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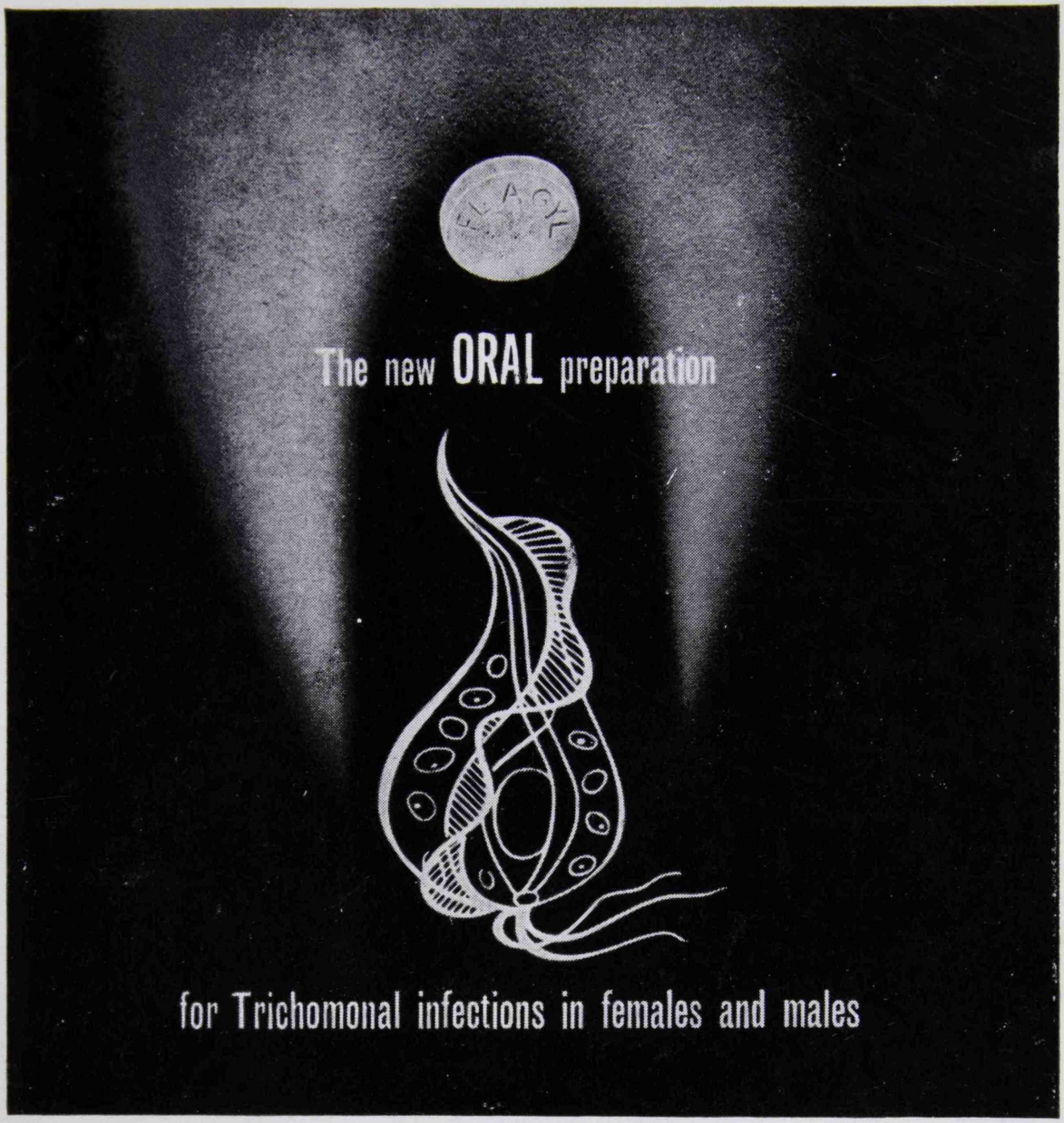

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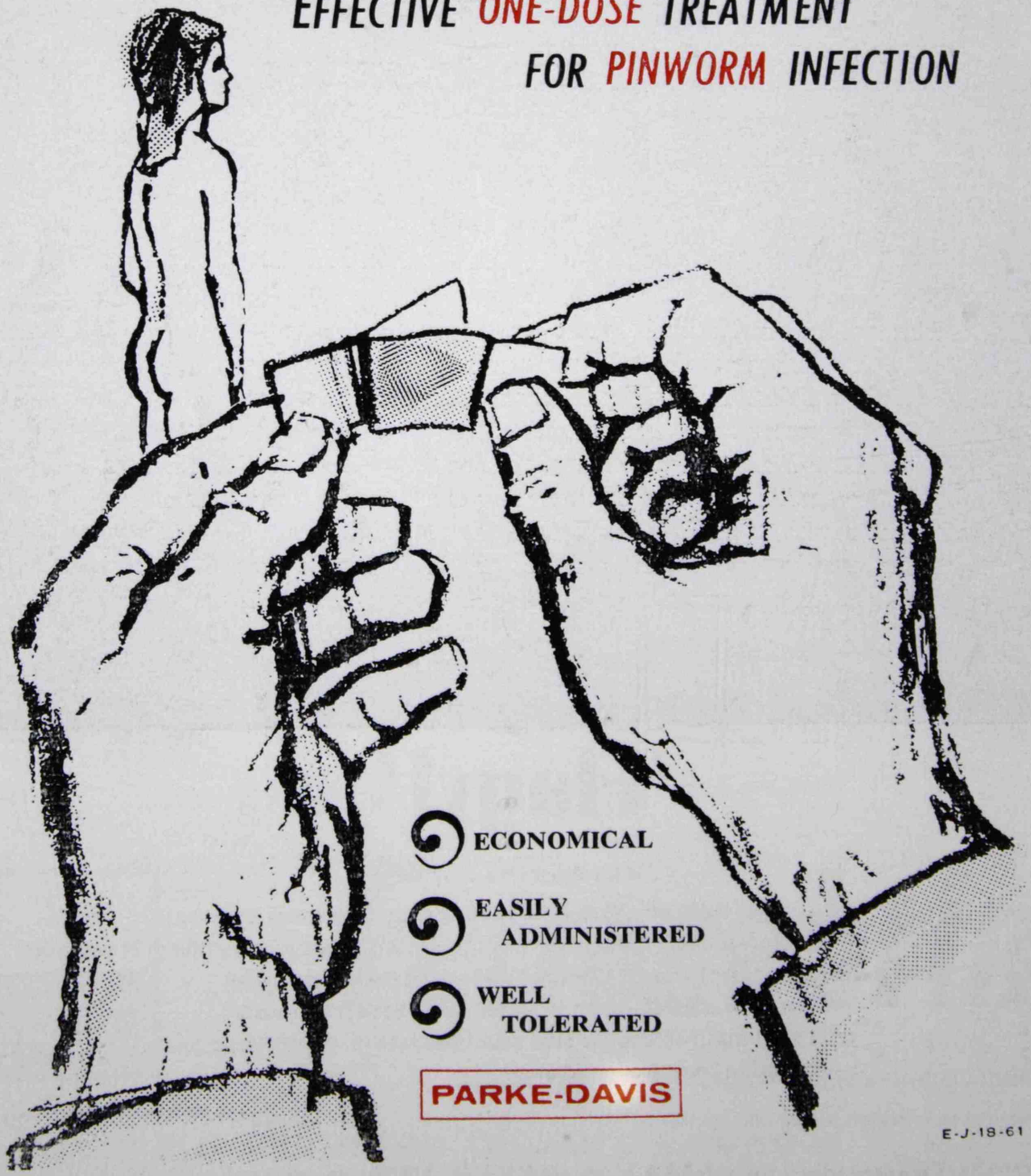

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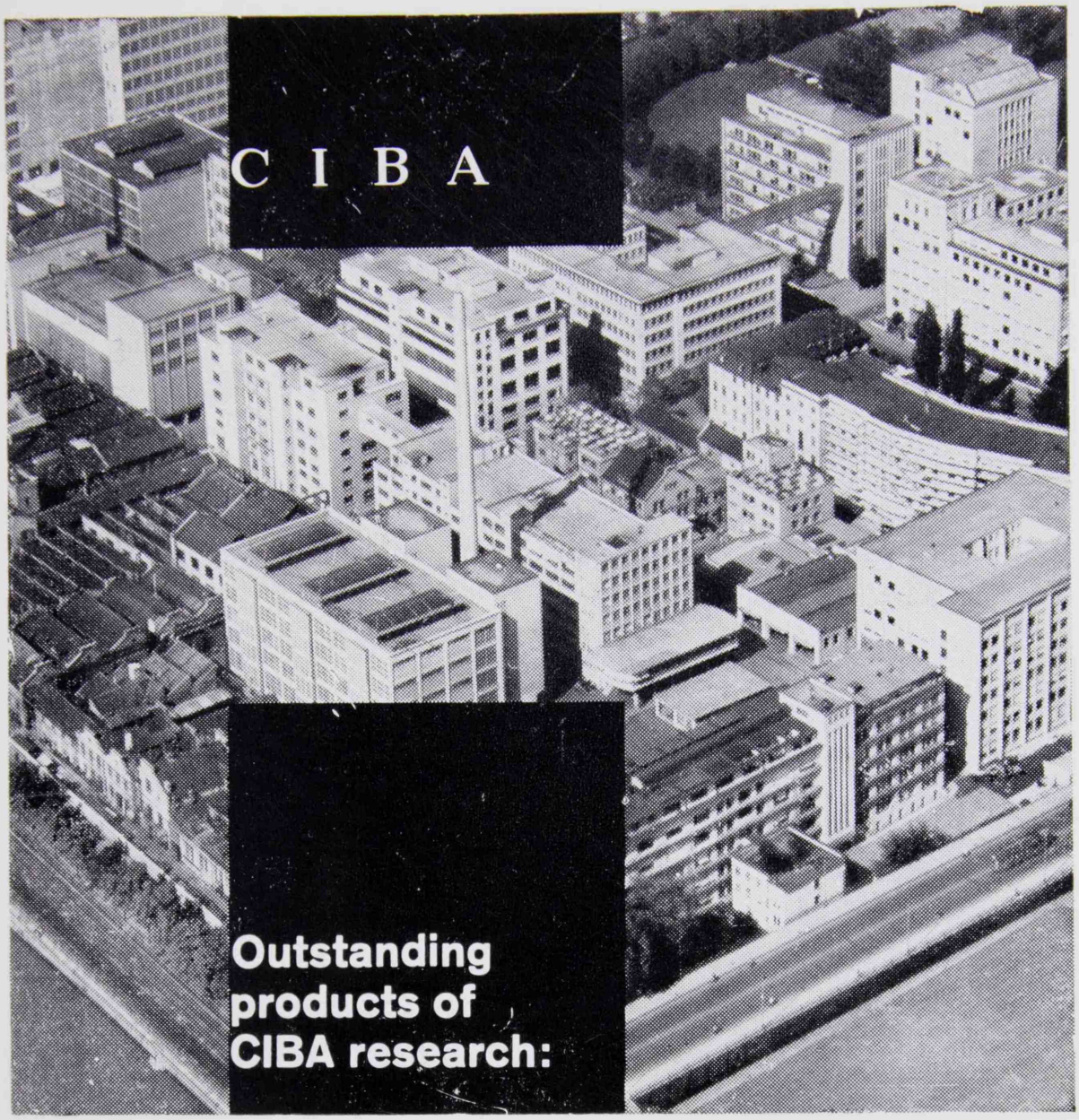

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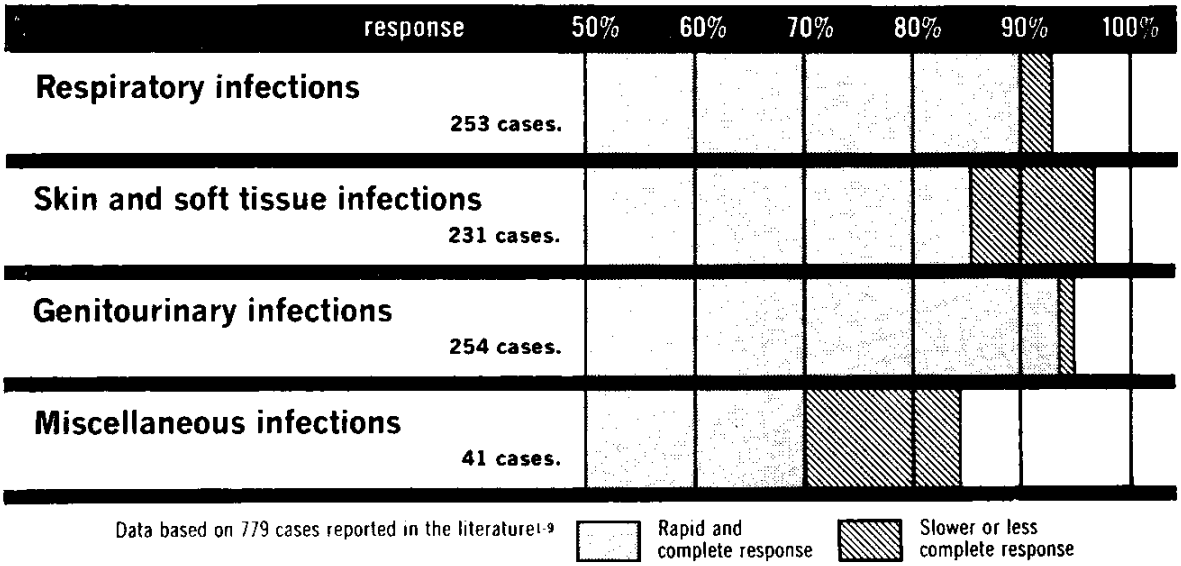

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ELIXIR

Journal of the Hong Kong University Medical Society

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EDITORIAL

This is the eleventh year of publication of the Elixir. Its very first publication, which was a combined effort of many, including the professors and the Dean of the Faculty, was intended to supplement the pre-war official magazine of the Medical School, the 'Caduceus' which confined its scope to purely scientific and academic works. Somehow, Caduceus has not reappeared but Elixir, which has as its main theme the illustration of the lighter aspects of medical studies and serving as a medium through which we can voice our opinions, continues to enjoy its popularity amongst the students, the teaching staff and the local medical profession. In fact, it developed from an annual publication to a half-yearly one five years ago.

The first few issues of Elixir contained articles of diverse interest including plays and poems as well as literary compositions which appealed much to the general public. However, the trend seems to have changed and our endeavours to bring items of general interest into the journal has met with little success. This has been due mainly to the articles we have received and partly to the changing of editors annually which is not unlike "changing horses in the mid stream." Admittedly, this has discouraged some subscribers not belonging to the Medical profession, much to our regret.

Likewise, the regular seasonal publications are becoming irregular and such copies as 'the Spring issue' or 'the Autumn issue' are almost always misnomers. The response of the seasonal products advertisers has undoubtedly been affected. However, the production of this journal depends entirely on the cooperation between the editors and the contributors. The Editorial Board is inclined to maintain the high quality of the journal regardless of the time consumed in its preparation. We trust this is the principle which the majority of advertisers and readers will support.

In this issue, again, there are many valuable papers contributed by professors and lecturers; some of them are technical in the sense that they are research works, others are inspiring articles of general interest to medical students and laymen alike. We have not contrived to introduce items concerning the Golden Jubilee because this topic has already been extensively treated.

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PLAGUE AND HONG KONG

By R. KIRK

O.B.E., B.Sc., M.D. D.P.H. F.R.F.P.S. Glas., M.R.C.P. Lond., F.R.S. Edin.

1894 is a notable year in the medical history of Hong Kong. In that year plague appeared in Hong Kong and from there may be said to have spread by maritime routes all over the world. After Hong Kong, Bombay was the next great oriental port to be infected in 1896 and from there the infection gradually extended over the larger portion of India causing over ten million deaths in the first twenty years. From India the disease spread to Madagascar, Mauritius and Egypt. In 1899 the infection was recognised in Manila and was attributed to direct importation from Hong Kong. It soon spread to Australia, Japan and North and South America. By 1907 the disease was widespread throughout the world, occurring in India, Persia, Arabia, Egypt, Tunisia, Algeria, West Africa, South Africa, East Africa, Russia, Argentina, Brazil, Chili, Paraguay, Uruguay, United States, Australia, New Zealand, the Philippines, New Caledonia, Hawaii, Japan, China and Indo-China. It is difficult to obtain exact information about the origin of the plague in Hong Kong. It probably came from the Yunnan province of China where there is evidence that the disease had been present for some time. Some authorities believe that the infection in Yunnan came originally from the valley of the Salween, near Burma. Wu Lien Teh (1936) considers the ultimate source of the infection to be in remote regions in central Asia, the home of the Siberian marmot.

The new science of bacteriology had been established on a sound basis by Pasteur, Koch and their successors when in 1894 the appearance of plague in Hong Kong attracted international attention. Hong Kong being readily accessible, many observers seized the opportunity to study plague on the spot there. The Japanese Government sent a commission consisting of a bacteriologist, Professor S. Kitasato, and a pathologist, Professor Aoyama. They arrived on 12th June, 1894. About the same time Dr. A. Yersin, a Swiss, previously Preparateur of the Institut Pasteur in Paris, was sent by the French Colonial Minister to study plague in Hong Kong. He arrived on June 15th, three days after Kitasato. Both set to work immediately on arrival, both were almost immediately successful in discovering a new kind of bacillus in the blood and tissues of patients suffering from plague and in subsequently isolating the bacillus in pure culture. Both also identified the same bacillus in rats found dead in the plague area, and Yersin considered that rats were probably the principal vehicle of infection.

Kitasato was a pupil of Koch, Yersin a pupil of Pasteur, and there has been some controversy as to which of them belongs the priority in discovering the bacillus of plague. A preliminary note by Kitasato was forwarded to the *Lancet* by the Superintendent of the Government Civil Hospital at Hong Kong on 7th July, 1894 and appeared in that journal on 25th August, 1894 (Kitasato, 1894). A letter from Yersin (1894a) addressed to the Institut Pasteur was read before the Academy of Sciences in Paris on 30th July, 1894, describing a short bacillus with rounded ends found in the buboes of eight plague patients in Hong Kong which was Gram negative and was pathogenic to mice and guinea pigs. Kitasato's first observation was made on 14th June, 1894, the day before Yersin arrived in Hong Kong, when he saw under the microscope bacilli from the buboes, heart blood and organs of plague cases at post mortem examination. These or similar bacilli were later isolated by him in pure culture. Yersin's description of the new bacillus is more accurate than

Kitasato's. From his paper in the *Annals of the Institut Pasteur* (1894b) it is clear that Yersin's organism was undoubtedly the bacillus now known as *Pasteurella pestis* and established as the infective agent of plague. Several authorities have maintained that Kitasato's organism was not the same as Yersin's, including Professor Ogata (1897) the Japanese worker who investigated plague in Formosa and was the first to identify plague bacilli in rat fleas. However, cultures of the Yersin and Kitasato strains have been examined in Europe by experienced workers who found no difference between them, so one must conclude that both bacteriologists discovered the bacillus of plague independently about the same time and in the same place, namely Hong Kong.

Both Yersin and Kitasato considered the possibility of immunizing human beings against plague by the inoculation of attenuated cultures. Yersin noted that some colonies of his bacillus isolated from a convalescent patient were avirulent for guinea pigs and mice and proposed the use of such cultures for making vaccines against plague, thus foreshadowing the development of an effective vaccine against plague fifty years later by Otten (1936) in Java and Girard (1935) in Madagascar.

The organism of plague, discovered by Kitasato and Yersin in 1894, was found in dead rats as well as in human beings and Yersin suggested that rats probably played an important role in transmission and maintenance of the disease. This suggestion was not new; it was supported by numerous epidemiological observations and historical records associating human plague with mortality among rats. Avicenna (980-1036), the great Arabian physician, described how rats and other subterranean animals left their burrows and moved about in a drunken manner after the appearance of plague. In China, according to Wu Lien Teh, the great scholar Hung Liang Chi (1736–1809) gives an account of a disease in the province of Yunnan which caused death in men and rats. The rats are said to have appeared in broad daylight and fell dead with vomiting of blood. A talented young Chinese named Shih Tao Nan (1765–1792) wrote a long poem entitled *Death of Rats* describing the events he experienced at this time.

"A few days following the death of rats
Men pass away like falling walls. . . .
The coming of the devil of plague
Suddenly makes the lamp dim;
Then it is blown out,
Leaving man, ghost and corpse in the dark room."

These lines refer to the plague in Yunnan which was probably the source of the pandemic which began in 1894 in Hong Kong. The records indicate that the plague of 1894 in Canton and then in Hong Kong was likewise heralded by the death of rats. Yet the authorities in Hong Kong were at first reluctant to recognize the important role of the rat in plague although they concluded erroneously that many species of domestic animal were susceptible to infection (Simpson, 1905). It was only after a team of four bacteriologists examined large numbers of rats in 1902 and their work was followed up by the Government Bacteriologist in 1903 that it became evident that the seasonal course of the human epidemic corresponded closely with that of the rat epizootic and that human infections were regularly preceded by infections among rats. The remaining problem was now to elucidate how the infection is transmitted from man to man, from rat to rat, and from rat to man.

Up to 1905 some confusion existed as regards the transmission of plague by insects. For example, Yersin, soon after his arrival in Hong Kong in 1894 found plague bacilli on flies which were inhabiting his laboratory. Among the numerous investigators who studied the epidemic at Hong Kong was a small but influential group, including Hunter, Wilm, Atkinson, and Simpson, who favoured an alimentary or contaminative theory of plague transmission. They considered that the portal of entry of the infection in man and animals was via the alimentary tract by ingestion of infected food, contaminated by rats, flies, cockroaches and other vermin as in the case of typhoid fever and dysentery. William

Hunter (1904) Government Bacteriologist, Hong Kong, claimed to have found large numbers of plague bacilli in the faeces of animals suffering from plague and also in the cheapest quality of rice sold to the poorest classes of Chinese in Hong Kong. This rice, presumed to be contaminated by the excreta of rats or by infected flies and cockroaches, was thought to be one of the main sources of the epidemic. Hunter attached much importance to "plague infected cockroaches," and claimed to have found plague bacilli in 75 per cent of the flies taken in the public mortuary and in an isolation hospital. We know now that the experiments and views of these Hong Kong investigators were unsound, but the German and Austrian commissions sent by their governments to investigate plague in Bombay also attached importance to ingestion of infected food as a method of transmission.

