. Maneely: "Epididymal Structure and Function: A Historical and Critical Review", *Acta Zoologica* Bd. XL (1959).

PERSONALIA

Dr. C. H. Chan, Demonstrator in Bacteriology, has been granted one year unpaid leave from September 1, 1959 to take up a Sino-British Fellowship for postgraduate study at the University of Manchester.

Miss M. M. Wong, Demonstrator in Bacteriology, has been granted one year unpaid leave from July 1, 1959 to take up a Graduate Fellowship administered by the International Institute of Education, New York, for postgraduate study at Tulane University, U.S.A.

Dr. E. Y. Y. Huang, Demonstrator in the Department of Physiology, has been granted one year unpaid leave from September 1, 1959, to take up a China Medical Board Fellowship for further study in the United States of America.

PRIZES

The following prizes have been awarded on the results of the Degree Examinations held in May 1959:

Anderson Gold Medal: Mr. Anthony Paul Chan.

Ho Fook and Chan Kai Ming Prize: Mr. Anthony Paul Chan.

C. P. Fong Medal in Medicine 1959: Mr. Tso Shui Chui.

Gordon King Prize in Obstetics and Gynaecology: Mr. Chan Ping Cheung.

APPOINTMENTS

Dr. Arnold C. L. Hsieh, B.Sc., M.D. (St. John's), Lecturer in Physiology, to be Senior Lecturer in Physiology from July 1, 1959.

Dr. Ma Lin, B.Sc., (West China), Ph.D. (Leeds), Assistant Lecturer in Pathology, to be Lecturer in Clinical Pathology from July 1, 1959.

Dr. Wong Cheung Chih, M.B., B.S. (Hong Kong), M.R.C.P. (Edinburgh), D.T.M. & H., Lecturer in Medicine, to be Senior Lecturer in Medicine from September 1, 1959.

Dr. Teoh Tiaw Bee, M.B., B.S. (Hong Kong), Ph.D. (Leeds), Lecturer in Pathology, to be Senior Lecturer in Pathology from November, 1959.

Dr. (Mrs.) Wong Pui Ching, M.B. (Lingman), Ph.D., Dip. Bact. (London), to be Assistant Lecturer in Bacteriology from August 1, 1959.

Dr. Pan Yin Chi, M.B., B.S. (Hong Kong), M.R.C.P. (Edinburgh), Assistant Lecturer in Medicine, to be Lecturer in Medicine from September 1, 1959.

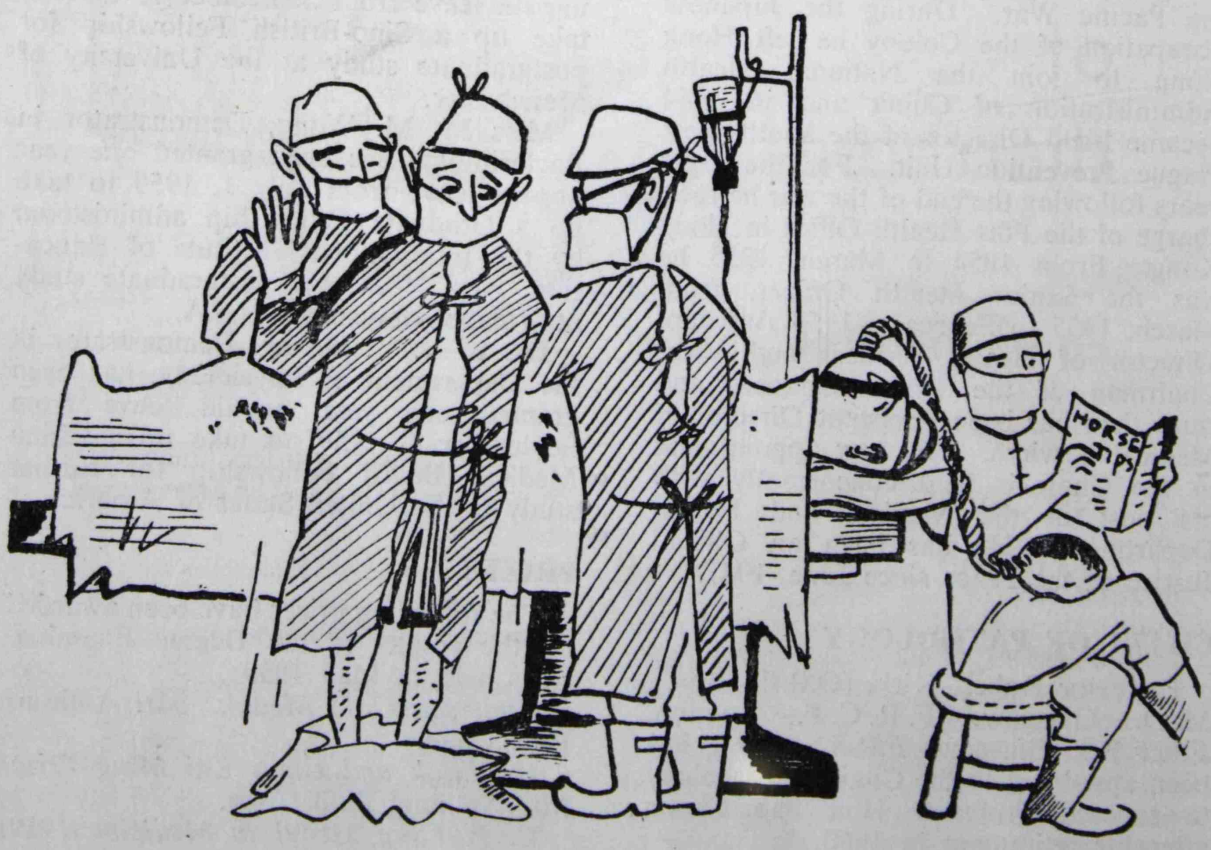
LEAVE OF ABSENCE

Professor Daphne W. C. Chun, O.B.E., four months leave with pay from January to April 1960, to enable her to take up a China Medical Board Fellowship to visit major obstetrical and gynaecological teaching centres in the United States of America and the United Kingdom.

Professor K.S.F. Chang, long leave from March 1960.

RESIGNATION

Dr. K. K. Chow, Lecturer in Obstetrics and Gynaecology, from October 1, 1959.



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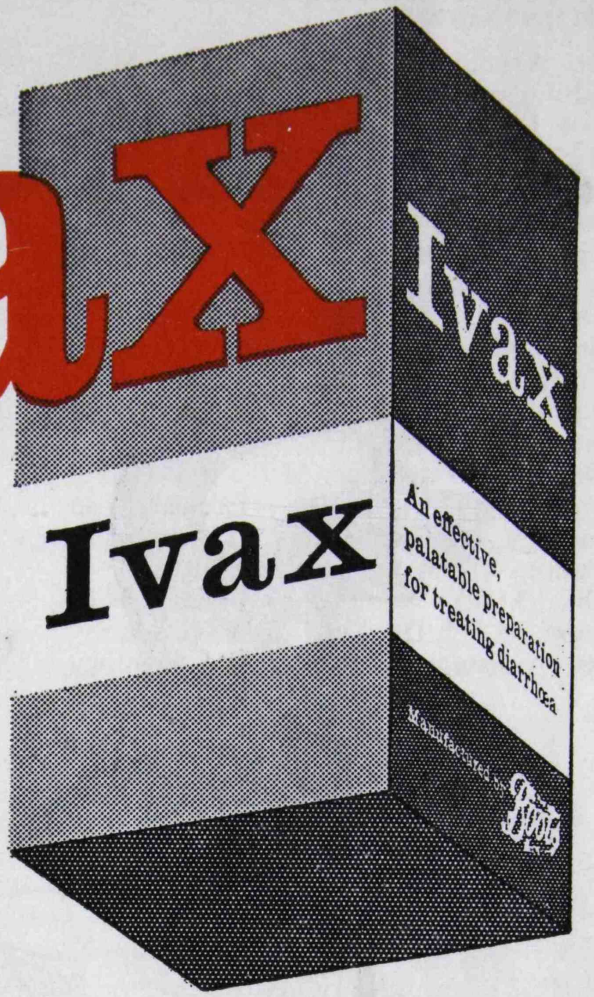