Glen Liston (1905) demonstrated that plague infected fleas could be recovered from the bodies of healthy guinea pigs used as traps and allowed to roam in the vicinity of places where plague rats had died. He concluded from his observations in Bombay that bubonic plague is essentially a disease carried by rat fleas from rat to rat and from rat to man. The Commission for the Investigation of Plague in India concluded: (1) that rat plague is flea borne, and (2) cannot be transmitted continuously as an epizootic in the absence of rat fleas.

Some earlier evidence had been advanced by Simond (1898) who had noted that in about five per cent of cases the first sign of plague was a small "phlyctenule" or vesicle surrounded by an area of redness, usually on the leg and undoubtedly due to the bite of a flea. He noted also that ground up fleas from plague rats when inoculated into experimental animals give rise to plague. Ogata (1897) also suggested that fleas might play a part in the transmission of plague. He reproduced the disease in a mouse by inoculation of an emulsion made from some fleas found on dead plague infected rats. He surmised that rat fleas might attack man after leaving the cooling body of dead plague rats and thus carry the infection to man from rats. Gauthier and Raybaud (1902) working in Marseilles repeated and confirmed Simond's rat to rat transmission experiments using more complete bacteriological technique and better precautions against the transfer of infection from the infected to the susceptible rats by other means than fleas.

The most convincing early experimental evidence on the transmission of plague by fleas was adduced by Dr. James A. Lowson here in Hong Kong in May 1898 (Simond's paper was published in October 1898). Subsequent writers on this subject seem all to have overlooked Lowson's work until it was brought to light again by Dr. R. Green in the Jubilee Volume of Studies from the Institute for Medical Research, Federation of Malaya in 1951. Lowson succeeded Sir Patrick Manson in practice in Amoy before coming to Hong Kong and his son, Dr. J. M. A. Lowson became Principal Medical Officer, Johore, Malaya. By kindness of the latter Dr. Green had access to a series of publications (Lowson, 1895) and manuscripts on plague investigations carried out by his father, the late Dr. J. A. Lowson, in Hong Kong. One paper, in manuscript form, was read before the Hong Kong Medical Association in December 1898 and described laboratory experiments which clearly demonstrated:—

(1) The presence of plague bacilli in fleas taken from plague rats, as determined by direct smears, cultures and inoculation into healthy rats and guinea pigs, and

(2) The transmission of plague by fleas—as determined by taking fleas from infected rats and applying them to healthy rats.

Plague has been one of the dark shadows of human history, but the beginning of the modern research period from the discovery of the casual organism in 1894 to the final proof in 1908 that it is transmitted by rat fleas revolutionised previous views on the nature of the disease. One other factor is of special importance, the discovery that a permanent reservoir of the infection is

maintained, in the absence of man, among the wild rodents in the steppes of central Asia, the so-called "sylvatic" or "campestral" plague. It is possible that these remote regions may be the original home of plague infection, from which the great historical pandemics have arisen. We do not know the factors which have governed the appearance and disappearance of the great historic pandemics. The great pandemic of rat origin which began to spread in 1894 has now almost died out, but in the meantime at least three vast new reservoirs of wild rodent plague have been established in Africa and in North and South America. We cannot predict the future of these new areas of sylvatic plague. Any one of them may at some future date overflow and originate new epizootics among domestic rats and new pandemics among men.

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NOTE ON THE METABOLIC RATE AND ITS REFERENCE UNIT

While it is true that a rose by any other name would smell as sweet, the same reasoning cannot be applied to the term 'metabolic rate'. The term conjures, in the mind's eye, visions of numerous molecules of organic matter being broken down and put together, energy being changed from one form to another. The term also conveys the impression that variations due to the size of the animal have been eliminated. Thus when we say that the metabolic rate of a mouse is greater than that of a man we no longer attach any significance to the fact that a mouse is smaller than a man. On the other hand, the prosaic term 'rate of heat production' reminds one of cooking. Yet the two terms refer to the same thing, —the number of calories produced per hour. Heat production is usually expressed in absolute units, Cal/hr.; metabolic rate usually refers to the absolute heat production based on some unit of size and has the units Cal/hr./unit of size. Since we cannot ascribe any magical qualities to the denominator, the change in our views with regard to the two terms must be due to different associations attached to them.

For many years surface area has been used as a reference unit for metabolic rate. This is based on the assumption that heat loss from an animal is proportional to its surface area. Since heat production, under steady state conditions, equals heat loss, it seems logical to express the rate of heat production in terms of surface area. At the outset it was noted that small animals, such as mice, have a higher metabolic rate than that of larger animals. This was considered to be due to differences in surface area: body weight ratios. This explanation does not remove the fact that by this method the metabolic rate of mice is greater than that of men. This could be a species difference. However, even within the same species and after such variables as age and sex have been taken into consideration the metabolic rates of the smaller animals are higher. The surface area law has been criticised because heat production may be independent of heat loss and thus it seems illogical to use a term that describes heat loss to describe heat production. This is a difficult statement to sort out and it is possible to argue in circles. Under conditions of 'neutrality' heat production may determine the rate of heat loss, however, in cold-exposure (which must certainly be considered a physiological stimulus) it would seem that it is the rate of heat loss that determines the rate of heat production. A major criticism of the surface area law is the fact that heat loss is not proportional to surface area. Heat is lost from an animal by radiation, convection, conduction and evaporation. Hardy (1949) and McAdams (1942) give a complete discussion; here it will only be pointed out that the rates of heat loss from the interior of animals under identical environmental conditions are related to a number of factors which are independent of their surface area. For example, heat loss by radiation is related to emissivity of the surface and the 'effective radiating area'. Heat loss by evaporation depends on the rate of evaporation and the 'wetted area'. The rate of heat loss from the interior will depend upon the conductivity of the tissues and the distance through which the heat has to travel to reach the surface; these two factors have been grouped together and referred to as the insulation of the animal. In intraspecific comparisons it is possible to assume that the fraction of total heat lost by evaporation is the same in different subjects. It is further possible to assume that the parameters determining radiative and convective heat loss are the same in different subjects. This

leaves surface area and insulation. After many simplifying steps, which all contribute to the error of estimation, we find that the rate of heat loss varies directly with the surface area and inversely with insulation. Thus, when we express metabolic rate in terms of surface area we are in fact giving a measure of the insulation of the subject. Using this method of calculation, Carlson and his co-workers (1958) found that the insulation of a group of nine subjects varied linearly with their fat content.

The above considerations have led to a tendency to express metabolic rate in terms that describe heat production. Absolute rate of heat production is equal to the activity of the metabolic material (the true metabolic rate) times the amount of *active* metabolic material:

$$H = A \times M \qquad (1)$$

where: H = heat production,

A = activity per unit of metabolic material,

M = amount of active metabolic material.

This equation, we maintain, represents the one and only correct way of expressing metabolic rate. However, since A is the unknown to be determined, it is clear that the equation cannot be solved without knowledge of M. Physiologists are as yet unable to measure M. Faced with this problem we are forced to make assumptions about A and say that we expect it to remain constant in animals of the same species, age and sex. This assumption is based on the thin ice of convenience; for if we do not make it we cannot proceed. No other logical excuse can be found for it. We do not expect the body weights of animals of the same species, age and sex to be the same. Surely, genetic factors that lead to smaller animals may also have an influence on the activity of the metabolic material of these animals. Indeed, nowhere in the broad fields of scientific endeavour have so many conclusions been based on so weak an assumption. The fact is we are no longer dealing with the same A.

Having made and accepted our assumption of a constant A, it is a simple matter to estimate M. There are two methods at our disposal:

1. The empirical method. This is based on the fact that there is a linear regression of log H on log W. It must be mentioned that the range of body weights of carefully bred laboratory animals of the same age and sex are small. Therefore there is usually not much difference between the correlation coefficient of the regression of log H on log W and that of H on W. However, it suits our purpose to use log scales. The regresssion equation is:

$$\log H = a + b \log W \qquad (2)$$

and then: $H = A \times W^b \qquad (3)$

thus $M = W^b$. One must be careful to avoid a trap in (3). The fact that A is a constant does not mean that we have proved that the metabolic rate is constant. We have made A constant by definition and have accepted the equation because it satisfies our requirement. The body weight exponent is often assigned a precise physiologic significance and regarded as representing metabolic size. In this connexion it may be well to quote Miller (1954): 'It cannot be emphasized too strongly that these exponents remain mathematical abstractions no matter how closely they may predict metabolic rates.' Since (2) is calculated to fit a certain set of data it can only be used for the particular experiment. No general use can be made of the exponent, b. The usefulness of (2) lies in the fact that it enables us to apply simple statistical analysis to the results and to compare the rate of heat production of two groups of animals with different average body weights. The answer obtained will tell us whether the absolute rate of heat production of the two groups *would* have been different *if* their body weights had been the same. The use of (3) will yield the same results. Here we are comparing the ratio, H : W to the power b, and if we consider the latter to be a unit of size then we are entitled by our definition to use the term 'metabolic rate'.

(2) The second method is based on the premise that the mass of actively metabolizing tissue is the logical measure of M. Thus we have lean body mass (body weight minus fat) and the active

tissue mass (body weight minus the sum of body fat, extracellular fluid and bone minerals). Here again we must point out that the criterion for acceptance or rejection of the unit is whether it gives a more or less constant A. Thus the unit is, figuratively, skating on the same pond as the empirical unit. In this sense it is just as empirical. The method, however, has the virtue of being the experimental approach to the problem. It also shows that we are making attempts to define M, this is a step in the right direction. It will be appreciated that a great deal will depend upon our definition of M. Thus if we assume that in the resting animal the liver, intestines and heart are the tissues using up most of the oxygen, we can regard their combined weights as an indication of the amount of active metabolic material. Using this as our unit we will find that the metabolic rate of rats kept at 30°C are the same as those kept at 6°C.

Age and metabolic rate. Kleiber & Rogers (1961) state: 'In general, animals of different ages have different body sizes. Therefore the metabolic effect of age has a proper meaning only if expressed for a given unit of size.' This statement ignores the existence of techniques of multivariate analysis. Even without any knowledge of these techniques the use of a little common sense will enable us to solve the problem. Since there is a difference in the body weights of animals of the same age, it will be possible to obtain animals of the same body weight but different ages. Determination of the heat production of these animals will enable us to see if there is any correlation with age.

THERMOS.

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* * *

RUINS

Bricks, sand, stones, weeds . . .
The ruins around me scattered lay
In utter confusion.
What was left of the stately mansion
Which stood in grandeur and majesty
Upon this spot, now wild and deserted?
Where was that welcoming fireplace
Its owner loved to linger and rest
After a cold, dreary day?
The happy voices of Childhood
Echoed through its long corridors;
The ambitious dreams of Youth
Filled its many rooms and halls;
Many a dearly cherished memory,
A tear, a glance, a smile . . .
Had vanished, yielded to the hand of Fate.

So may our life, like a fine day
Be threatened with shadows, clouds and darkness:
Through poverty, sickness, and suffering,
Helpless and alone, we struggle in vain
At the end of our weary journey.
Our earthly house, once so strong and fine
Will, like the stately mansion, turn to dust
Beneath the cold hard earth.
Beyond this life, there is a glorious morn
Awaiting, in a place far away,
Where no shadows mar the golden rays
Of the sun, which shines brighter
Than any earthly sunset has ever done.
There happiness will never fade
And praises will forever be made.

"HEATHER"

HOPKINS, BIOCHEMISTRY, AND THE FUTURE OF MEDICINE

This year is the centenary of the birth of the late Sir Frederick Gowland Hopkins, a gentle and scholarly man, whose memory is revered by biochemists throughout the world and whose influence is with us still.

Hopkins was born on 20th June, 1861 and for the first ten years of his life he lived alone with his mother at Eastbourne, where the seashore and access to a microscope rivalled the local dames' school in providing his basic education. In 1871 the family moved to Enfield near London, and at seventeen Hopkins, who had developed a keen interest in chemistry, became apprenticed to a consulting analyst. He learned the art and techniques of analytical chemistry from his colleagues but little from his chief, who was somewhat addicted to the bottle. Seeking to improve his theoretical knowledge of chemistry, he attended courses at the Royal School of Mines in Kensington and later at University College, London, and was successful in the examinations for admission to the Associateship of the Institute of Chemistry.

The skill and competence Hopkins displayed in this examination led to his being invited by one of the examining board, who was the Medical Jurist at Guy's Hospital and Home Office expert, to become an assistant in the latter's laboratory at Guy's. It was in the stimulating atmosphere and subtle charm of that venerable hospital close by London Bridge (which all who know Guy's remember with deep affection) that Hopkins first found real enjoyment in his work as an analyst. Although qualified as a chemist and having the original intention of aspiring to the Fellowship of the Institute of Chemistry, he became acutely aware of the value of possessing a University degree. In spite of long hours, short holidays, and heavy duties, he attended evening classes at Birkbeck College and in 1887 his efforts were crowned by the award of an external degree of the University of London.

A thirst for knowledge relevant to the chemistry of living things, partially inspired no doubt by the biology courses at Birkbeck, led Hopkins to seek such knowledge in the study of medicine and in 1888 he enrolled as a medical student at Guy's. Some private means were fortunately at his disposal. The medical courses were not without disappointment however to a born natural philosopher such as Hopkins. The course in physiology, then taught by members of the clinical staff, left much to be desired, for skilled as the teachers undoubtedly were in their own field, their lack of knowledge and understanding of the rapidly developing science of physiology was only too obvious to a student of Hopkins' calibre. Anatomy was thoroughly taught, but in Hopkins' own words he could "acquire no taste for the subject".

Hopkins qualified in medicine in 1894, by which time the need for a physiologist had been recognised and Starling had been appointed as the lecturer in that subject. Hopkins became Starling's demonstrator and remained at Guy's until 1898 when Michael Foster invited him to Cambridge to teach the chemical aspects of physiology in Foster's department.

The early struggles to establish biochemistry at Cambridge were grim. There was no suitable apparatus and Hopkins discovered to his dismay that he was expected also to assist in the teaching of anatomy, the details of which he had only too readily forgotten. There was no shortage of students, however, in either medicine or in science, and teaching duties were heavy. With amazing fortitude he survived the early difficulties and so succeeded that in 1902 he was appointed to a University Readership.

With untiring devotion he continued to develop his department to cope with the growing demands for biochemistry which, again to quote his own words, "was beginning that racing progress which has since continued and accelerated."

In spite of the difficulties, research was not neglected, for none was more aware than Hopkins that teaching of a University standard can be achieved only by those who are themselves intent upon discovery and who by their researches themselves contribute to the advance of human knowledge. Recognition of his important contributions to science led to his being elected in 1905 a Fellow of the Royal Society. Election to a Fellowship of Trinity College followed some years later and for this Hopkins was extremely grateful.

In 1914 a Chair of Biochemistry was founded at Cambridge and Hopkins as its first occupant at last acquired a separate department in which to develop the school which was destined to become a Mecca for biochemists throughout the world.

During the first world war, the new professor served his country in government work concerned with food supplies. His service to humanity was even greater and it is probably no exaggeration to assert that great numbers of men and women, who were children in those troubled years, owe their health and life in part at least to the untiring work of Hopkins in the scientific study of nutrition and to his persistent stressing of the need for the accessory food factors, now known as vitamins. He stressed also the importance of the quality of protein in the diet and of the need for "essential amino-acids" such as tryptophan, which he and Cole had isolated in 1901.

In retrospect, Hopkins' views and conceptions appear to have been expressed with such clarity and with such strict regard for the experimental evidence that it appears almost incredible today that many of his contemporaries should have opposed them. The existence of vitamins and of qualitative differences in the nutritional value of proteins was not generally accepted without considerable opposition however. Even in 1920, Hopkins, as the opening speaker at a meeting of the British Medical Association held at Cambridge, found it necessary to begin his address as follows:

"In what I am about to say I refuse to speak of the vitamine 'hypothesis'. Vitamines, though still of unknown nature in the chemical sense, are not merely hypothetical. In nearly every case we are to consider, it is, I admit, still a hypothesis that the particular disease depends upon vitamine deficiencies, but in respect to the broad aspect of nutrition as a whole, the importance of these factors is proven.

"But I have found that there is at the present moment some scepticism concerning the whole question, particularly perhaps among certain members of the medical profession. The fact that I have met it lately in high quarters accounts for the particular direction I am giving to my opening remarks which may seem unnecessarily defensive.

"Some of the scepticism has been stimulated by, or a protest against, quackery—the quackery which always dogs the footsteps of honest scientific work and sound views concerning human nutrition. It is well indeed that the subject we are to discuss should just now be approached critically; but disbelief in the very great importance of qualitative deficiencies in the diet (quantitatively of small moment) in the production of nutritional errors is to be deprecated.

"Not long ago, in a professional discussion, a physician whom we all respect and whose authority in such matters is of the highest, spoke of the 'vitamine stunt' . . . the conception of vitamines is no stunt. It is based upon experiments as conclusive and as carefully controlled as any in biological science."

Five years later Hopkins was knighted and in 1929 at the age of sixty-eight, he received the highest honour which can be conveyed upon a scientist when he shared with Eijkman, the discoverer of vitamin B_1, a Nobel Prize for Medicine. In 1931 he was elected President of the Royal Society.

Meanwhile and in later years, Hopkins' department grew from strength to

strength. Baldwin, Brachet, Chain, Danielli, Dixon, Elvehjem, Green, Haldane, Krebs, Mellanby, Peters, Quastel, Stephenson, and Szent Györgyi are but a few of those, later to become famous, who could be numbered among his advanced students. There is not space to list the many Universities throughout the world whose Professors of Biochemistry were at one time his students or junior colleagues. When, in 1947, he died, the School of Biochemistry which he had established at Cambridge had achieved world-wide recognition as a centre of learning second to none.

Hopkins had succeeded, in spite of much prejudice and no little opposition, in establishing biochemistry in Britain as an independent branch of science and in gaining recognition of the living cell as a dynamic system of chemical equilibria, whose processes and functions could be studied and interpreted in terms of physics and chemistry.

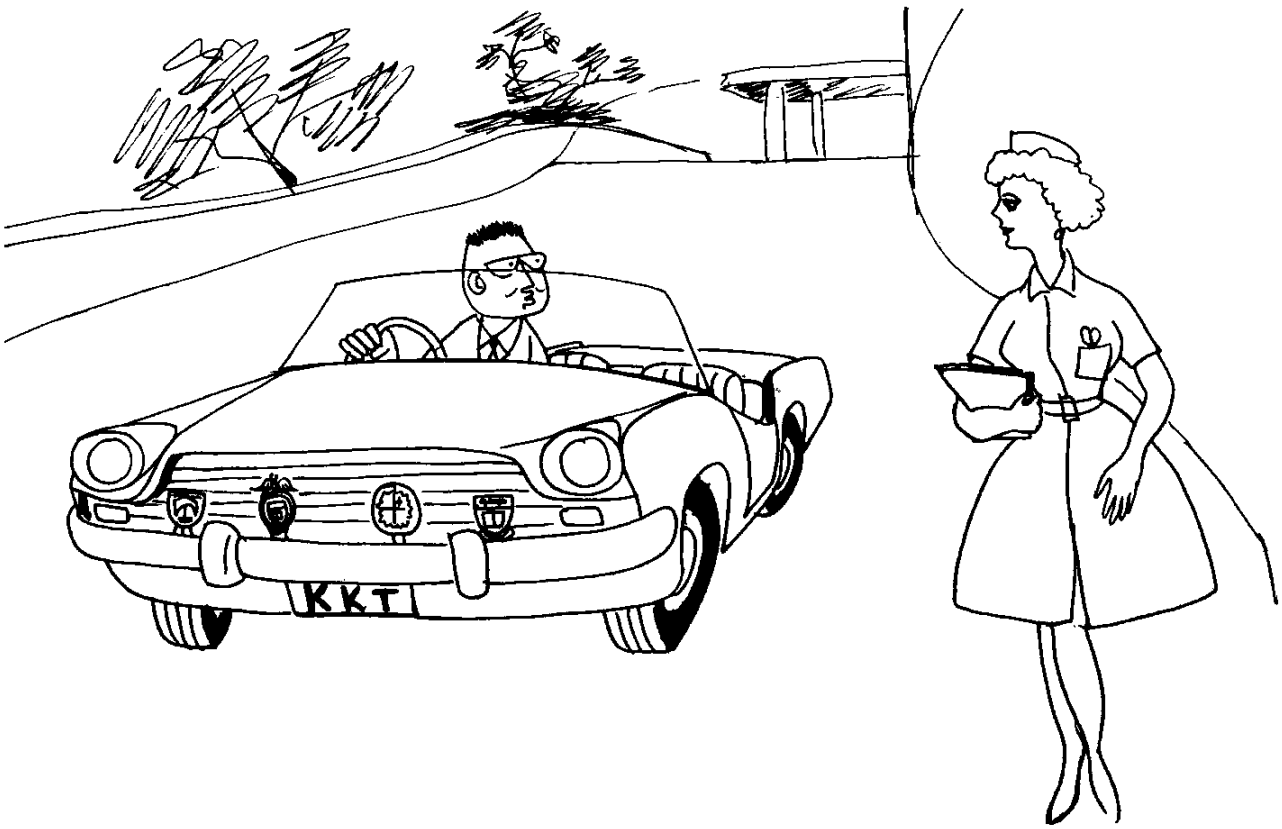
But the contributions of one such as Hopkins to medicine, to science, and to humanity cannot be assessed in terms of specific discoveries or by a list of honours conveyed upon him. Hopkins was, above all, a great teacher. Every student and colleague who knew him was inspired by his teaching, enriched by his wisdom, and encouraged by his example.

In concluding this brief tribute to his memory, I can think of nothing more appropriate than to quote a prophecy he made in the course of one of his many special lectures to a medical audience.

Hopkins said, "The future of medicine lies in biochemistry."