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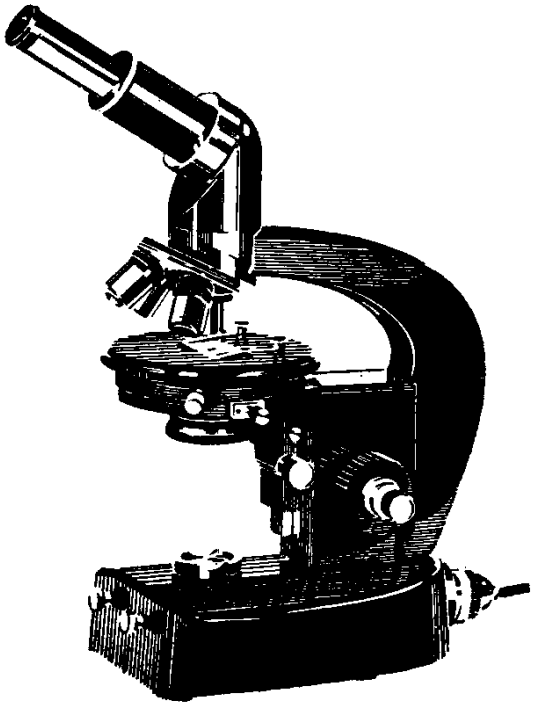

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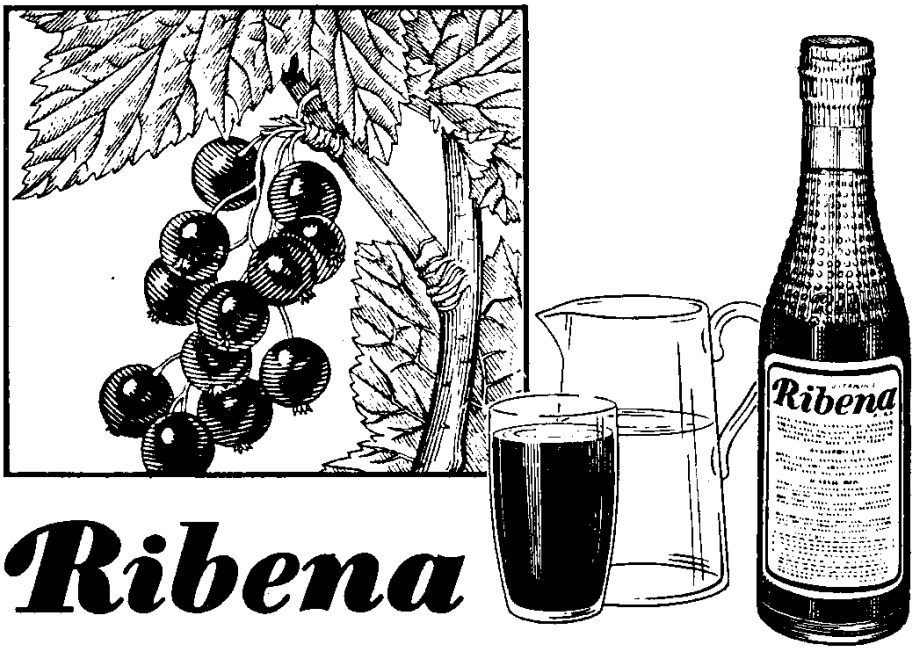

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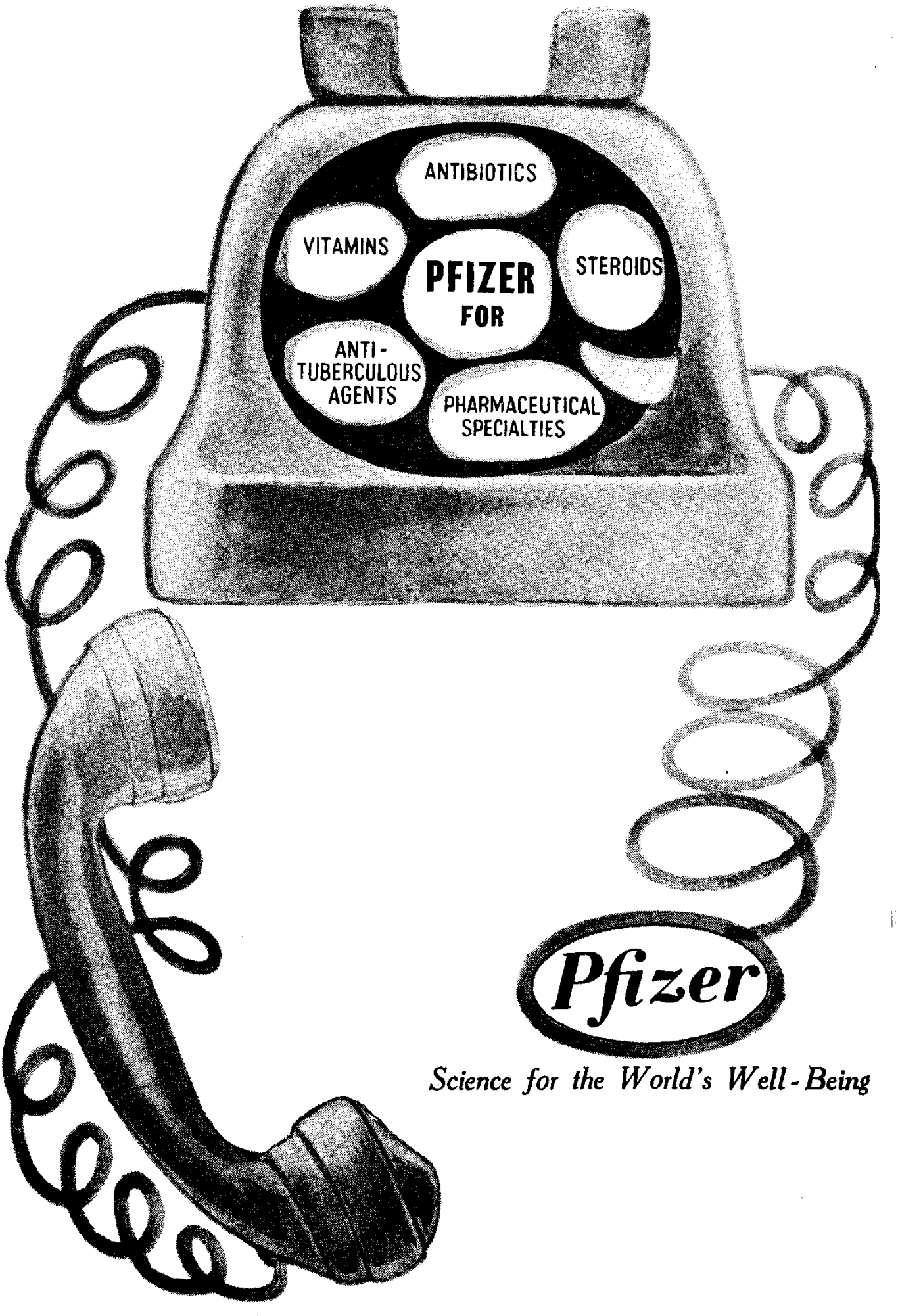
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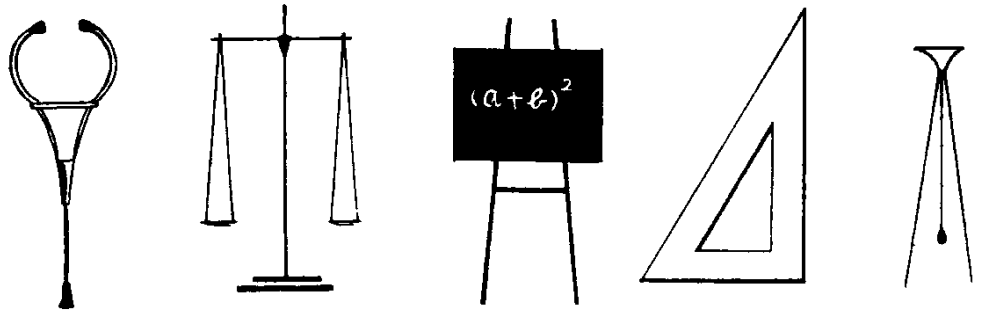

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