E. O'F. WALSH.

[*Professor E. O'F. Walsh, Ph.D., B.Sc., F.P.S., F.R.I.C. was appointed to the New Chair of Biochemistry in 1960*]



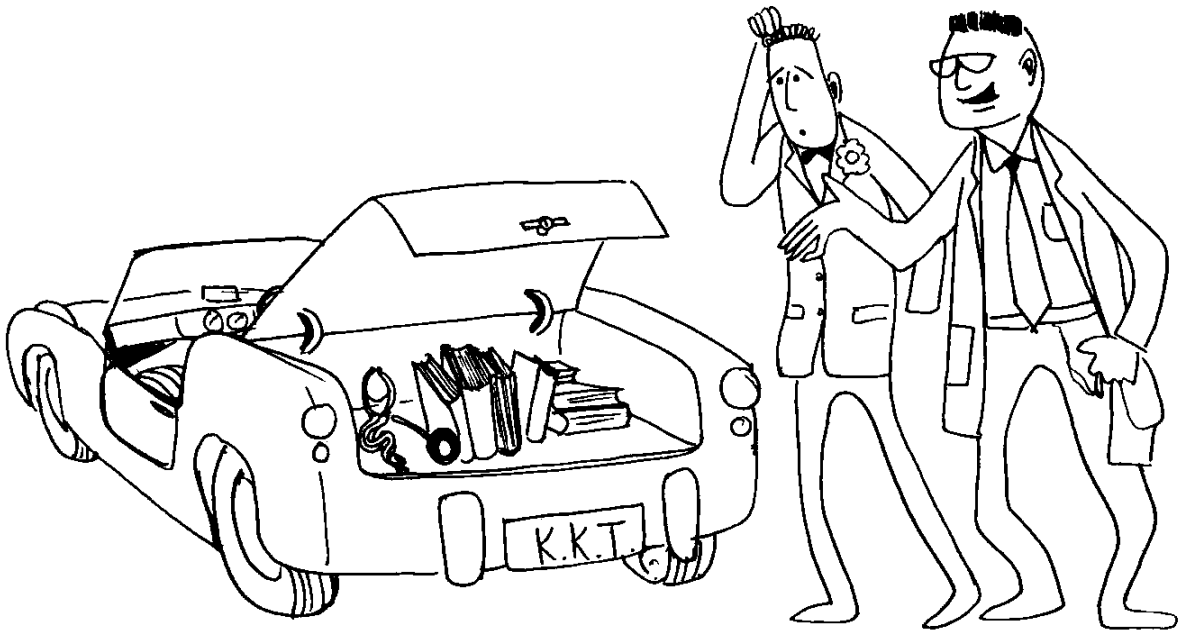
ON MEDICAL STUDENTS AND CARS

If I had the past decade to live over I doubt if I would become a disciple of Aesculapius. There seem to be many more efficient and just as honourable ways of amassing a small fortune than medical practice and at far less risk of public opinion. However, assuming that I possessed no talent for things either artistic or mechanical and that my parents were those who apart from being stubborn, had long ago decided that their son had to be a doctor, I would embark on the long and arduous journey through anatomy, physiology etc. again only on one condition, and that is I would have a car.

Of the numerous makes, shapes and sizes my choice would undoubtedly be one of those sports models. They appear to be the only type of car belonging to an undergraduate that has a chance of passing through the 'road block' in front of the hospital for presumably the attendant associates sports cars with full-fledged doctors. What is more with speedier means of transport one would be able to enjoy those few minutes after the alarm in the morning without having to suffer the humiliation of being greeted with a "Good afternoon!" while endeavouring to sneak into the class. Then in those crucial minutes before 8.30 a.m. the din from the exhaust (the modern saloon is far too quiet) would obviate the necessity and embarrassment of sounding the horn, even very softly, in the narrow approaches to the lecture room behind a contemplating and slow-moving professor or lecturer.

Of course there is the perpetual problem of parking but the most remote parking space is still considerably closer than the bus stop. Not that I have anything against public transport but buses are always most inaccessible when the need is the most urgent. Moreover, with a car on rainy days there would be no fumbling to change into dry socks in the course of a lecture much to the consternation of one's neighbours and if discovered, the lecturer himself. I doubt if car owners ever fully appreciate the agony their less affluent and fully drenched class-fellows experience when attending ward rounds in footwear heavy and noisy with water, and this is usually aggravated by an overwhelming and continuous desire to sneeze.

In addition to being punctual at lectures and suitably attired during ward rounds, it is generally felt that a medical student should study: textbooks, reference books in the library, anatomical and pathological specimens, microscopic slides and last but not least, patients. All this could be accomplished so much more readily with a car. Have you never had the sudden desire to look something up, in connection with a lecture or a patient or simply as an exercise and because no suitable reference was available at the time, the query remained a thought and was soon forgotten? Textbooks have become too voluminous and heavy to be easily portable but could be conveniently placed in the car. Thus, while on the way home, one could pull to the side, turn to the proper page and then drive on happy with newly gained knowledge. Nowadays this could even be done in front of any of the un-manned zebra crossings in the busier sections of town or while driving behind a labouring lorry pregnant with earth and rubble. Then there is this mad rush for seats in the library, so much in demand especially around examination time. The pedestrian never seems to be able to obtain a place and the lunch break is far too short for trudging back to the hostel. How indispensable would the car be for the transport of my microscope, far too delicate for the bus and far to heavy for carrying any distance. It would thus be on hand for the odd pathological section, blood film or white cell count. I fondly recall what an efficient bookend my old microscope made after having spent its



required period in the locker of the anatomy school. Furthermore, with a car I could more accurately time my arrival at the hospital in the afternoons to avoid competing with the meals, the toilet and the matrons' rounds for the patients' attention.

"Why not travel in somebody else's car?" you may ask. Ah, but one's friends may not be among the scions of the well-to-do and to choose a constant companion for the sake of his car is too involved an undertaking. To illustrate this point allow me to cite the case of the medical student who charged each class-mate he rescued from the bus stop the equivalent of the bus fare. This in itself was perhaps tolerable but he never had any change.

Finally, in the field of sport, can you think of a better way of making the acquaintance of some fair member of the nursing staff than offering her a 'lift' into town? Stalking the young maidens in the wards or along the corridors under the hawk-like scrutiny of the sister can be a most painful and unrewarding procedure.

There are many, many more advantages to possessing a car, far too numerous to include in this brief exposition. No serious disadvantage appears to exist. Yes, I feel I would consider studying medicine all over again if I had one of those mechanised four-wheeled substitutes for man's lower limbs. However, I have just been reminded that at the final examinations the pass rate among those with cars was just as low as among those without. Don't tell me my reckoning has been wrong.

T.O.F.

EXTRAHEPATIC AND INTRAHEPATIC NERVES OF THE LIVER

This is a report of gross dissection of 15 specimens of the liver with special reference to its nerve supply. Each specimen consists of the liver, gall bladder, the free margins of the lesser omentum, and its contents and a portion of the pancreas.

ANATOMY OF THE PORTA HEPATIS AND FREE EDGE OF THE LESSER OMENTUM

The porta hepatis is placed on the inferior surface of the liver between the quadrate lobe in front and the caudate process behind. It is a deep fissure which runs transversely between the upper end of the fissure for the ligamentum teres and the fossa of the gall-bladder.

A portion of the lesser omentum is attached to the lips of the porta hepatis and encloses the following structures:

1. The portal vein—
   Immediately below the porta, the portal vein divides into right and left branches. The right branch of the portal vein receives the cystic vein and then sinks into the right lobe of the liver. The left branch runs medially along the bottom of the porta, giving branches to the caudate and quadrate lobes, and at the left end of the porta, it sinks into the substance of the left lobe of the liver.

2. The hepatic artery—
   The hepatic artery also divides into right and left branches, each entering the substance of the liver with the corresponding branches of the portal vein and hepatic duct.

3. The common hepatic duct—
   The common hepatic duct is formed by the union of left and right hepatic ducts. The left hepatic duct emerges from the left lobe at the point where the vessels enter and after receiving tributaries from caudate and quadrate lobes joins the right hepatic duct near its point of emergence from the right lobe. The common hepatic duct joins the cystic duct after running a distance of about 3 cm. downwards to form the common bile duct.

4. Extrahepatic nerves to the liver.

5. Lymph vessels and one to two lymph nodes.

6. Fatty tissue.

Inside the free edges of the lesser omentum the hepatic artery lies medial to the common hepatic duct and both in front of the portal vein.

EXTRAHEPATIC NERVES.

The extrahepatic nerves of the liver run along the medial free edge of the lesser omentum together with the other structures. They form two plexuses:

1. The plexus associated with the hepatic artery—
   This is described as the Anterior hepatic plexus. The origin of the nerves of this plexus could not be traced because the specimens were removed from the necropsied bodies before dissection, but they were believed to have their origin mainly from the left portion of the coeliac plexus and the right abdominal branch of the left vagus.
   This plexus of nerves consists of thick bundles forming a dense network around the hepatic artery. At the porta hepatis, the hepatic artery divides into right and left branches. Most of the nerves of this plexus follow the left hepatic artery and the left branch of the portal vein,

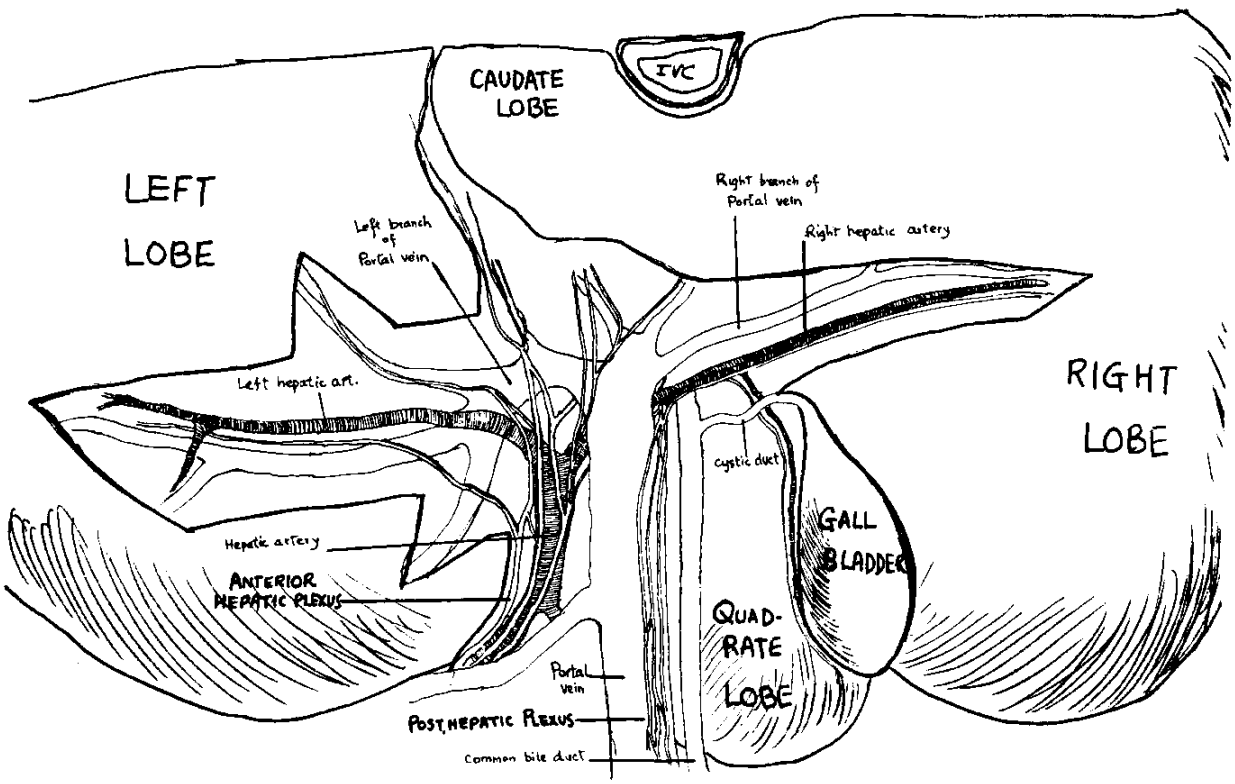


Diagram showing Porta Hepatis and Nerve Supply to the Liver (Inferior view of the Liver)

and enter into the substance of the left lobe. Others passing either in front of or behind the left branch of the portal vein enter the caudate lobe and the quadrate lobe together with the right hepatic artery and, having crossed the portal vein, enter the substance of the right lobe.

2. The plexus associated with the portal vein and the common bile duct—
This is described as the posterior hepatic plexus, derived mainly from the right portion of the coeliac plexus and the branches of the right vagus. It consists of two to three trunks which take their course posterior and to the right of the portal vein and the common bile duct. The most lateral trunk assumes a position along the posterior surface of the common bile duct sending branches to it and to the cystic duct. The majority of the nerves of this plexus innervates the right lobe of the liver together with the branches from the anterior plexus.

The two plexuses are connected together by anastomotic rami.

INTRAHEPATIC NERVES:

As the branches of the hepatic artery and the portal vein enter the liver substance they are accompanied by the intrahepatic nerves. These nerves branch in the same way as the blood vessels and bile ducts.

Various investigators have supported the assumption that nerve fibres penetrate the liver lobules and terminate in relation to the liver cells; but some believe that no nerve fibres can be traced into the parenchyma of the liver lobules.

ANAESTHESIA PAST, PRESENT AND ?FUTURE

By DR. Z. L.

Pain is as old as life. And man, we like to think, as the highest developed organism, feels pain strongest.

It seems reasonable to suppose that throughout the ages it has been men's endeavour to prevent or to kill pain. And I think that the most humane application of chemistry for the solace of suffering mankind has been the discovery of chemical compounds that deaden pain. It would be easy to assume that when anaesthesia as we know it today first started to make its appearance that it would be welcomed with open arms. The real story, however, is just the opposite. Artificial sleep, apart from being welcome, was opposed and delayed for more than half a century. Anaesthesia had indeed a long and painful birth.

The art of making operations painless could have been developed at the start of the 19th Century. However, owing to a set of circumstances, not least of them the fear and dread of the patient of "unknown evil" kept doctors from the use of drugs to produce a surgical sleep, which was regarded as a vague and perilous state from which the patient might never return at all, or return only with the marks of the nether world printed forever upon his faculties. We may smile at such belief, but uneasiness over anaesthetics is not quite dead today.

Of course, the means open to our forebears for producing narcosis were very limited. These were wine and alcoholic spirits, and there were vegetable drugs like poppy-juice and mandragora.

There was indeed, one more resource for producing insensibility and that was mesmerism, now called hypnotism. However, it was not utilized for this purpose.

Briefly, the history of anaesthesia may be divided into two periods. The pre-anaesthetic period and the anaesthetic period. The pre-anaesthetic period ends and the anaesthetic period begins with the first use of ether to alleviate the pain of surgical operations in 1842 and its general introduction in 1846.

The Pre-anaesthetic Period

Some authorities claim that the first anaesthetic was administered as described in Genesis Chapter II, Verse 21 which says, "And the Lord God caused a deep sleep to fall upon Adam, and he slept: and he took one of his ribs, and closed up the flesh instead thereof;"

A few commonly accepted references prove that narcotics were used in pre-anaesthetic times:

(i) Homer in the Odyssey, says, "Helen dropped into the wine of the soldiers an antidote of grief and pain, inducing oblivion to all ills."

(ii) In 484 B.C., Herodotus refers to the inhalation of the vapours of hemp (Cannabis Indica) to produce intoxication.

(iii) In 23 A.D. Pliny, the Roman author speaks of the juice of certain leaves taken before cuttings and burning to produce sleep.

(iv) In 134 A.D., Galen, the physician, speaks of the power of mandragora to paralyse sensation and motion.

(v) In 250 A.D. Lucian, the Greek historian, refers to the narcotic effects of mandragora.

(vi) In 1250 Hugo da Luca, physician, refers to a certain oil with which he put patients to sleep before operations.

(vii) In 1544 Du Bartas implies a custom by writing "Even as a Surgeon, minding off to cut some useless limb, before in use he put his violent engines on the viscous member, bringeth his patient in a senseless slumber."

(viii) In 1613 Shakespeare in "Cymbeline" Act I Scene VI implies the use of a narcotic: Cornelius plans to give a secret drug which 'will stupefy and dull the sense awhile.'

In 1772 Priestley discovered nitrous oxide.

In 1800 Sir Humphrey Davy published his researches on nitrous oxide and respiration.

In 1818 Faraday noted resemblance between nitrous oxide and ether.

The crudeness of pre-anaesthetic methods is vividly depicted by N. P. Rice in an extract from one of his books: "With a meek, imploring look and the air of a startled fawn, as her modest gaze meets the bold eyes fixed upon her, she is brought into the amphitheatre crowded with men, anxious to see the shedding of her blood, and laid upon the table. With a knowledge and merciful regard as to the intensity of the agony which she is to suffer, opiates and stimulants have been freely given her which, perhaps at this stage, are again repeated. She is cheered by kind words and the information that it will soon be over and she freed forever from what now afflicts her; she is enjoined to be calm and to keep quiet and still; and with assistants at hand to hold her struggling form, the operation is commenced.

"But of what avail are all her attempts at fortitude. At the first clear, crisp cut of the scalpel, agonising screams burst from her, and with convulsive efforts she endeavours to leap from the table; but force is nigh. Strong men throw themselves upon her and pinion her limbs. Shrieks upon shrieks make their horrible way into the stillness of the room; like a lump of lead. At length it is finished and prostrate with pain, weak from her exertions and bruised by the violence used, she is borne from the amphitheatre to her bed in the wards, to recover from the shock by slow degrees."

The Anaesthetic period started in 1842 and progress has been spectacular specially in the last fifteen years or so. However, the path followed by the early pioneers has been anything but smooth. Perhaps the best way to follow it would be for me to try to introduce a few personalities to you, each of them struggling along, trying to devise ways and means to help suffering mankind.

HENRY HILL HICKMAN (1800-1830).

Qualified as a young doctor in 1820, and like most of his contemporary colleagues, went into general practice. He carried out researches with gases for inhalation anaesthesia. Amongst the experiments that he performed was one involving an ordinary cat. He put it on a dish floating on water and covered the whole thing with a glass bell. The cat would then breathe and re-breathe her own atmosphere of gradually increasing carbon dioxide. It became unconscious and Hickman was able to amputate its tail, whereupon the cat woke up and seemed quite happy. However, the medical profession in the U.K. did not seem very much impressed with his experiments. And so Hickman wrote to the King of France who arranged for a lecture and demonstration in Paris. Unfortunately, the doctors in France at that time (1828) were no more sympathetic than their English colleagues, and poor Hickman returned a heartbroken man. He kept worrying and died at a very early age (only 29 years old) of pulmonary tuberculosis.

HORACE WELLS (1815–1848).

While experimenting with nitrous oxide in the U.S.A., Wells saw a student knock his shin and make it bleed without feeling pain. This impressed him and made him think that N_2O might have analgesic properties. Being himself a dentist, he started using nitrous oxide for dental extractions and a demonstration was arranged at Massachusetts. Unfortunately, the patient was a very big and hefty man and during the extraction, he started shouting and struggling. The teachers and students present at this demonstration were not very impressed, started booing and were obviously dissatisfied although the patient stated afterwards that he did not remember feeling any pain. Be it as it may, poor Wells started to go downhill. He gave up dentistry and travelled round the country with a troop

of performing canaries. When in New York one night, he got into trouble when he bespattered a prostitute with sulphuric acid. He was sent to prison where he eventually committed suicide.

A sad end for a far-seeing man.

ETHER

This owes its introduction into medical and anaesthetic practice to three men who each claimed to be responsible for its discovery.

In those days, "ether frolics" were the fashion. These consisted of people sniffing the vapours of ether in the same way as people nowadays would drink cocktails, and they seemed to be deriving an exhilarating satisfaction from this practice.

CRAWFORD WILLIAMSON LONG was a young G.P. in Jefferson, U.S.A. He also participated in these "ether frolics" and noticed that quite hard knocks would give rise to no pain. He started giving ether for minor surgical procedures with good results. And so on the 30th March, 1842, a patient named Venables was going to have a tumour of neck removed and Long was going to give ether. All this was very courageous, as the patient's relatives made it known that if the anaesthetic was unsuccessful, they were going to lynch Long. However, the patient was all right and so was Long, for a time. Because, as so often is the case, local opposition to him and his methods made him worry a lot and he failed to publish his work and results. He died quite young of a stroke.

WILLIAM T. G. MORTON (1818-1868) was a junior partner of Wells. He approached a chemist by the name of Jackson about what would be the best anaesthetic to use. Jackson, who was also Morton's landlord, recommended ether. After a series of trials Morton administered ether to a patient in Massachusetts General Hospital with such a great success that all were amazed and Warren, the surgeon made his now famous exclamation: "Gentlemen, this is no humbug".

Morton and Jackson and their families wrangled about who was the original discoverer of ether and Morton even applied to the U.S. President for a patent. This so worried Jackson that he was admitted to a lunatic asylum where he died of cerebral haemorrhage.

So far, as you can see, anaesthetists did not have a tranquil life, neither did the future appear too rosy.

The scene now shifts to England and Scotland.

JOHN SNOW (1813–1858) was the first wholetime anaesthetist after Morton. He was the son of a Yorkshire farmer, and was very fond of walking. He walked from his native Yorkshire to London, via Newcastle, Liverpool and Bristol. He was a vegetarian, non-smoker, non-drinker and remained a bachelor. Studied at Westminister Hospital and school of anatomy. While living in London, he would often walk to St. Albans and back in the course of an afternoon. He was 33 years old when the first ether anaesthetic was administered. He perceived that the method of administration was at fault and designed an ether inhaler. He was appointed anaesthetist to St. George's Hospital. He also worked with Robert Liston at U.C.H. His health was however poor and he suffered from phthisis and from nephritis being treated for his kidneys by Bright. He did all his work connected with anaesthesia in 12 years. In 1841 he read a paper on resuscitation of the new-born. He switched from ether to chloroform but was familiar with its dangers. He believed it to cause primary cardiac failure consequent on the use of too strong a vapour. To overcome this danger he invented a percentage chloroform inhaler. He gave over 4,000 chloroform anaesthetics without a single death. In 1853 Snow originated the method of "chloroform a la reine" when he acted as anaesthetist at the birth of Queen Victoria's 8th child, Prince Leopold. He gave his royal patient 15 minimum doses intermittently on a handkerchief, the administration lasting 53 minutes. It met with the Queen's warm approval. His income never exceeded £1,000 per year although during the last 10 years of his life he gave an average of 450 anaesthetics per year. His last work "On chloroform and other

anaesthetics" was published posthumously, as one morning after breakfast he felt dizzy and died two days later. Snow's grave in Brompton Cemetery was restored in 1938 by anaesthetists from Britain and the U.S. His epitaph, written by Benjamin Richardson reads: "In Brompton Cemetery there was laid to rest, at the age of 45, John Snow, exemplary citizen and useful physician. He demonstrated that cholera is communicated by contaminated water; and he made the art of anaesthesia a science."

JAMES YOUNG SIMPSON (1811–1870) was a professor of medicine in Edinburgh. He was also interested in obstetrics and became elected to the chair of midwifery. He went to U.C.H. London to watch the first administration of anaesthesia and was favourably impressed by what he saw there. After he returned to Edinburgh, he gave a woman in labour ether on 19th January, 1847. But it was only a partial success, as the patient struggled and vomitted. Waldie, a chemist and F.R.C.S. suggested that he try chloroform, and so, on the 4th November, 1847 Simpson invited two of his assistants to dinner. Afterwards he gave them chloroform to inhale. All the present company became affected, most of them finding themselves lying on the floor underneath the table. Simpson was so impressed by this that later that very night he gave chloroform to another woman in labour with very good effect. He continued using it for women in labour. However the Scottish clergy were against it quoting the 16th verse of the 3rd chapter of Genesis. When, however, in April, 1853 John Snow gave Queen Victoria chloroform a la reine for the birth of Prince Leopold, most prejudice throughout the country died down. Princess Bea was also delivered under chloroform. Simpson worked very hard and died of angina in 1870. A memorial statue was erected in the St. Andrew's Chapel of Westminster Abbey.

There were a few more pioneers in the field of anaesthesia and the gallery of old masters would not be quite complete without mentioning Claude Bernard (1843–78) who although himself a physiologist was very interested in anaesthesia and is credited with having been instrumental in discovering curare. This poisonous drug has been used by South American Indians for a very long time to hunt animals and kill their opponents and adversaries. It is a plant extract and Indians would dip their spears into it as well as their arrows. That is why curare has acquired the alias of arrow poison. Claude Bernard went on his travels to South America, noted the procedure, brought a sample back with him to France and had it analysed. It is therefore, I think, very appropriate that a large measure of credit for the discovery of curare and perhaps its introduction into medical and anaesthetic practice should be laid at the door of Claude Bernard.

It may also be an interesting point to recall how "spinal" analgesia originated. A New York neurologist by the name of J. Leonard Corning, while experimenting with cocaine on the spinal nerves of a dog, accidentally pierced the dura. Later, he deliberately repeated the subdural injection, called it "spinal anaesthesia" and suggested it might be used in surgery. "Be the destiny of this observation what it may, it has seemed to me, on the whole, worth recording," he wrote in 1885.

Present Position

Anaesthesia as we understand it consists of analgesia (freedom from pain) narcosis (a sort of sleep) and muscular relaxation or depression of reflexes. In the past, all these requirements had to be attained by the use of one of the more potent inhalational agents such as ether or chloroform. And it was necessary to administer such a large dose of ether or chloroform in order to get muscular relaxation that the patient would suffer various ill effects from the large dose of ether or chloroform. And as muscular relaxation is essential for very many of the operations an overdose of ether or chloroform with all its accompanying undesirable effects was inevitable.

Spinal anaesthesia went some way towards eliminating the dangers of the overdose of ether and chloroform but

itself was not entirely free from danger. Some neurological and other complications were not infrequently blamed on the use of spinal anaesthesia and from the medico-legal point of view it became somewhat daring for a doctor to use spinal anaesthesia lest he exposed himself to possible not always justified legal consequences.

Muscle Relaxants

The introduction by Griffith and Johnson of Montreal and Gray and Halton of Liverpool of curare into anaesthetic practice marks a most conspicuous milestone in the development of this speciality. The muscle relaxants are drugs which, when injected intravenously will cause muscular paralysis of varying degree and duration. Their action takes place at the neuro-muscular junction of the striated muscles. Here, according to their pharmacological properties they either raise the threshold of the motor end plate to acetylcholine (curare Flaxedil, laudolissin) or act like an excess of acetylcholine by causing excessive depolarisation spreading from the motor end plate onto the adjacent muscle fibre. (decamethonium, scoline, Brevidil).

The great advantage that the use of these relaxants bring about is that whereas before you had to practically poison the whole organism by deep anaesthesia with ether, chloroform or cyclopropane, now you get excellent relaxation in light anaesthesia by the use of muscle relaxants.

If relaxation is of such profound degree that even all the respiratory muscles are paralysed and respiratory exchange becomes inadequate, controlled or assisted respiration is employed. This is usually done through a cuffed endotracheal tube using, as a rule a CO_2 absorption technique.

Recent Advances

1. Hypotensive techniques. Here, the patient's B.P. is lowered deliberately in order to secure a bloodless operating field. There are several ways to achieve this.

(a) Ganglion blocking agents (hexamethonium, arfonad, etc.)

(b) Total spinal (Gillies and Griffith of Edinburgh)

(c) Arteriotomy

(d) The use of fluothane (a new inhalational anaesthetic agent)

All these methods found their uses and advocates. Their popularity, however, seems to be on the decline.

2. Hypothermia. The body temperature and therefore oxygen consumption is reduced by various means of cooling. It will, however, be appreciated that the patient has to be anaesthetised before cooling can take effect. Under normal circumstances, it is not feasible to cool below 29°C. as ventricular fibrillation may supervene below that temperature. Efforts are at the present time being made to try and reduce the body temperature below these critical levels. Hypothermia enables the heart and circulation to be stopped for periods up to 8 minutes which will suffice for procedures such as closure of interauricular septal defect etc.

3. Extra-corporeal circulation. In this procedure, the heart is bypassed and the patient's circulation is maintained by means of a heart lung machine. The heart can then be stopped for longer periods and intricate surgical procedures within the heart are brought within the realms of possibility.

4. A combination of hypothermia and extra-corporeal circulation is gaining popularity in various centres.

It may be, perhaps, of some interest to the reader to know that various efforts of producing anaesthesia by electrical currents have been tried and found nearly successful. The latest reported electrical anaesthesia was carried out at the University of Mississippi Medical Centre. The device used to produce anaesthesia was a frequency generator which developed a 700 cycle signal coupled to an amplifier connected in turn to the patients' temples by electrodes about the size of florins.

As the dividing line, however, between electrically produced convulsions and electrically produced anaesthesia is very thin, I am not at all certain that electrical anaesthesia is going to supplant chemical anaesthesia as practised at the moment in the foreseeable future, owing to the dangers and complications that convulsions may lead to.

Be it as it may, I think most will agree that the advances made by surgery in the recent past have, to say the least, been facilitated by improved anaesthetic methods and techniques. And I do not think it is too much to say that the frontiers of surgery lie where anaesthesia is able to place the fences. It may perhaps be as little profitable to say whether anaesthetic or surgical advances come first as to answer the hypothetical question as to which came first, the chicken or the egg? In this connection, the position of modern anaesthesia has been very ably put by Sir Heneage Ogilvie, K.B.E., D.M., M.CH., F.R.C.S. when in a speech to the Manchester Medical Society on May 5th, 1954, he said, "The most notable advance in the period I am reviewing, that of my own surgical career, has been in the field of anaesthesia. Anaesthesia has been advancing since its introduction in 1846, but the changes that have taken place in this field in the last twenty years exceed those of the previous ninety. In my first ten years as an assistant surgeon many of my difficulties during the operation, much of my post-operative morbidity, and perhaps a quarter of my post-operative deaths were due to the anaesthetic. As a junior surgeon I was unable to secure the services of a trained anaesthetist, and had to depend on the services of any recently qualified man whom my house-surgeon was able to bring in. Most of my patients were terrified when they entered the theatre, struggling during induction, deep purple when they reached the table, stertorous and bubbling throughout the operation, unconscious and motionless during the first six hours after they returned to the ward, vomiting for the next twelve, and "chesty" for the next week. So fearful was I of anaesthetics that for twelve years, from 1927 to 1939 I performed all my gastrectomies and much of my major surgery under local analgesia alone.

The modern anaesthetist gains the patient's confidence by a complete pre-operative overhaul, prepares him by a careful assessment and adjustment of his deficiencies, allays his fears by pre-operative medication, renders him unconscious by an intravenous barbiturate, maintains analgesia by one of the anaesthetic gases, ensures oxygenation and immobility of the diaphragm by controlled respiration, and by the use of relaxants provides the degree of muscular relaxation needed at any stage of the operation. He is no longer a mere "dope merchant". He takes over the whole responsibility for the patient's welfare and the surgeon's peace of mind. He presents the operator with tissue in a condition to suit him, relieves him of all anxiety except for the technical details of the operation itself, and hands him back a patient alive and well and about to come round."

This is a surgeon's opinion. And how does the layman feel about it? You might be interested in what Professor C. E. M. Joad says in his recent book "The Recovery of Belief": "There is a time-honoured controversy as to the most important single discovery in the history of the human race. Some opt for fire; some for the invention of the wheel; some for the growing of corn. For my part I would give my vote to the invention of anaesthetics."

Group photo of the Medical Society taken before the 'Presidential Address'.

MILESTONES IN OBSTETRICS

by

CHEW WEI, M.B., B.S., M.R.C.O.G.

Obstetrics was practised since the beginning of mankind but it was only during the last two to three hundred years when it was established on a scientific basis. This tardy development was due to the nature of the subject itself. Unlike other branches of medicine, for centuries obstetrics was tabooed by social customs and in some quarters also by religious practice. Therefore it was entirely in the hands of "midwives" up to the end of the seventeenth century. However, inspite of this long neglect rapid progress in obstetrics was made in recent centuries so that at the present time pregnant women can look forward to their confinement with more confidence and assurance than ever before. I shall try to trace some of the major achievements which have made obstetrics what it is to-day.

I. The Conquest of Puerperal Sepsis.

One of the most important milestones in obstetrics was the conquest of puerperal sepsis. To realize the magnitude of this achievement one needs only to compare the present maternal mortality rate of less than one per 1000 live births with that in the previous century as shown in Table I.

TABLE I: *Maternal Mortality in 19th Century*

	Births	*Mat. Mortality per 1000 live births*
Baudelocque of the Maison de Acchouchements, Paris (1799 - 1809)	17,499	40.0
Hospital of St. Catherine, Milan, 1811	296	31.8
Le Fort's Collective review, 1866 Domiciliary deliveries in Europe	934,781	4.8
Institutional deliveries in Europe	888,312	34.2

The evolution of the conquest of puerperal sepsis can be divided into three periods (Table II).

TABLE II: *Evolution of Conquest of Puerperal Sepsis*

1800—1870	*1870—1925*	*After 1925*
Recognition of Contagiousness of Puerperal Fever	*Recognition of Microbes*	*Identification and Classification of Haemolytic Streptococci*
1797 A. Gordon	1869 Coze and Feltz	1935 R. Lancefield and Hare
1843 O. W. Holmes	1879 L. Pasteur	1935 F. Griffith
1846 I. P. Semmelweis		
Period of Isolation	*Period of Antisepsis*	*Period of Asepsis and Antisepsis*
		Period of Chemotherapy and Antibiotics
		1936 Domagk
		1939 Fleming, Florey and Chain.

The first period, the recognition of contagiousness of puerperal fever, started in the latter part of the eighteenth century, and coincided with the flourish of man-midwives and institutional deliveries. With keen interest in the study of anatomy of the female pelvis and the mechanisms of childbirth by the man-midwives in post-mortem room together with the unhygienic surroundings of institutional delivery one can easily understand why puerperal fever rose to an epidemic proportion at that time. The observations on the contagiousness of puerperal fever and the tragic part played by obstetricians and midwives in the dissemination of the disease were energetically voiced by Alexander Gordon of Aberdeen in 1797, Oliver Wendell Holmes of America in 1843, and Ignaz Philipp Semmelweis of Vienna in 1846. Great tribute I think should be paid to Gordon and Semmelweis for their courage, because being obstetricians, they were eventually boycotted and outcasted by their colleagues and midwives for their frank exposure of medical errors. While Gordon advised that "the nurses and the physicians who have attended patients affected with puerperal fever ought carefully to wash themselves and to get their apparel properly fumigated", Semmelweis insisted that his students coming from the dissecting room or post-mortem room should wash their hands and scrub their finger-nails in chlorinated lime water. By this measure, the mortality in the wards under Semmelweis' care was immediately reduced from 18 per cent to 3 per cent. Since the real causative agent was not known at that time it was easy to see why Semmelweis' "aseptic technique" could not offer full protection, and why he failed to convince his colleagues. Nevertheless, the age of isolation was born. The sick patients were beginning to be segregated and kept apart from the healthy.

The second period was the discovery of microbes as the causative agent of puerperal sepsis. This was associated with the birth of medical bacteriology. It was in 1869 when Coze and Feltz first reported the presence of little bodies 'en chainettes' in the blood of a patient died of puerperal fever. This finding was more fully investigated, described and publicised by Louis Pasteur of France in 1879. The vivid account of the meeting of the Academy of Medicine by Emile Roux merits repetition.

> "One day, in a discussion on puerperal fever at the Academy of Medicine, one of the most renowned of his colleagues made an eloquent dissertation on the causes of epidemics in the maternity hospitals. Pasteur from his place in the audience interrupted him: "The cause of the epidemic is nothing of the kind! It is the doctor and his staff who carry the microbe from a sick woman to a healthy woman". And when the orator replied that he was convinced that no one would ever find this microbe, Pasteur darted to the blackboard and drew the organism with its chaplets, saying: "There! There is its picture"! . . . Furthermore, he maintained that he could tell by examination of the lochia, which woman would have an attack of puerperal fever, and he assured them that in a woman who was very badly infected he could demonstrate the microbe in the blood of the finger".

Meanwhile, Lord Joseph Lister of Great Britain had introduced the idea of antisepsis in surgical wards. The impact of the era on obstetrics was shown by the work of Etienne Stephane Tarnier of France in the following Table (Table III).

TABLE III: *Maternal Mortality Rate reported by Tarnier*

		Mortality per 1000 live births
1858—1869	The period of inaction	93.1
1870—1880	The period of isolation	23.2
1881—1889	The period of isolation and antisepsis	10.5

The third period saw three important developments. The identification and classification of the pathogenic bacteria led to the establishment by R. Lancefield and R. Hare in 1935 that fatal cases of puerperal sepsis were commonly due to haemolytic streptococci of Group A, and less frequently of Group B. Further work by R. Lancefield, and by F. Griffith in the same year showed that the strain belonging to Group A could again be subdivided into more than 20 types by serological methods. All these helped to trace the actual source of infection and to understand its modes of dissemination. The outcome was more effective aseptic and antiseptic techniques in obstetrical practice. But the battle of puerperal sepsis would never have been won had it not been for the advent of chemotherapy and antibiotics. In 1935 Professor G. Domagk of Elderfeld published his results showing the effectiveness of a red dye, Prontosil, in controlling streptococcal infection in human as well as in experimental mice. Soon there followed the isolation of Sulphanilamide from the Prontosil by Trefouel and his co-workers. In 1936 the first controlled trial of both Prontosil and Sulphanilamide was made by L. Colebrook and his co-workers in Queen Charlotte Maternity Hospital, London, on a series of comparable cases of streptococcal septicaemia. They established beyond doubt the significance of this discovery. Meanwhile, in 1929 A. Fleming had discovered Penicillin and its properties had been partly explored. Finally in 1939 by the efforts of Florey, Chain and their co-workers Penicillin was developed into a powerful therapeutic agent against bacterial infection.

The influence of these chemotherapeutic and antibiotic agents was best expressed by the decline of maternal deaths from puerperal sepsis in England and Wales reported by P. Stocks in 1949 (Figure 1).

Unfortunately, this is not the end of the story of puerperal sepsis. Inspite of the introduction of numerous powerful chemotherapeutic and antibiotic agents, to-day the abuse and misuse of these

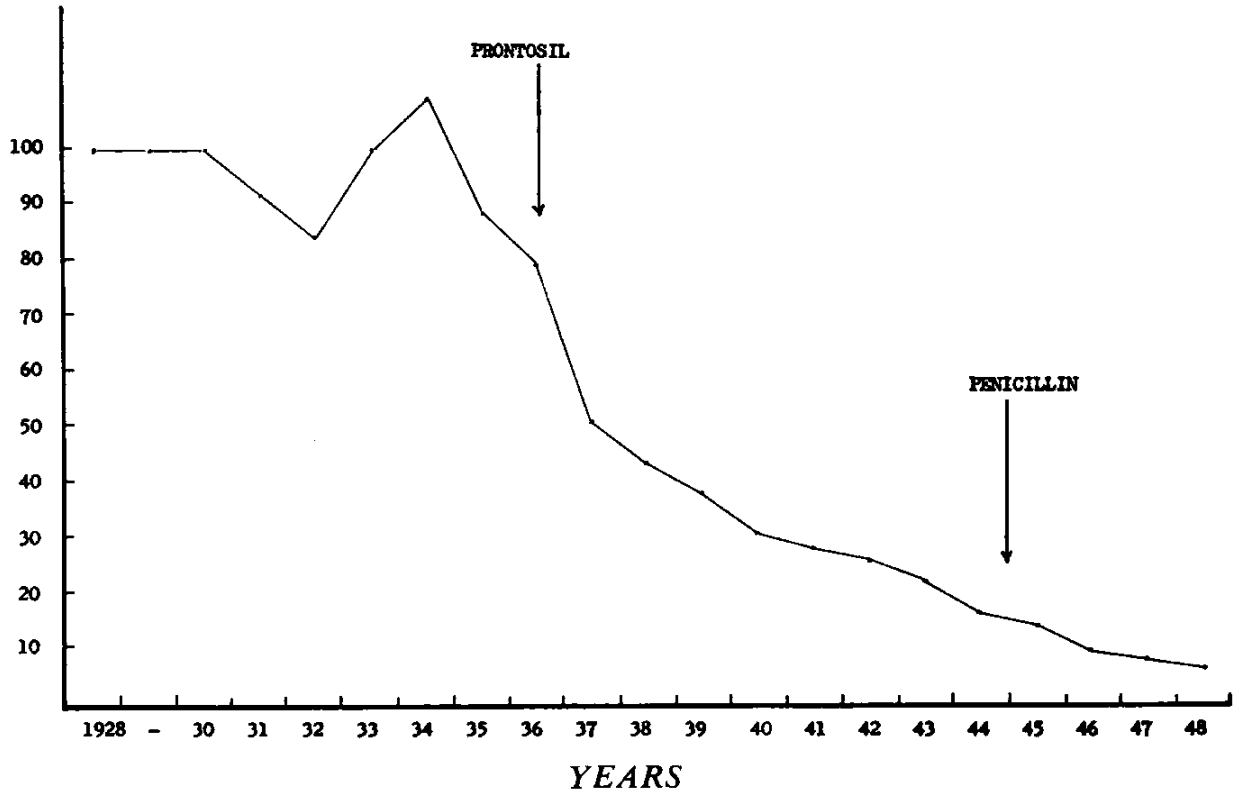


FIGURE 1—*Deaths from puerperal sepsis in England and Wales from 1930 to 1948 in terms of the average for the years 1928 to 1930 (P. Stocks).*

drugs have caused the development of resistance against these drugs in many strains of pathogenic bacteria. This coupled with the laxity in aseptic and antiseptic techniques have resulted in sporadic flare-up of puerperal sepsis in epidemic form in many maternity hospitals. Thus unless a more scientific approach is made the history of puerperal sepsis might repeat itself.

II. The Evolution of Operative Obstetrics

Among the most interesting milestones in obstetrics was the evolution of operative obstetrics for dystocia.

(a) Caesarean Section.

The history of Caesarean section has been carefully reviewed by Professor D. Chun in her Presidential Address of this Society in 1957. Suffice it to say that even up to the early part of nineteenth century Caesarean section for the living was a crude operation. It was seldom performed. Fleetwood Churchill collected 80 cases performed in Great Britain and America between 1737 and 1858. Among these, 23 mothers were saved and 57 died, a mortality of 71.2 per cent. This high mortality rate was due to the absence of anaesthesia, the ignorance of infection, haemorrhage from not suturing the uterine wound and the operation performed as a last resort. The risk of surgical operations at that time was best summed up by James Young Simpson who said: "A man laid on the operating table in one of our surgical hospitals is exposed to more chances of death than the English soldier on the field of Waterloo".

The first real improvement was made in 1876 by Edoardo Porro of Pavia, Italy when he performed a Caesarean hysterectomy on a dwarf under chloroform anaesthesia with survival of mother and child. This new trend reduced the operative mortality by 20–30 per cent. However, Porro's triumph was short-lived as in 1882 Max Sanger introduced the present form of upper segment Caesarean Section with emphasis on careful suturing of uterine wound and the operative mortality was further reduced to 5–10 per cent towards the end of nineteenth century.

The present form of lower segment Caesarean Section was initiated by F. Frank in 1906 when he carefully described his method of shutting off the general peritoneal cavity against infection. This was improved upon by Kronig in 1912 and the present form of transperitoneal lower segment Caesarean section was born. It was due to the efforts of Munro Kerr in Britain, Beck and DeLee in United States that this operation became popular.

The outstanding merits of transperitoneal lower segment Caesarean section coupled with the chemotherapeutic agents if indicated had ousted the extraperitoneal lower segment Caesarean section which was revived and championed by Wilhelm Latzko in 1909. At that time, without chemotherapeutic agents, the extraperitoneal approach was the method to avoid spread of infection to the general peritoneal cavity, and Latzko reported only two maternal deaths from 30 patients operated.

Today the transperitoneal lower segment Caesarean section is so safe that it has been established as one of the best methods in dealing with all forms of dystocia and its scope has also been extended for other complications of pregnancy.

(b) Forceps.

After the Chamberlen forceps had ceased to be a family heirloom, credit must be given to William Smellie (1697–1763), the great master of British midwifery, who not only perfected the forceps but also gave proper instructions as to their uses. He invented the English lock and the pelvic curve for the forceps, and was the first to emphasize cephalic application in order to avoid injury to the foetal head. And it was he who first used the forceps for the aftercoming head in breech delivery. At that time, however, forceps were the secret weapons of the man-midwives. Therefore, Smellie's early forceps were made of wood and later of metal covered with leather so that they could be applied

"without their being perceived by the woman herself or any other of the assistants".

While every obstetrician in the nineteenth century made some minor modifications of the forceps with an attempt to obtain a better result it was not until 1878 when E. S. Tarnier first made a major improvement on forceps. He devised an axis-traction forceps so that they could be used for more severe forms of contracted pelvis with the foetal head arrested at the pelvic brim. He showed that the conventional form of forceps when used for the purpose had the following disadvantages: (1) they had to be pulled with a greater force because part of the force was wasted, (2) this wrong direction of traction resulted in compression of foetal and maternal tissues with also the liability of slipping of forceps, (3) when pulled along the axis of the pelvis the forceps were liable to tear the perineum. The impact of his invention was such that the incidence of internal podalic version for brim dystocia was greatly reduced. With subsequent modifications by Neville-Barnes (1886), Milne Murray (1891), and Haig Fergusson (1926) axis-traction forceps enjoyed a boom for many years before it was being gradually replaced by Caesarean section.

It is interesting to observe how the same problem with a different surgical background had been tackled with a different approach. After Tarnier's forceps had been in use for 37 years another major modification of forceps took place. In 1915 Christian Kielland of Norway invented his straight forceps by doing away with the pelvic curve for high application. This undoubtedly was made feasible by the popularisation of episiotomy in the present century. It had been speculated that Tarnier might never have invented his forceps if he had the advantages of anaesthesia, asepsis, and episiotomy.

To-day, the simplicity of Caesarean section has supplanted the complicated high forceps and also the difficult mid-forceps deliveries. The use of forceps is now chiefly confined to mid-cavity or pelvic outlet to shorten the second stage of labour. They are more frequently employed to forestall maternal or foetal distress and hence the increased use in recent years.

(c) Destructive Operations — Craniotomy, Decapitation and Embryotomy.

Destructive operations were ancient operative procedures in obstetrics. In the past, when the foetus was impacted labour arrested and the parturient woman exhausted the only way out was to destroy the unborn child in order to save the mother. However, the operations were not as simple as one would imagine. Without the proper instruments it was difficult to perforate the foetal skull, and even if it was perforated it might be difficult to reduce its size so that it would go through the narrow pelvis. Thus, it was not uncommon that both the child and the mother perished together. With this background one would be able to appreciate the ingenuity of the past obstetricians in perfecting these destructive instruments.

In the late eighteenth century the destructive instruments consisted mainly of blunt hook, craniotomy scissors, craniotomy forceps, and crotchets. By 1825 J. Ramsbotham had devised his decapitation knife for impacted shoulder presentation. The first cephalotribe with both blades applied on the outside of the foetal skull for crushing was invented by A. Baudelocque in 1829. This was subsequently modified by Braxton Hicks (1865), G. Kidd (1867), Scanzoni and Ed. Martin (1868). Meanwhile cranioclast was developed from craniotomy forceps with one blade to be applied inside and other outside the foetal skull. This was popularised by J. Y. Simpson (1860), and R. Barnes (1870). In 1880 basilyst was designed to break up the base of the skull by A. R. Simpson. Three years later E. S. Tarnier devised a perfect destructive instrument and called it basiotribe which was a combination of basilyst, cephalotribe and cranioclast. This was subsequently modified by A. Auvard (1889), and later also by Jardine of Glasgow.

Since the beginning of the present century destructive operations were no longer performed on living normal foetus because of the safety of Caesarean section. To-day it is only occasionally employed in selected cases of dead or malformed foetus associated with dystocia.

(d) VERSION.

Turning the foetus in utero was another ancient obstetrical procedure. It was popularized by Ambroise Pare during the Rennaissance. For centuries it had remained a mainstay in coping with a variety of major obstetrical complications, chiefly cephalopelvic disproportion, malpresentations, and antepartum haemorrhage. Even up to 1847 J. Y. Simpson still expressed his preference for internal podalic version in place of forceps in contracted pelvis. The arguments advanced then were that with a leg of the foetus brought down the accoucheur had better control of the delivery, and that in flat pelvis the aftercoming head of the foetus presented with a smaller diameter by greater overlap of the parietal bones. Moreover, internal version was often used as a last resort when attempts to deliver with forceps proved unsuccessful or extraction of the foetus following craniotomy was difficult. Hence the maternal and foetal death rates for internal podalic version were very high as shown by Fleetwood Churchill in 1872 who reported the operative mortality of 1 in 15 for the mother and 1 in $2\frac{1}{2}$ for the child.

With the introduction of axis-traction forceps, the use of internal version for contracted pelvis was markedly curtailed, and by the end of nineteenth century both version and high forceps operation were gradually being replaced by Caesarean section. To-day, it is used only for extracting second twin when there is malpresentation or prolapse of umbilical cord.

As for placenta praevia, internal version had never proved to be a satisfactory method of treatment. With the lesser degree of encroachment of placenta on the lower uterine segment the effectiveness of artificial rupture of membranes alone was pointed out by Edward Rigby (1775) and Robert Lee (1842). With the severe degrees, the only recourse was ineffective vaginal packing until the cervix was sufficiently dilated to admit a whole hand for the performance of an internal version. It was amidst this desparate situation when Braxton Hicks of Britain introduced his bipolar version in 1860. This enables version to be done through a cervix that admitted one or two fingers.

> He described: "Anything which gave the practitioner some power of action was to be earnestly welcomed, anything better than to stand with folded arms, incapable of rendering assistance for hours or even days, every moment of which might be carrying the sinking and suffering patient nearer to the grave . . . Turn, and if you employ the child as a plug the danger is over. Then wait for the pains, rally the powers in the interval and let nature, gently assisted, complete the delivery".

The wide adoption of this method in the management of placenta praevia eventually led to the reduction of maternal deaths from 30 per cent to 5 per cent. But unfortunately Hicks' version could not be applied to all types of placenta praevia. And this led to Lawson Tait to perform a Caesarean hysterectomy for placenta praevia in 1898. To-day, the management of placenta praevia is greatly simplified with artificial rupture of membranes for the incomplete types and Caesarean section for the complete types. The foetal wastage from prematurity is also reduced by the adoption of "expectant treatment" in selected cases conducted in hospital with facilities for blood transfusion and Caesarean section.

(e) INDUCTION OF PREMATURE LABOUR.

The practice of induction of premature labour in order to avoid cephalopelvic disproportion in cases of pelvic deformity was first performed by Macaulay in 1756 and was made great use of by Thomas Denman (1785). While the idea seemed logical in practice the result was uncertain. This was mainly due to the difficulty in determining: (1) the exact extent of cephalo-pelvic disproportion,

(2) the size and permissible mouldability of the foetal head, (3) the nature of subsequent uterine action after induction. Although it received little support from other countries, it flourished in England until recent decades when a more balanced attitude has curtailed its employment.

It is interesting to trace the various methods employed for the induction of premature labour. Macaulay's original method was by rupturing the fore-water, and is now known as the "English method". In 1810 J. Hamilton suggested simple digital separation of the membranes from the lower uterine segment. Later he practised rupturing the hind-water with a male catheter. In 1853 Krause introduced the insertion of bougie between the membranes and uterine wall, and about the same time, various types of rubber bags were invented for this purpose. Krause's method remained popular for more than 50 years and was gradually being replaced by the revival of rupturing of membranes for which Drew Smythe invented his special metal catheter in 1937. Meanwhile, "medical induction" had come into vogue with the introduction of posterior pituitary extract by Blair Bell in 1909. In recent years the methods commonly used alone or in combination are: (1) rupture of fore-water, (2) stripping of membranes, and (3) medical induction with pitocin—an oxytocic purified from the posterior pituitary extract.

To-day, induction for cephalo-pelvic disproportion has been largely replaced by "trial of labour" to see how much Nature can accomplish and only a few die-hards still persist to induce labour for minor disproportion in multigravidae. On the other hand, the scope of induction of labour has extended and it is now principally used in the management of toxaemia of pregnancy, postmaturity, antepartum haemorrhage and some other miscellaneous conditions such as foetal malformations.

(f) SYMPHYSIOTOMY.

Dividing the symphysis pubis during labour in order to enlarge the size of pelvic cavity was first performed by J. R. Sigault in 1777. After a brief period of popularity in France it came into disuse until it was revived by Morisani of Naple, Italy, in 1881. His excellent results aroused the interest of the obstetricians in the Continent. But soon the limitations and disadvantages of symphysiotomy were fully realized and despite its substitution with pubiotomy by Van de Velde, Gigli, and Doderlein in order to obtain a slightly greater enlargement of the pelvic capacity this type of operations was replaced by Caesarean section.

To-day, symphysiotomy is practised only in some quarters particularlly in Ireland and South America, and its application is limited to certain types of pelvic deformity associated with outlet contraction.

Looking back, the changing trends in operative delivery for dystocia seems to evolve entirely around Caesarean section. It is really the story of the growth and triumph of Caesarean section. In the pre-anaesthetic and preantiseptic days (before 1870) when Caesarean section was such a risky operation one can understand why obstetricians in the past tried their best to effect delivery by the vaginal route, and we have to admire them for their ingenuity in exploring every possible avenue to overcome their difficulties.

With the help of anaesthesia and antisepsis (after 1870), Caesarean section began to be more frequently used in coping with various major obstetrical complications and thus the technique of Caesarean section was improved upon. Similarly during this period there was increased activity in exploiting the scope and limitations of every other operative procedure with the exception of, perhaps, the destructive operations for the living foetus.

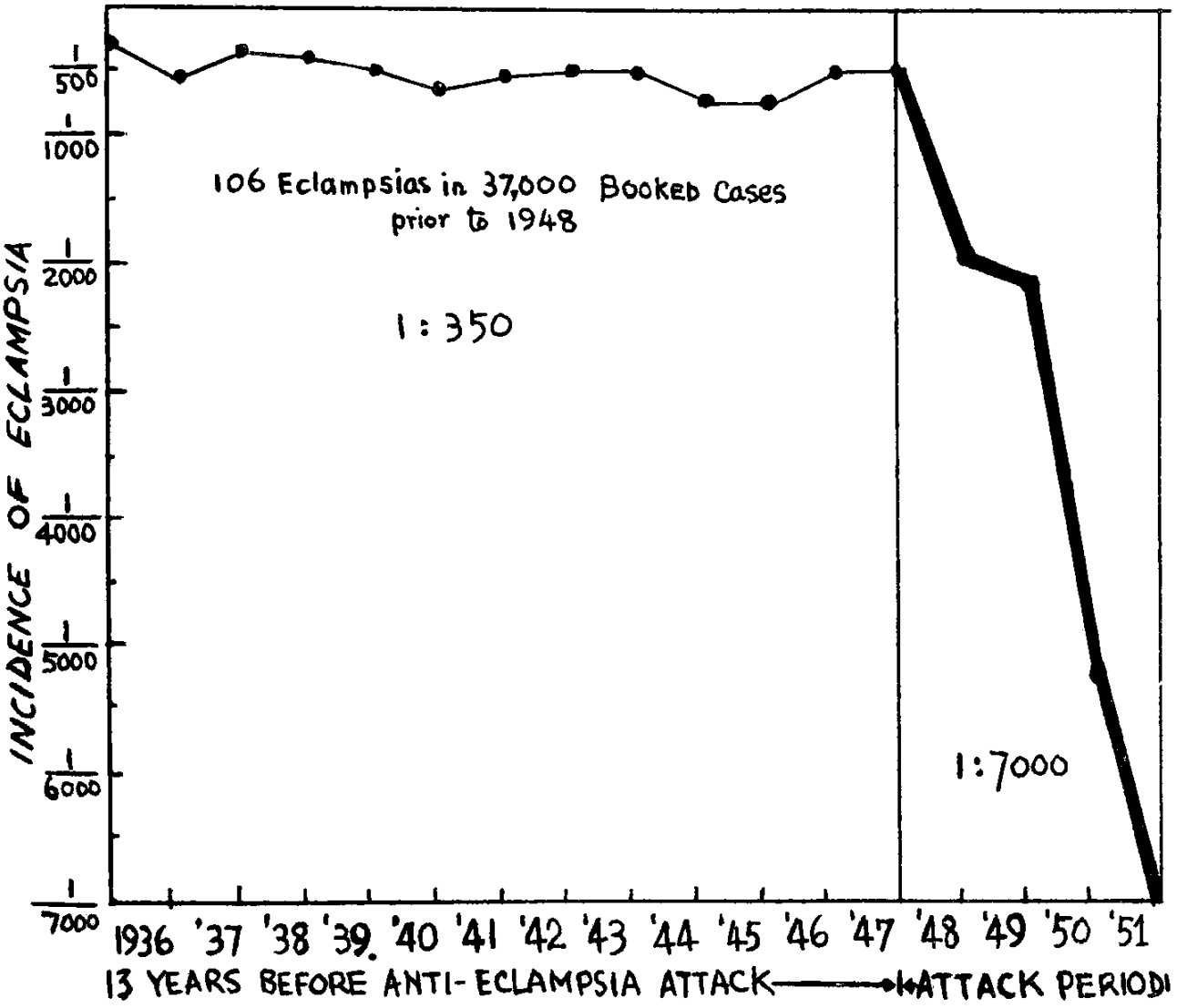
With the control of bacterial infection and the advent of blood transfusion (after 1936) Caesarean section became established as an effective and safe obstetrical procedure. The stage of consolidation for operative obstetrics has been reached. Thus the employment of any operative procedure has become less empirical and instead more selective to cope with each individual problem.

III. Introduction of Antenatal Care.

The most rewarding milestone in obstetrics was the introduction of antenatal care. The present century has ushered in the era of preventive medicine. With better understanding of the natural history of diseases physicians have achieved great success in the field of prevention. In surgery, Lord Moynihan's famous motto was "We have made surgery safe for the patient, we must make the patient safe for the surgery". And singularly enough, preventive obstetrics was born with the century.

It was in 1901 when J. W. Ballantyne of Edinburgh deploring the lack of knowledge in physiology and pathology of pregnancy made his plea for a "pro-maternity hospital" in order to investigate and treat pregnant women suffering from diseases. As a result of his plea a bed was endowed to the hospital where he was working and this was gradually increased to 25 beds. It was the beginning of the antenatal ward. In the same year, the Instructive Nursing Association in Boston, United States, began to pay antenatal visits to some patients in the out-patient department of the Boston Lying-in Hospital. The work was so successful and popular that in May 1911 the "pregnant clinic" of the Boston Lying-in Hospital was opened.

With this simple beginning the seed of antenatal care has germinated and continued to grow ever since. To-day, no maternity unit in any hospital will be considered as adequate without the es-



Showing effect of the anti-eclampsia campaign, 1948–1951, at the Women's Hospital, Sydney (R. H. J. Hamlin).

tablishment of antenatal out-patient service and antenatal beds. By adequate antenatal care it means careful preparation of pregnant women for delivery. This should start as soon as they are pregnant and not when they are six to seven months pregnant, which is still commonly practised. By early attendance and periodic check-up we aim to improve and maintain the health of the mother and the foetus, to detect and to treat as early as possible any pre-existing disease, and to prevent any associated disorder occurring during pregnancy. Delivery is now a planned affair as the condition of the maternal passage has to be ascertained, the foetal presentation and position to be continuously assessed, and any malpresentation will be corrected if possible. So with the close co-operation of the patient one should attempt to eliminate as much as possible at the time of delivery the element of surprise and emergency, which had been an indirect cause of many avoidable maternal and foetal deaths in the past. The benefit of antenatal care should show itself in many ways, but the ultimate aim is not only the reduction of maternal and foetal mortality but also maternal and foetal morbidity. As an example to show that prevention is better than cure, perhaps, it is best illustrated by the work of R. H. J. Hamblin reported in 1952. He showed that by good antenatal care the incidence of eclampsia was reduced from 1 in 350 patients to 1 in 7000 patients (Figure 2).

Unfortunately, the practice of antenatal supervision is still not ideal in many countries. The ignorance of the lay public together with the economic loss of working hours by these patients have resulted in late and infrequent attendance. The need for repeated check-up has built up an enormous amount of out-patient work which very often taxes the strength and ingenuity of the limited hospital staffs. And too frequently the state of affairs described by Ian Donald still holds true.

> He wrote: ". . . I can remember before the war one large antenatal clinic in a hospital of good reputation in which the doctors prided themselves on being able to see 60 cases in 65 minutes. Urines were examined and blood pressures were taken by members of the nursing staff, the patients were mustered on a sort of assembly line, and the examination consisted of little more than a rapid laying on of hands, a sister meanwhile recording the medical officer's comments. This sort of thing can only be described as a travesty of antenatal care, and accords to the patient as a whole no more than the status of an appendage of her gravid uterus and its contents".

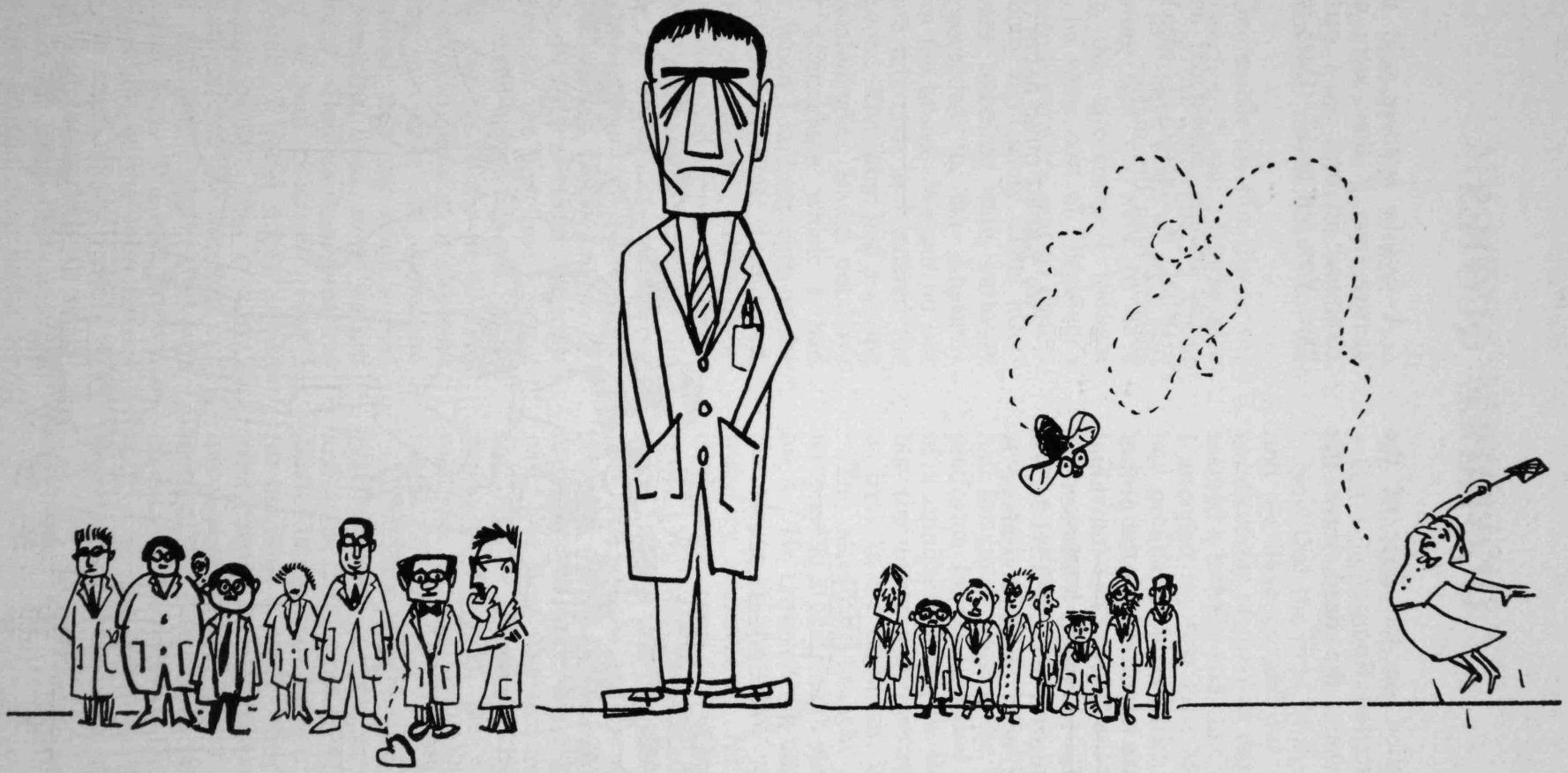
Therefore unless better organisation is provided so as to give enough time to treat the patient as an individual I am afraid we shall not be able to reap the full benefit of modern antenatal care.

CONCLUSION.

I have reviewed some of the major achievements in the field of obstetrics. There are other aspects of achievements which are just as important in the shaping of the present trends in obstetrics. But this brief and cursory survey will suffice to remind us that progress in obstetrics, like everything else, depends on the contribution of every branch of knowledge which made up the necessary background. In the present space age, I believe, no one will dare to predict the limits of future achievements in obstetrics.

False positive *pregnancy tests* in patients who have received tranquillizers of the *phenothiazine* type can be avoided if the frogs are injected with blood serum instead of urine.

—J. E. HODGSON: J.A.M.A., 170: 1890, 1959.



Musca domestica and domesticated Medica

QUOTABLE QUOTES

The inscription on the door of the Anatomy Dissection Room:

"Here is where the dead serve the living."

* * *

Hormones are important for the proper functioning of the body. The individual depends on the following hormones for his characteristics: FSH LH TSH ICSH. But what we need most nowadays is CASH.

A certain lecturer told the class to answer thus if they were asked by an Examiner in oral on a certain subject; "Sir, You tell me!" (Dare we do that?).

* * *

The female, considered as a machine —(what a degrading idea!)—is more efficient than the male.

* * *

"Are you all quite happy?"

M.G.

MY FIRST EXPERIENCES

A medical student's life is never too dull. There are always so many first-time experiences. The practical work which we do are somewhat "mysterious" to the layman.

I can still remember my first day at the Anatomy Dissection Room. It was also our first day at the University; I found it quite hard to believe when we were told in the morning that we were to have dissection in the afternoon—I thought there would be some sort of "beginner's dissection" before we were sent to dissect the human body right away. That afternoon we were bubbling with curiosity when we proceeded to the Anatomy Building from the hostel. We put on our starched white lab. coat and entered the Dissection Room. The room had a strong smell of formaldehyde. It did not have the gloomy atmosphere which I had anticipated. When I laid my eyes on the cadaver for the first time, I shivered, although it was still covered with a cloth. After we were assigned to our respective tables, the great moment of unveiling the cadaver came: I do not know why but I declined the honour of unveiling it. When the cadaver was finally uncovered, we all stared at it in absolute awesome wonder. Here, for the first time I saw a man lie stark naked before my eyes! The peculiar smell and the colour of his skin with the wax still clinging to it gave the whole setting a sense of unreality. Thoughts flashed past my mind. Had this "thing" really lived and walked among us once? Had he once breathed the same air we now breathe? Had I seen him before? I found it best not to dig into the past of this poor creature!

After we had got over the shock of our acquaintance with the cadaver we proceeded to dissect him. We had to do a superficial dissection of the infraclavicular triangle—in our inexperience, we lifted the skin and the underlying superficial fascia and fat altogether; and we searched for ages in the deep fascia for the cutaneous nerves: afterwards we asked a demonstrator who quickly put us back on the right track.

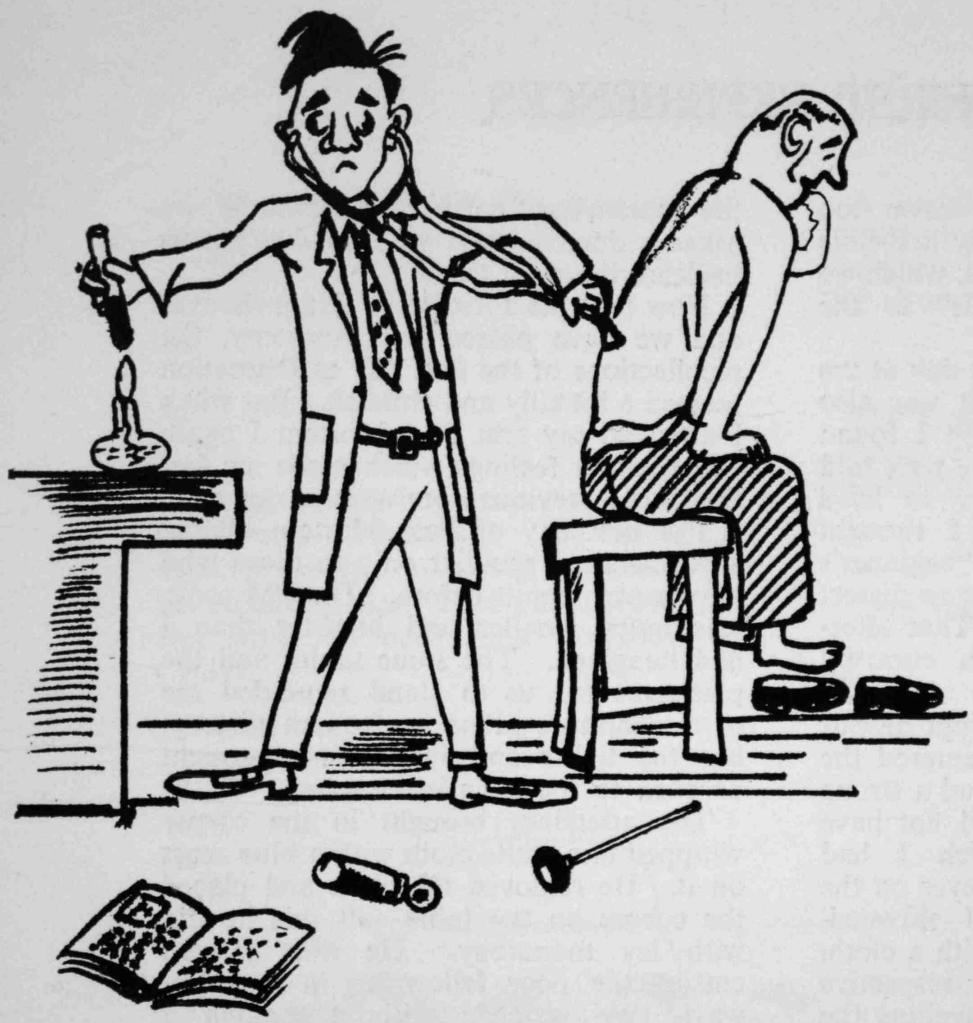
Now that the First M.B. Exam. is over and we have passed our Anatomy, the recollections of the first day at Dissection seemed a bit silly and childish. But when I attended my first Post Mortem I again had peculiar feelings which made me feel that those previous ones were all too real.

The first day of Post Mortem offered an excitement peculiar only to those who have never seen it before. The PM room was much smaller and brighter than I had imagined. The stone tables and the platforms for us to stand reminded me of a miniature arena in Roman history; but the lights and instruments brought us back to the twentieth century.

The attendant brought in the corpse wrapped in a white cloth with a blue cross on it. He removed the cloth and placed the corpse on the table—all this he did with icy monotony. He then started cutting the poor fellow up in a skilful way. We watched without making a single noise; the terrible smell floated past our nostrils and we winced in discomfort. It was like watching a ritual ceremony of some cruel religion of the past, and here was the high priest performing the sacrifice. How oddly the scene blended with the wailings of the relatives of the deceased outside the room.

From these experiences and from our practical work, I seem to question more and more the distinction between life and death. Is it a wide margin unbridged but for the cruel sting of death? Or is it the mere passing through of the portal of Life into a new world of happy dreams? How meaningless Life would be if we do not accept the teachings of Our Saviour and believe in the Paradise which He has prepared for those who love Him.

M.G.



Last minute rush.

O.P.D.

"Patient healthy-looking, not obese . . ."

MEDICAL SOCIETY ANNUAL REPORT 1959—1960

The session of 1959 – 60 is a year of success. It is a year in many ways creative and in other ways revolutionary. Many events happened in this year open new pages in the history of the Society. The achievements of the year are many and varied. Some of them that can be seen and reported are briefly outlined below, but most of them has to be appreciated by the members.

Well-spaced programmes were packed in a span of one academic year. In spite of the fact that we, the medicals, are most hard working and busy of all, we managed to arrange colourful and memorable functions and activities in galore, namely, Barbecue, Christmas Gift Party for Sick Children, Medical Nite and Farewell Dinner Party to Prof. P. C. Hou and Prof. L. G. Kilborn, Presidential Address, Medical Annual Ball, Launch Picnic, Film Shows, Inter- and Intra-Faculty Sport Activities, issuing of Society Christmas card, journal, calendar, pennant, and shield, and establishment of the Elixir Bursary Grant.

CHRISTMAS CARD: The Society Committee swung into full action almost on the night after the General Election. The printing of the Society Christmas cards was an urgent call as we wanted to catch the date for overseas surface-mail. This goal was not only achieved but in a beautiful way with a first-time, full-three-colour, design by the Chairman himself. The sale was indeed gratifying and encouraging.

CHRISTMAS GIFT PARTY FOR SICK CHILDREN: On 24th December, the Pediatric Wards of Queen Mary Hospital and the Convalescent Home for Children in Sandy Bay were at great commotion for a 'mad' Santa Claus had come with too many beautiful toys and food parcels for every one. Jingle Bell rang loud in every ward and the children echoed. Every one who did not have a bilateral facial nerve palsy in the wards did have a hard time for the poor nerve to be sustainedly hard on the levator anguli oris muscle.

BARBECUE: The 3rd M.B. Examination was over at length and a Barbecue was arranged to the celebration of our victorious warriors. On 28th December, a warm fire was set blazing high in the Pavilion. Laughter, singing, shouting for joy, and smell of delicious, roasted games did attract many passers-by. Nearly a hundred people attended and enjoyed this virgin activity and we considered it a small success.

MEDICAL NITE AND FAREWELL DINNER PARTY: On 24th March, just the eve before the announcement of the 2nd M.B. Examination result, the Medical Night combined with a Farewell Dinner Party for Prof. P. C. Hou and Prof. L. G. Kilborn took its grand place in the Loke Yew Hall. Souvenirs were presented to the leaving professors and they were assured to be remembered always. We were sad to see them leaving us, but we tried hard to hide our tears lest the departing sorrow be aggravated. The night's programmes were devoted to their honour. Song competition and short comedies were performed. The occasion was honoured by the presence of many honourable guests. Nearly 300 Medical graduates and undergraduates packed the Hall, and we would like here to register our sincere apology in disappointing a few late comers that night.

PRESIDENTIAL ADDRESS: The Presidential Address together with the refreshment served is always welcomed by our members. This year, on 22nd April, at the Chemistry Lecture Theatre, our President Dr. H. Y. Fung detailed to us a very clear and interesting analysis on the important subject of 'Wound Sepsis' which through ages has been the physician, surgeon, and nursing staff's headache. Neither the historical aspect nor the proper management of wound sepsis was left out in his talk. The Dean of the Faculty and many staff members

from the Queen Mary Hospital were present. Although the address itself was attractive enough, refreshment, however, was not curtailed. Immediately after the serving of refreshment, a Society group photo was taken.

In the very evening, our generous President entertained the Committee members as well as the more active members who served as President or Hon. Secretary of the Union or Chairman of the various hostels in a big buffet party.

MEDICAL ANNUAL BALL: On 1st June, 1960 about a hundred couples attended the Annual Ball held at the Paramount Night Club. By coincidence, magic, or luck, nobody could tell, the best raffle prizes went to the President, Vice-President, and Hon. Treasurer of the Society. The party broke up in the small hours of next day. Many thanks were due to the generous donation of the staff or Associate members. A surplus of half a thousand from the sale of raffles was decided in a subsequent Committee Meeting to be transferred to the Elixir Bursary Fund of the Society.

LAUNCH PICNIC: It was hot in the later summer month of August, and the Committee strove hard to arrange its last popular activity when the budget was almost spent. Although we had difficulty, we were very reluctant to end the year's activities with the Annual Ball in 1st June, lest those who did not go to the ball would have for half a year no Society function to join and to enjoy. With the help of one of our members, we finally were able to have our wish realised on the Launch 'Embassy'. On 6th August, at 2.30 p.m. the luxurious launch departed from Queen's Pier for Junk Bay with a full load of 120 persons including 3 boys from two soft drink companies and 10 boys from a restaurant who served us tea at 4.00 p.m. and dinner at 7.30 p.m. They did not only add luxurious colour to our launch picnic but made it a most comfortable and enjoyable one. The Vice-President honoured us with his company, and every one who went enjoyed fully before the launch returned by 11.00 p.m.

FILM SHOWS: A number of film shows, both of academic and cultural interests, were arranged in the past one year. The attendance, however, was each time disappointing. We have yet to find out whether the fault lies in the choice of films or in having had the shows in too big a Chemistry Lecture Theatre.

AS A MEMBER OF THE UNION: The Society as a respected and responsible member of the Students' Union responded promptly and actively to every Union Function in which the Society had been asked to donate items or invited to take part. In the Farewell Party to Graduates, Freshmen Information Service, and Society Fairs organised by the Union. We saw the gratifying fact of cooperation and readiness of the Committee and members to fulfil their duty and to guard the Society prestige among others.

ELIXIR: A few words of thanks and appreciation must be said of the competent Elixir Sub-Committee of this year. Their good effort (not without that of the members and staff) not only made two issues of the journal in a year possible but rendered them to be of reasonable and presentable thickness. The unexpected increase of popularity and sale of the first issue left the Committee debtor of apology for some who were unfortunate enough to miss one. Working in close conjunction with the Committee, the Elixir Sub-Committee issued a colourful 1960-Calendar and table of Physiology Normals in Chinese for every member; an Associate Member Drive was also initiated, as a result of which the number of Associate Members this year was at least 15 times that of last year. The most celebrated achievement of the year was the establishment of the Elixir Bursary Grant for needy medical students. After much discussion in the Committee Meetings and much negotiation with the University authority, $10,000 from the Elixir Scholarship Fund was taken out and entrusted to the University Bursar for investment, the bonus of which shall be used as the Elixir Bursary Grant. The rules governing the application and award of this grant, set by the Society, approved by the University, appeared for the first time among others in the Handbook of the University.

The first Elixir Bursary Grant has already been awarded this year, and the Society proudly announces its establishment. We do realise that this is but a small start towards our goal of fostering a spirit of comradeship and professional unity, but, when every member and later Committees do their part to perpetuate and magnify this good and epoch-making start, the number of needy but worthy medical students that shall be benefited thereof in the years to come can in no way be calculated.

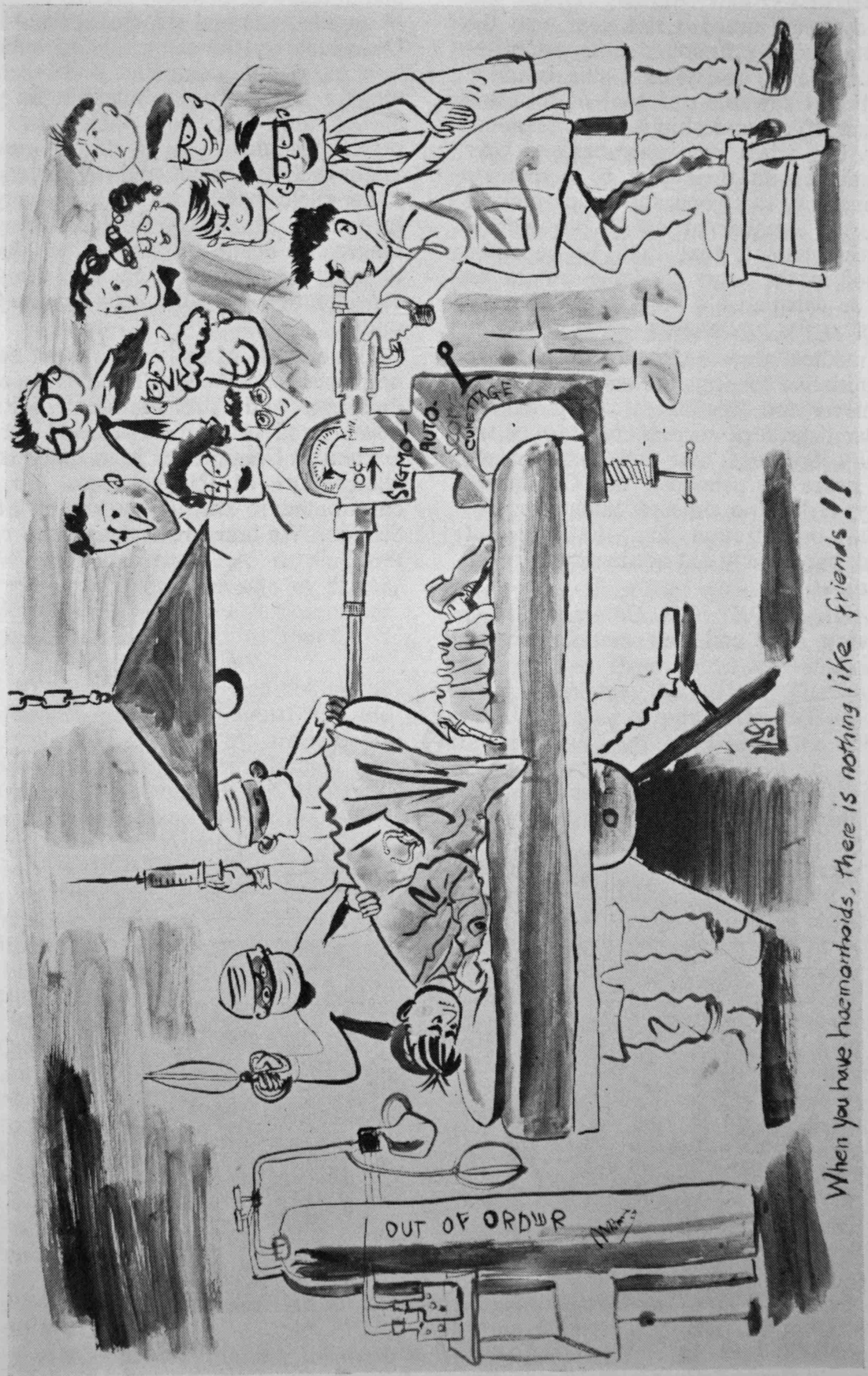
SOCIETY PENNANT AND SHIELD: The medical students, if they do not take the initiative to originate something new, are never too late to catch up with a greater degree of success. A few of the Faculty Societies and Association have had issues of pennants, the Committee this year lost no time to catch up. No similar organization has the issue of shield, our Society did not hesitate to take the initiative.

HAND-BOOK: The Committee from the very start collected material, name and address of members for the compiling of an adequate and significant hand-book. Unfortunately the collection of subscription was not complete and therefore number of members, indefinite in some classes until very late this year. This regrettable delay, in a large measure, minimised the value and significance of a complete hand-book. Being very reluctant to use Society fund for things no longer significant, this Committee decided to refer the proposition for the early consideration of the subsequent Committee.

The success of the year was, of course, not by sheer chance. The advice of the President and Vice-President, initiative power and close cooperation of the Executive Committee, keen interest and good effort of the members, all have contributed to the happy ending of this Session. We take great pleasure to record this.

Sd. PETER TANG,
Hon. Secretary.

From left to right:
Peter Tang, Chan Sheung Chung, Peter Lo, and Timothy Chang.


When you have haemorrhoids, there is nothing like friends!!
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SUPPOSITORY CUTTING GUIDE

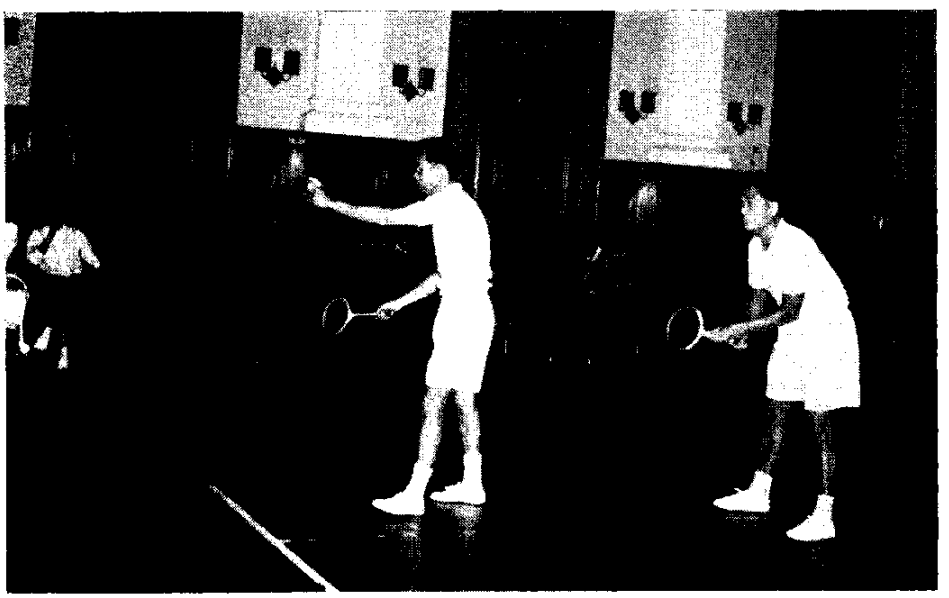
SPORTS ACTIVITIES

The Medical Faculty was represented in the inter-faculty tournaments in basketball, soccer, and table-tennis, and emerged winners of the basketball championship. In addition, badminton and hockey were played on the "Medical versus the Rest" basis by virtue of our wealth of talents. Some 45 members of the Faculty offered their service in the games. Worthwhile mentioning is that all those second-year students who played for the Faculty eventually passed the First M.B. Examination.

Medical Society Basketball Team.

BASKETBALL:

The Society is fortunate to have the service of five key members of the University's basketball team, namely, Lee Kwok Keung, Chan Seung Chung, Wai Kee Ho, Kwok Yau Yan, and Chan



Good Partnership!

Wing Hang. Our opponents were thus never given a chance. We beat the Architecture side in the final.

SOCCER:

Despite we were only able to field a mediocre team, we proved to be the toughest to beat, and such top teams as Arts and Architecture were fully extended. The Arts team, the winners of the tournament, was not able to get the better of us until the dying minutes of the game. We conceded a goal through a penalty in the match against the Architect students. In the last game of the series, we beat the Engineering side to pull away from the bottom of the table.

BADMINTON:

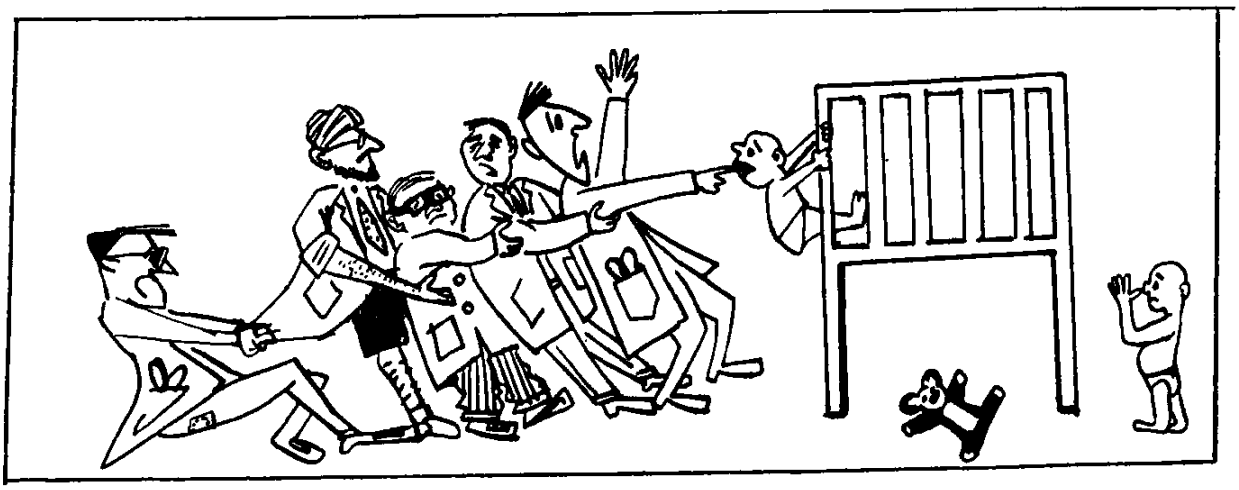
We safeguarded our prestige here by defeating the Rest in the annual exhibition match, in which Dr. Kenneth Hui and Dr. T. B. Teoh won the admiration of many by outplaying their much younger opponents. The overall score was 5–2 in our favour. The other members of the team included Stella Dong, Gloria Loke, Sung Wing Choon, K. T. Goh, and T. K. Goh.

TABLE-TENNIS:

Our team was knocked out in the first round.

SPORTS CAPTAIN.

The Badminton Team.



Tug-of-War.

THE MEDICAL FACULTY
FIFTY YEARS

Introduction

It is not infrequent that we may have in our mind a simple yet unanswered question concerning the genesis and proceedings of our Faculty—the Faculty of Medicine of the Hong Kong University. Undoubtedly this question has to be answered somehow, especially when the Faculty is now celebrating her 50th birthday.

Not without difficulties the author managed to obtain some information concerning the Faculty in the purpose of making an attempt to put forward an answer for this simple question. Inadequate and incomplete as the information collected are, nevertheless it is hoped that even with such poor information the purpose may be fulfilled to a certain though limited extent, and the general interest of the readers aroused, and medical students, during their sojourn in the University, may have deeper appreciation of all the facilities endowed to them, and very indirectly their university career may thus become smoother and less boring as a minority of students might complain of.

The author however would like to make one point very clear. What is described in this short note will remain a strictly personal view consequent on his private observation and speculation coupled with references from various non-official sources, and the official departmental projects and plans of the Medical Faculty are by no means represented whatsoever.

The Past

The precursor of the present Faculty of Medicine traced her origin from the Medical College for Chinese, which was established on the first of October, 1887. Hence the correct length of time that the Faculty of Medicine has existed is seventy four years rather than fifty as the name of Golden Jubilee implies. This Medical College was established by Sir Patrick Manson, the world renowned worker in Tropical Medicine in history and he was also the first Dean of the Medical College.

Though the centre of higher education in Hong Kong the Medical College had no buildings of her own. Lectures were given in the City Hall in Victoria City, and practical clinical classes took place in various hospitals on the Island, after obtaining written permission from the management of these hospitals. At first there were only about thirty students to start with, but the number of students increased rapidly with the growing fame of the Medical College in the local community. The first graduation ceremony of the Medical College for Chinese was held in 1892. This ceremony is noteworthy not only because of the fact that it was the first time in history that Hong Kong was capable of training her own physicians and surgeons, but also because of the signal event that of the two graduates in this ceremony there was Dr. Sun Yat Sen, who later became the liberator of China and established the Republic of China, then graduated with honours. The other graduate, Dr. Kong Ying Wah, practised his knowledge in Hong Kong as a physician in subsequent years. The Certificate of Graduation was then written both in Chinese and in English, certifying that the graduate had passed examinations in Medicine, Surgery, Obstetrics and Gynaecology, and was thus legally permitted to enter into private practice or to work as a doctor in a hospital.

In the years 1905–1907 there was the plan of expanding the Medical College into a university. In 1907 the College changed her name into the Hong Kong College of Medicine and was registered as a Limited Corporation. By this time the College had her own buildings. The one that is still present is the small administrative building situated at the junction between the University Driveway and Pokfulum Road, opposite the Anatomy building and next to the University Bookstore.

The Hong Kong College of Medicine existed for a period of four years until the University of Hong Kong was established in 1911. Literally the University was an expanded form of the Medical College with addition of other Faculties. After fifty years she still remains the largest, the most prosperous and the most well-known Faculty in the University.

Starting from 1913, with the generous donations from various wealthy citizens of the Colony the Faculty of Medicine began to have a series of building plans scheduled for further development of the Faculty. By 1918, besides the original building that was owned by the Hong Kong College of Medicine, the Faculty had in addition the Anatomy Building and the Physiology Building which are still serving faithfully their pre-determined purposes for the teaching of pre-clinical subjects. The buildings for Pathology and the School of Tropical Medicine were completed two or three years later. The latter buildings had been used for the teaching of clinical subjects since their day of completion until two years ago when the new Pathology Building was built, and had been modified into an extension wing for both Departments of Anatomy and Physiology.

In 1922–23 as a result of the generosity of local merchants and of the Rockefeller Foundation the faculty had been able to establish a new chair for Anatomy, which was formerly taken care of by the Professor of Surgery.

After the completion of the Queen Mary Hospital in 1937 the teaching of clinical subjects could then be carried out in the University Units in the Hospital which, like the University itself, was also run by the Government of Hong Kong. The teaching of Obstetrics and Gynaecology was also facilitated by the completion of the Tsan Yuk Maternity Hospital some time before that. The Sai Ying Pun Polyclinic, on the other hand, served the purpose of allowing the students to study out-patient cases and played a substantial part in clinical teaching. All the abovementioned Hospitals were modernly and adequately equipped for the young Faculty, and the development of the latter had been most impressive.

* * *

During the period of occupation by the Japanese the Faculty of Medicine suffered greatly. Teaching facilities were hampered; valuable equipments stolen or damaged; teaching staffs sought

refuge in the free parts of China; in fact the Faculty was functionless and completely paralysed. Some students went to the Mainland and joined the South-west United University or other universities, others just simply suspended their university career until the War was over in 1945. That was indeed the darkest period of the Faculty.

* * *

When the Second World War was over and Hong Kong was once again a free island, from the ruins the University revived. With the incessant efforts of Dr. Ride and Professor Gordon King, (then the Dean of the Faculty,) the Medical Faculty flourished again with incredible speed. Buildings were repaired; Equipments re-installed; and the teaching staff strengthened by various returning scholars and devoted research workers. The student body enlarged: old and new students coming not only from the Colony itself, but also from various parts of China and of the South-east Asia. By 1950 the Faculty was functioning to the pre-war level.

When the population of Hong Kong began to rise steeply in 1950 as a result of change of regime in the China Mainland, the need of physicians by the Colony also rose. The work and duty of the Faculty thus became never so heavy and important that she was naturally required to accommodate much more students than she was able to do so. However, as limited by the teaching facilities and that the Faculty had determined to have better rather than more numerous physicians and surgeons the admission of preclinical students was persistently limited to less than 70, and the examinations held during the university sojourn were so 'difficult' that only about 50, (as a rule, much less than 50,) could pass their final examination and graduate to become a doctor. In 1952–53 the total number of students in the Faculty was 363, amounting to 37.8% of the total number of students in the University. In 1959–60 the number of students in the Faculty was only 297, though the total number of students in the University had risen to 1171, and the total population of Hong Kong had increased from 1,000,000 in 1948 to 2,910,000 in 1960.

* * *

The conditions and equipments for study nevertheless kept on improving since the War had terminated. Valuable and delicate apparatuses were purchased from various parts of the world. Lecture rooms and Laboratories were continuously re-conditioned. Facilities for teaching and research kept on increasing. In 1959, with the help of our medical colleagues in the United States, Professor Hou Po Ch'eng was able to establish a new and modern Pathology Building in the vicinity of the Queen Mary Hospital. This beautiful building consists of a modern and spacious lecture theatre and a large students' laboratory, as well as a comfortable, air-conditioned medical library packed with various medical journals and periodicals published all over the world. Nearly half of this building is devoted to research work. The laboratory for clinical pathology situated therein is the centre for biochemical and laboratory investigations required by the Queen Mary Hospital. The museum for Pathology specimens though at present not very big has nevertheless ample space for a large collection.

The completion of the new Tsan Yuk Hospital which is under the management of the Faculty entails another improvement in the teaching of Obstetrics and Gynaecology. This modern, clean, and well-equipped hospital in fact allows not only the present small body of students to have their practical experiences but is indeed the answer to the need of the general population of the Colony.

The modern and neat Out-patient Department located in the Sai Ying Pun Polyclinic, completed in 1960, is another achievement of the Faculty in sustaining a perfect lecture room for the method of approach to various types of patients by the medical student. This is also run by the Medical Department of the Government, but the consulting physicians and surgeons are mainly come from

the Faculty, and can be said to be a part of the Faculty of Medicine.

The clinical teaching of Psychiatry is also facilitated tremendously after the completion of the Psychiatric Hospital in Castle Peak early this year. This large and modern hospital, containing some hundred beds and situated in the suburb, in fact not only good for the patients, but is also beneficial to the students who can have a week or two vacation-like atmosphere in the open air and have their nerves relaxed.

But we must remember one thing: that before all these modern facilities were available, the standard of the Faculty of Medicine of the University of Hong Kong has been so high that the degree of M.B., B.S. (H.K.) has been recognised, after about forty years of distrust and doubt, by the British Medical Association and the Governments of various places in the British Commonwealth. With the present modern facilities we can be sure that in the nearest future the qualification and the houseman experience will be recognised by the medical associations of all the countries in the whole world.

The Present

Besides what has been said about the present standing of the Faculty in the previous paragraphs, I would like now to say something about the Faculty of to-day as a whole.

The Faculty of Medicine of the Hong Kong University is now composed of 9 Departments, each composed of a Professor, who is also the head of the Department, one or more senior lecturers, some lecturers and assistant lecturers, as well as demonstrators in the preclinical and some clinical departments, or clinical assistants (C.A.) in clinical departments like Medicine, Surgery, Obstetrics and Gynaecology.

The Department of Chemistry takes part in the Faculty in teaching organic chemistry to preclinical students. It provides facilities for lectures and practical laboratory work assigned to medical students in the first term of their university career just as it does to Science students taking Chemistry as their academic subject. The examination in organic chemistry has to be passed before the student is submitted to his Examinations in other pre-clinical subjects.

The Department of Anatomy is situated in Pokfulum Road and consists of an Anatomy Building and an extension nearby, which was formerly the old Pathology building. The Anatomy Building completed in 1917, now includes a large dissection room and a museum, as well as rooms for the Professor, the senior lecturer and the lecturer.

Lectures are given in the small lecture room in the Extension Building, which also has a laboratory for Histology and Neurology. Other parts of the Extension are used for storage, but an office is also available for the demonstrators. The room for the study of such an important basic science is evidently inadequate for the present number of less than 70 students, and facilities in the teaching of Histology and Neurology cannot be said to be optimal. Nevertheless this condition does not impede the high spirit of students of Anatomy, and comparing with the standard of average British preclinical students, the level of knowledge of Anatomy in Hong Kong medical students is still, as our Professor of Anatomy has quoted the words of the external examiner in Anatomy, Sir Le Gros Clark, 'five times that of the standard in Oxford'! That is something we can really be proud of!

The Department of Physiology is just as important and practical as the Department of Anatomy in the sense as being

the basis for subsequent studies in clinical subjects. This Department, like the Department of Anatomy, is situated in the old two-storeyed red building completed in 1917, and shares with the Department of Anatomy the Extension which was the building for Pathology and Tropical Medicine. In the Physiology Building there is a small students' laboratory and some rooms for the use of the staff and the Professor in doing research work. Lectures are given in the very small lecture room in the Extension building, which also supplies a comparatively large laboratory mainly used for practical works in Pharmacology, but is also used occasionally for demonstrations of more complicated experiments in Physiology. The space for teaching and studying is again very inadequate, but it is hoped that the inconvenience will be eradicated as soon as the new preclinical building is completed in a few years.

The Department of Biochemistry is the youngest Department of all in the Faculty. It was formerly a part of the Department of Physiology, but has become an independent and separate Department since October, 1960. At the present moment the new Department is still lodged in the Physiology Building, in which there is a very small laboratory for the practical works and experiments in Biochemistry. Lectures are given, as in the case of Physiology, in the small, ill-ventilated lecture room in the Extension building. Even the offices of the Professor, the Senior Lecturer, the Lecturer and the Demonstrators are also situated within the Physiology Building. This is perhaps a temporary condition, for in the near future, when the New Preclinical Building is completed, the Department of Biochemistry will be run parallel to the other two Departments in the preclinical course.

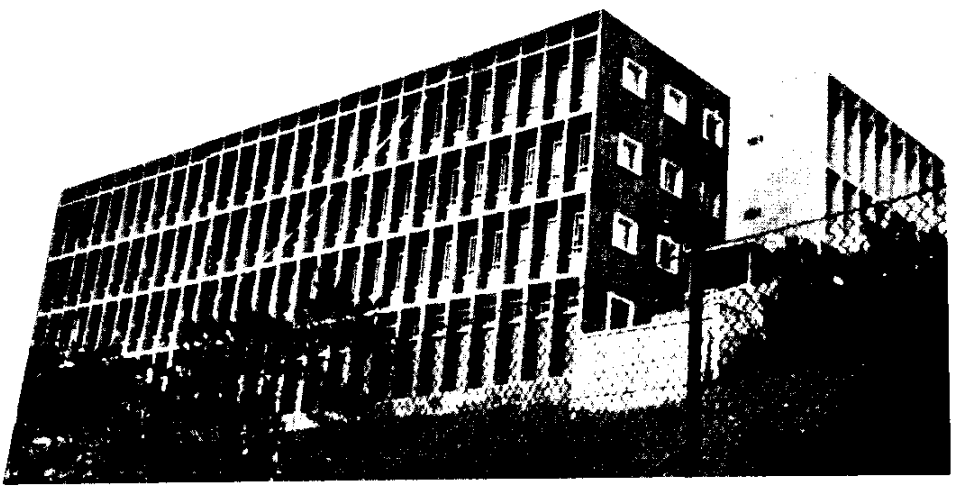
The Department of Pathology has perhaps the most modern building in the whole University. This is a beautiful, stoutly-built three storeyed block situated close to the Queen Mary Hospital, about two miles from the Buildings for Anatomy and Physiology, and just as far from the original Building for Pathology and Tropical Medicine. The new building, as already described in the

short history of the Faculty of Medicine, has a very spacious Lecture Theatre with air conditioning and facilities for film-shows and projection of slides, plays a very important part in the Faculty in that it provides space for lectures in various clinical subjects other than that of Pathology and Bacteriology and Parasitology. The large students' laboratory in the second floor of the building supplies ample space for Practical works in General Pathology, Bacteriology, Parasitology as well as for clinical laboratory work in the study of Medicine. The large laboratory for Clinical Pathology helps the small laboratories in the Queen Mary Hospital in carrying out various tests necessary for physicians and surgeons to establish their diagnoses. The Library in the upper ground floor is air-conditioned and is loaded with magazines, journals and periodicals on various clinical specialties and from various countries of the world. The mortuary is not situated in the Pathology Building itself, but is only a few steps down the slope of the site of the Building, and it is not inconvenient for the students and staff to have a chance to witness the process of finding the cause of death of a patient and observe the pathological changes taken place therein. Nearly half of the Pathology Building is intended for research purposes. The rooms for the

teaching staff are especially large; the photography rooms are most modernly equipped; and the store-room for specimens occupies nearly the whole of the lower ground floor. Indeed this building is the pride of the Faculty of Medicine for the present time.

The Department of Preventive and Social Medicine is under the direction of a Professor and a whole army of lecturers from various Government services, especially the Medical Department of the Hong Kong Government. There is only a small office for the Professor of the Department situated in the Main Building of the University, just next to the office for the Dean of the Faculty of Medicine. Incidentally the teaching of Preventive Medicine includes lectures that are given in both the Physiology lecture room and in the lecture theatre of the Pathology Building, as well as field visits to various parts of the Colony which are likely to arouse problems in relation to public health. It is indeed one of the most interesting subjects that medical students can have during their course in the Faculty.

The Department of Medicine is the most famous Department in the Faculty to medical students because of its well-known Professor. There is a small lecture room situated in the second floor of the Queen Mary Hospital, just next to the office of the Professor of Medicine. Lectures are also given in the lecture theatre of the Pathology Building, but ward teaching is not limited to the University medical unit of the Queen Mary Hospital, as the Medical specialist in the Government Medical Unit also carries out ward teaching. The University Medical Unit also carries out-patient practice in the Out-patient Department in the Sai Ying Pun Polyclinic, the new building which provides special facilities for students as well as for patients. There are other places at which the teaching of medical subjects than the Queen Mary Hospital and Sai Ying Pun Polyclinic. For instance, Psychiatry clerkship is served at the new Psychiatric Hospital in Castle Peak; the teaching on the subject of tuberculosis is carried out in the Ruttonjee Sanatorium in Wanchai, and so on. Compared with the old Medical College for Chinese seventy years ago we cannot stop being thankful for all these facilities even though they are still far from optimal, yet they are definitely and undoubtedly above the minimal.



The New Pathology Building.

The Department of Surgery is also accommodated within the Queen Mary Hospital. There is an office for the Professor of Surgery, but no lecture rooms are available for the teaching of either General Surgery or Orthopaedics, nor for specialised branch of Surgery, the surgery of the ear, nose and throat. Lectures are either given in the lecture theatre in the Pathology Building, or in the small lecture room on the second floor of the Hospital. Ward teaching is again carried out by surgeons from both the University Surgical Unit, headed by

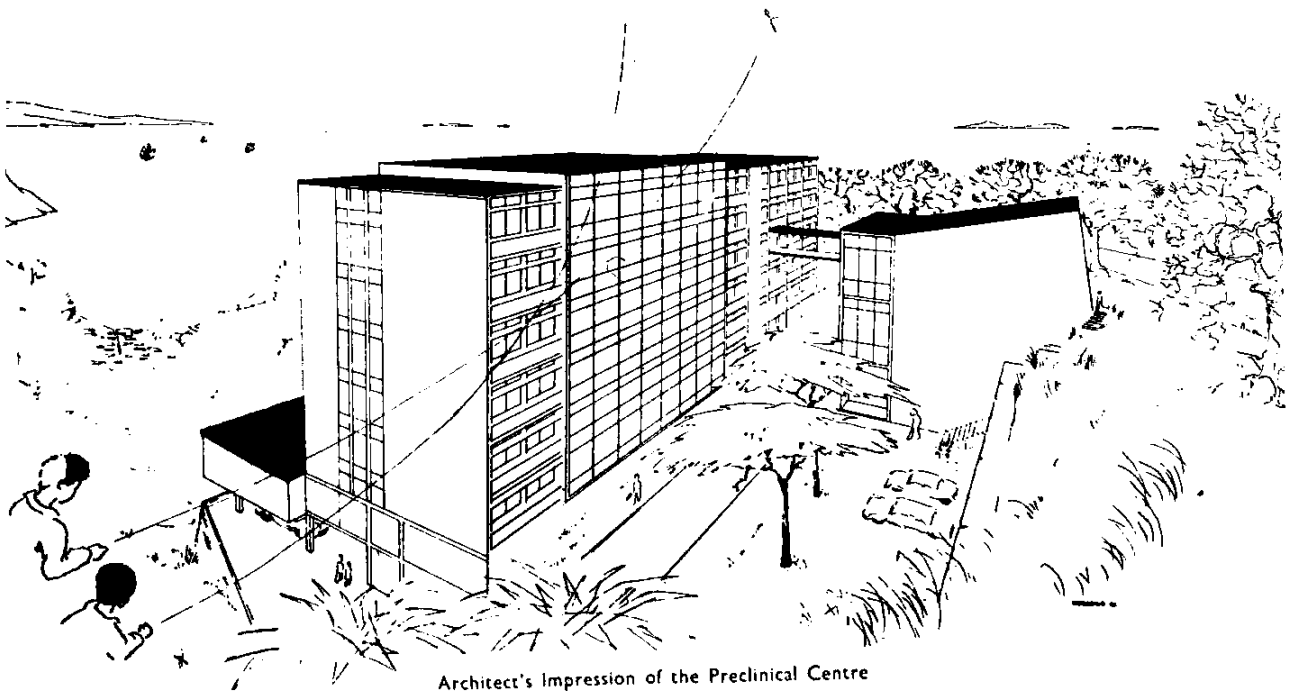
the Professor of Surgery in the Faculty of Medicine, and the Government Surgical Unit, hearded by the Government Surgical Specialist. Out-patient practice is also carried out in the Out-patient Department in the Sai Ying Pun Polyclinic. As the facilities of operating theatres are in fact less than minimal, the teaching of practical anaesthesia have to be limited to very small groups of students, about two or three at a time.

The Department of Obstetrics and Gynaecology probably is distinguished in that it has a hospital of its own. The Tsan Yuk Hospital, which is the largest maternity home for expectant mothers in the Colony, enjoys professional supervision from the Faculty, though the nursing and midwifery training and the administrative of the Hospital are under the control of the Medical Department of the Hong Kong Government. The Department, however, has no lecture theatre or lecture rooms of its own, and lectures has to be given in the lecture room belonging to the Department of Medicine on the second floor of the Queen Mary Hospital. Ward teaching, on the other hand, can be carried out in the Gynaecological wards on the 6th floor in the Queen Mary Hospital.

The Future

The Faculty of Medicine of the Hong Kong University, though is now seventy-four years old, is by no means obstinate or conservative. On the contrary it is never so youthful and energetic. As a response to the Seven-Year Expansion Plan of the University, the Faculty has also her own projects of development to be accomplished in the nearest future.

On the preclinical side, the news has been most stimulating. With the generosity of Dr. Li Shu Fan, an old student of the Faculty, who gives eighty thousand square feet of precious land situated in Pokfulum, near Alberose, to the Faculty of Medicine as a free gift in the Golden Jubilee Year of the University. The problem of finding a site for the new Preclinical Building has thus been solved with the least difficulty. Thus by 1965 or even one or two years earlier, the preclinical medical students of the Faculty will not only have more classmates of their own, as the limit of admission to the Faculty now imposed will be lifted by then; but the crowding, poor ventilation, and various inconveniences the preclinical students now subjected to will become of mere historical interest.



Architect's Impression of the Preclinical Centre

Preclinical Building.

The outlook of the clinical side of the Faculty is also promising. Though at present the space for teaching and research is very limited and facilities minimal, the condition will be very much improved by 1963, when the largest and modernest hospital in the British Commonwealth, the Queen Elizabeth Hospital, is completed and put into public service. The whole Queen Mary Hospital will then become the teaching hospital of the Faculty, just as the fact that the Guy's Hospital is the Teaching Hospital of the Guy's Medical School. The teaching of Medicine and Surgery, by that time, will of course be unlimited to the use of a small and crowded lecture room on the second floor, or to borrow the lecture theatre from the Pathology Building as is the case at present. Progress may be made easier with the expansion of available space and equipments for the whole Faculty, both in the preclinical and clinical aspects.

Conclusion

It has been the primary purpose of the author in venturing forth an answer for the simple question: 'What is the genesis, development and proceedings of the Faculty of Medicine?' With the above description it is the humble hope of the author (who is just an ordinary medical student and no great artist,) that the inquiring minds of his fellow-students would be satisfied to a certain, however limited it may be, extent. And he also hopes that the readers would be kind enough to point out any incorrect information or to correct any mistakes that he has made in his ignorance; and their friendly consideration will be most deeply appreciated.

(CONTRIBUTED)

Table of the Names of Deans in the Medical Faculty:

1912–15	*Francis Clark, M.D., M.R.C.P.*
1915–16 *1920–22* *1923–25*	*Kenelm Digby, O.B.E., M.B., F.R.C.S.*
1916–20 *1923* *1925*	*H. G. Earle, M.A., M.B.*
1925	*G. T. Byrne, M.Sc., F.I.C.*
1925–26 *1934*	*J. L. Shellshear, D.S.O., M.D., CH.M.*
1927	*J. Anderson, M.A., B.Sc., M.D.*
1928–29	*R. E. Tottenham, B.A., M.D., B.A.O., F.R.C.P.I., F.C.O.G.*
1930–32 *1935–39*	*L. T. Ride, M.A., D.M.*
1933	*W. I. Gerrard, O.B.E., M.D., M.R.C.P.*
1939	*L. R. Shore, M.C., M.A., M.D.*
1940–49 *1951–54*	*Gordon King, O.B.E., F.R.C.S., F.R.C.O.G.*
1950–51	*S. M. Banfill, M.B.E., B.A., M.D.*
1954–57	*L. G. Kilborn, M.A., Ph.D., M.D.*
1957	*F. E. Stock, O.B.E., M.B., B.S., F.R.C.S., F.A.C.S.*

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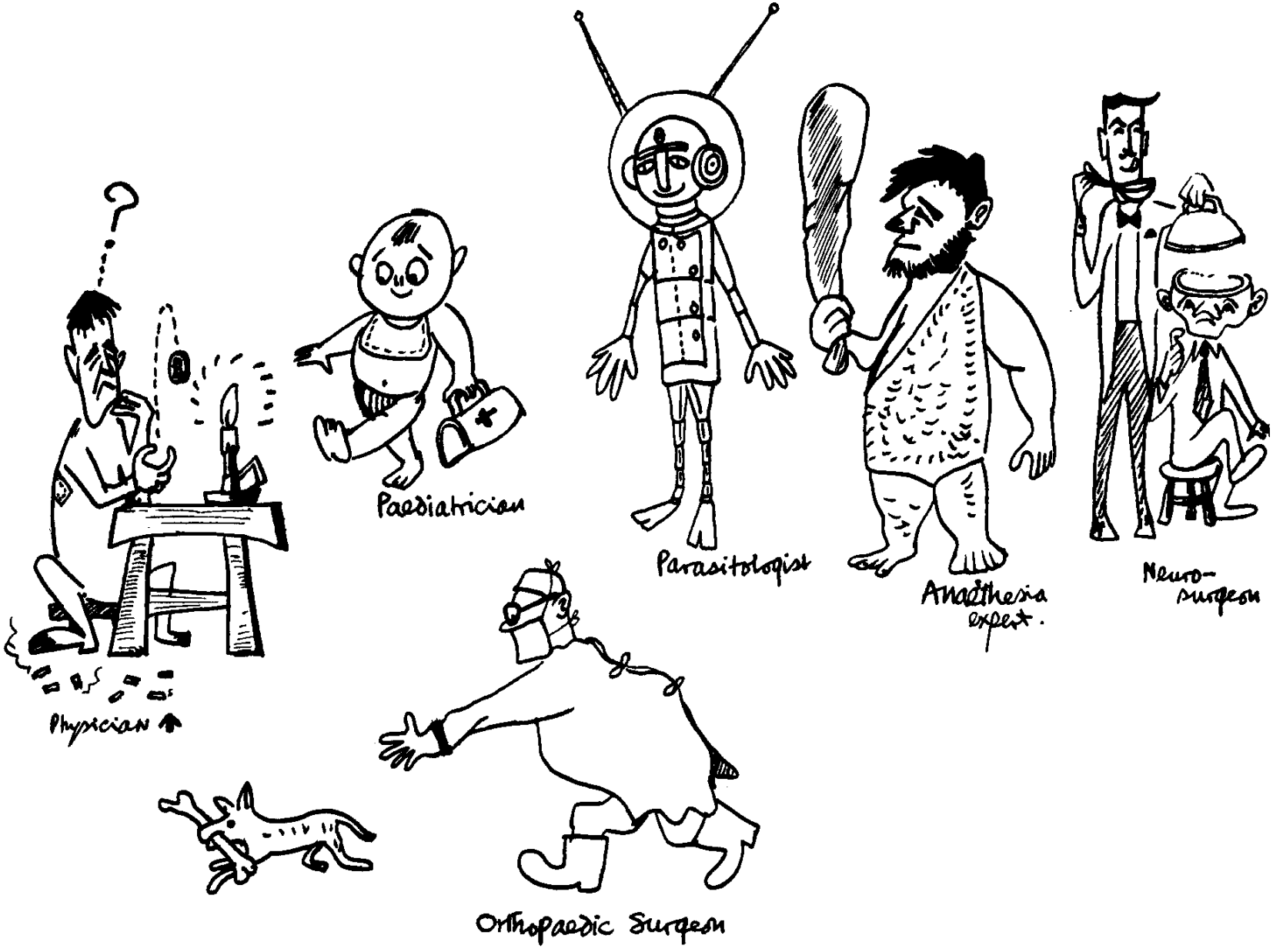

Physician
Paediatrician
Parasitologist
Anaesthesia expert.
Neuro-surgeon
Orthopaedic Surgeon

SIR ALEXANDER FLEMING

Marion Stirling, a young Scots lass, who kept a farm school in the little town of Darvel, Scotland, in 1886 admitted a ruddy boy of five. A few days later she remarked, "that young Fleming will get somewhere before he's many years older". But Marion was not the first one to discover anything extraordinary about the young lad. His mother for example often found him missing from his bed early in the morning, and while she was preparing the breakfast, there at the kitchen door trembling with excitement would be the boy, with a sturdy trout firmly hugged to his breast, his shirt wet and dirty. It was certainly a problem whether to spank him for sneaking out of the house early in the morning, or to give him a good motherly kiss for adding an extra dish to the humble breakfast.

By the time Fleming reached ten years of age he had outgrown the farm school, and it was necessary for him to join the Darvel School which was four miles from home. The journey to and from school each day was by no means pleasant. The way was rough and the weather hostile. But Fleming took all these like any other good Scots lad. At twelve he joined the famous Kilmarnock Academy.

In the meantime his brother Thomas was graduated from the Medical School of Glasgow University. He went to London and set up a practice. Like most of the young Scottish of that time he soon became very successful and worked his way right into Harley Street. It was natural then for the successful brother to bring Alexander, together with two other brothers, Robert and John, to London. Robert and John studied for examinations of Worshipful Company of Spectaclers, and later became leading figures in the Optical world.

Alexander, however, was placed in the Regent Street Polytechnic. His instinctive desire to be independent, and the inadequacy of the school work to keep his mind busy, ended up with him being a clerk for a shipping company. The wage was tiny, the job dull but the satisfaction of being able to be independent was great.

He worked for four years. During all this time he was an active member of the London Scottish Volunteers. Though his rank was the lowest possible, both his fine marksmanship and his excellent water-polo playing were almost indispensable to the regiment.

At twenty, by the death of a distinct relative he was left with a fortune enough to maintain himself in good living for three to four years. Naturally the first thing he did was to sit back and try to figure out a way by which he could spend the money most profitably. He discussed the problem with his brother doctor, and alas! many thanks to Thomas for suggesting to Alexander that he should give a try at Medicine. To Alexander one thing was just as good as the other, for he was interested in all and probably could be proficient in all.

He then began his medical education at St. Mary's Hospital Medical School, University of London. His way through the school was paved with every single prize awardable to students of that time. But the greatest reward proved to be his meeting with Dr. Almroth Wright, Professor of Pathology, who became the strongest single inspiration and influence in Alexander's subsequent career. As later indicated by Alexander himself that the association of his name with Wright in the "Wright-Fleming Institute of Microbiology" gave him greater satisfaction then the Nobel Prize.

Dr. Wright was then much interested in the study of immunology. He thought that germs must be prepared before the phagocytes would swallow them up. This, his good friend Bernard Shaw described in his play "The Doctor's Dilemma" as putting butter on the microbes so that the phagocytes would feast on them.

Upon his graduation in 1906, Fleming made up his mind to join the underpaid, overworked pathology department as a bacteriologist. Twenty three years later he became the Professor of Bacteriology. Here he worked side by side with Dr. Wright and his colleagues at the regular schedule of sixteen hours per day.

Often the old chief would excitedly and enthusiastically launch out to some new scheme. Fleming after some thought would then say quite calmly, "It won't work, Chief." Professor, however, was no easy man to take no. And he would shout and argue and bang his fist on the table, explaining patiently though by no means peaceably why it had got to work. Fleming would watch all quietly and when his boss had quite finished, would say quietly again, "It won't work, Chief". But often he was forced to carry out the experiment all the same, and usually the experiment did not work. Amongst the visitors of the laboratory were Bernard Shaw, Lord Balfour, and George Moore.

Fleming wrote many articles throughout his lifetime. His early literature was chiefly in defence of his boss's theories. The papers almost invariably dealt with immunology, general bacteriology, and chemotherapy.

Fleming's laboratory was a dingy little room, with a typewriter and rows of test-tubes. It was in this very unimpressive room, in 1928 the penicillin man met his penicillin. In his own words, Alexander in his "Nobel Lecture on Penicillin" described, "The origin of penicillin was the contamination of a culture plate of staphlococci by a mould." Perhaps this can be a consolation to those who do not keep a clean laboratory, or a tidy room in Hostel for that matter!

Whilst Fleming was the discoverer, the chemotherapeutic value of penicillin was worked out by Ernst Boris Chain and Howard Walter Florey nine years later. In 1945 the Nobel Prize in Medicine and Physiology was awarded jointly to Fleming, Chain and Florey—"For the discovery of penicillin and its therapeutic effect for the cure of different infectious maladies."

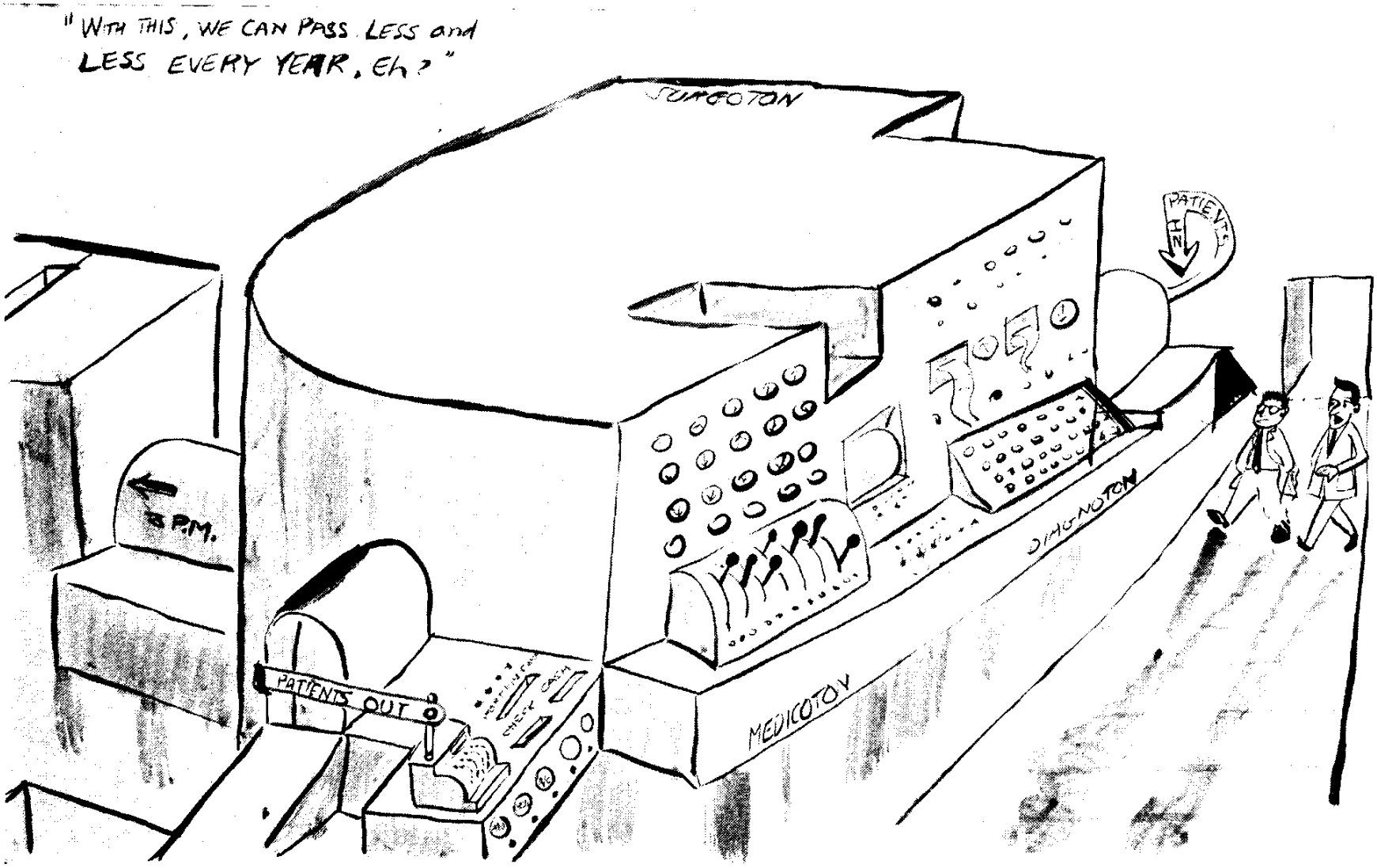
Prizes and honours came to him from many nations and leading medical institutions. Lord Montgomery paid personal tribute to him. If not for penicillin, and for that matter the penicillin man, many of his men would have been invalids for life, but as it was the very men were fit for actions within matter of weeks after the injury. Penicillin was flown to Middle East when Sir Winston Churchill was seriously ill with pneumonia.

And whether we like it or not, throughout Alexander's life there was another important stabilizing influence and that was Lady Fleming, the former Miss Sarah McElroy, twin sister of John Fleming's wife. This young robust Irish girl was able to foresee the great potentiality in her husband; her sympathy and understanding all along the scientist's life certainly should have their proper place in our tribute.

On March 11th of 1955, Sir Alexander Fleming, M.B., B.S., F.R.C.S., F.R.C.P., F.R.S., left the world suddenly and quietly. A humble man throughout his life, never for a moment stopped insisting that the discovery of penicillin was a mere chance, and a life dedicated to researches beneficial to God's creation, here is certainly a man who can claim himself Hippocrates True Son.

(CONTRIBUTED)




"WITH THIS, WE CAN PASS LESS and LESS EVERY YEAR, EH?"
SURGOTON
PATIENTS IN
3 P.M.
PATIENTS OUT
DIAGNOTON
MEDICOTOY

FACTS, FANCY AND OPINION

An interesting question was raised during the last Annual Election Meeting regarding the use of the surplus money that was left from the funds collected for buying gifts for the sick children at Christmas. This led to a long discussion in one of the Committee meetings last year. We agreed that since donations were made annually there was no reason why we should not give away all that had been collected each year. This would mean a much richer Christmas to the sick children in Queen Mary and down in Sandy Bay Convalescence Home because the recent donations plus the surplus from last year formed a considerable sum. And indeed that was what they had. Those in the latter hospital were overjoyed to learn that some permanent see-saws and sliding-boards will be constructed soon, thanks to the generosity of the medical students.

* * *

The Elixir bursary project has been a major task for this year's Committee. With the establishment of the permanent Scholarship fund, we have still to worry about donations in the future. This year, donations envelopes are to be sent out as last year, together with two book marks with lunar calendars printed on them. We certainly hope that those who receive them will make full use of them. And remember, EVERY DOLLAR HELPS A SCHOLAR.

* * *

The problem of car-parking is of interest not only to the Traffic Department but to every medical student who owns a car and who goes up to Queen Mary every morning. The parking field is so congested that even if one can drive into it, it certainly takes a great deal of skill to get out again. Fortunately, there have not been any accidents so far, except a few cases of serious warnings from the Pathology Department, but we do have a right to expect a solution to this problem soon.

* * *

The newly introduced academic curriculum that was started for the third year students proves to be more than workable. The second M.B.B.S. examinations of Pharmacology, Pathology and Social Medicine are well spaced throughout the third and the fourth year, hence students are able to concentrate more on clinical work. In short, this new curriculum is well-liked by both the teaching staff and the students in the Clinical course.

NEWS FROM UNIVERSITY GAZETTE

Personalia

A. R. Hodgson, Senior Lecturer in Orthopaedic Surgery, has been elected a Fellow of the American College of Surgeons.

J. H. Y. Fung, Lecturer in Surgery, has been elected a Fellow of the American College of Surgeons.

Professor F. E. Stock has been elected a corresponding member of the Surgical Research Society in Great Britain, and has been appointed an Honorary Consulting Surgeon at the Royal Prince Alfred Hospital, Sydney.

Visiting External Examiners

Professor G. Ransome, F.R.C.P., University of Malaya, for the Degree Examination in Medicine, in May 1961.

Gladys Dodds, M.D., F.R.C.S., F.R.C.O.G., Consultant, London County Council Hospital, for the Degree Examination in Obstetrics and Gynaecology, in May 1961.

Prizes

The following prizes in the Faculty of Medicine have been awarded on the results of Degree Examinations held in December 1960:

Ho Kam Tong Prize in Public Health: Lee Kwok Keung (Morrison Hall)

C. P. Fong Gold Medal in Pathology: (Miss) Chan Mo Wah (St. John's College)

Appointments

Yeung Ming Hon, M.B., B.S. (Hong Kong), F.F.A.R.C.S., to be Lecturer in Anaesthetics from January 19, 1961.

Franklin Li Wang Pong, M.B., B.S. (Hong Kong), F.R.C.S. (England and Edinburgh), to be Lecturer in Surgery from the date of his return to the Colony.

Leave of absence

J. Chisholm, Assistant Lecturer in Biochemistry, long leave from June 8, 1961.

Publications

DEPARTMENT OF BIOCHEMISTRY

E. O'F. Walsh: *An Introduction to Biochemistry* (English Universities Press, London 1961).

DEPARTMENT OF PHYSIOLOGY

A. C. L. Hsieh and K. W. Ti: "The Effects of L-thyroxine and Cold Exposure on the Amount of Food Consumed and Absorbed by Male Albino Rats", *Journal of Nutrition* Vol. 72, 283 (1960).

C. C. Liang: "A New Approach to the Study of Thiamine Deficiency", *Nature* Vol. 188, 660 (1960).

DEPARTMENT OF SURGERY

A. R. Hodgson, F. E. Stock, H. S. Y. Fang, and G. B. Ong: "Anterior Spinal Fusion: The operative approach and pathological findings in 411 patients with Potts Disease of the Spine", British Journal of Surgery Vol. XLVIII, pp. 172-178 (September 1960).

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

Dr. Cheung King Pak	$ 14.00	Prof. D. Chun	$107.00
Dr. Hui Wai Haan	$ 7.00	Dr. N. P. Karanjia	$ 60.00
Dr. Liu Yan Tak	$ 6.85	Dr. Yap Pou Lau	$ 10.00
Miss M. Wilson	$ 10.00	Dr. George Choa	$ 50.00
Prof. E. S. Kirby	$ 7.00	Dr. Poon Kwong Chiu	$ 10.00
Dr. Irene Ho Cheng	$ 7.00	Dr. Li Kwang Yu	$ 7.00
Dr. K. K. L. Hui	$ 27.00	Dr. Yue Pui Lam	$ 30.00
Dr. Chan Chung San	$ 10.00	Dr. Majorie Lee	$ 7.00
Mr. A. E. P. Grimmo	$ 35.00	Dr. James Chisholm	$ 10.00
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Dr. Hilda Chan	$ 67.00	Dr. Wong Hok Nin	$ 37.00
Dr. Chu Kwok King	$ 57.00	Dr. Peh Eng Tak	$ 17.00
Dr. Lim Tit Mooi	$ 17.00	Dr. G. T. C. Yeung	$ 20.00
Dr. Wu King Tak	$ 30.00	Dr. Olinto De Sousa	$ 10.00
Dr. V. N. Vargassoff	$ 20.00	Dr. Ma Lin	$ 7.00
Dr. H. C. Ho	$ 30.00	Prof. L. G. Kilborn	$ 7.00
Dr. Kwan Kui Lun	$ 37.00	Dr. Lincoln Luk	$ 30.00
Dr. T. T. Lim	$ 7.00	Dr. Pan Yin Chi	$ 10.00
Dr. Li Shu Pui	$ 7.00	Mr. E. Kvan	$ 30.00
Dr. Leong Yean Seng	$ 20.00	Dr. C. W. Lee	$ 10.00
Dr. T. P. Wu	$ 17.00	Dr. Pang Hok Ko	$ 10.00
Dr. Raymond P. M. Yap	$ 30.00	Dr. Benjamin S. Lee	$ 17.00
Dr. H. T. Bee	$ 10.00	Dr. W. G. Frost	$ 30.00
Dr. A. R. Hodgson	$ 10.00	Dr. L. T. Kan	$ 20.00
Dr. N. T. Gillander	$ 27.00	Dr. S. T. Chan	$ 10.00
Dr. Anderson and Partners	$ 24.00	Dr. C. T. Huang	$ 20.00
Mr. J. L. Youngsaye	$ 30.00	Dr. K. W. Chaun	$ 32.00
Dr. Tang Hon Hiu	$ 37.00	Dr. K. T. Young	$ 27.00
Dr. Walter C. Allwright	$ 17.00	Dr. E. F. Szezcpanik	$ 10.00
Dr. C. P. Yang	$ 20.00	Dr. Liu Kwai To	$ 30.00

These gifts are most gratefully acknowledged. The Fund's total to date is $15,448.93.

Contributions may be sent to the Circulation Manager, Elixir, c/o Department of Physiology, Hong Kong University. Cheques should be made payable to: Hong Kong University Medical Society "ELIXIR" Account.

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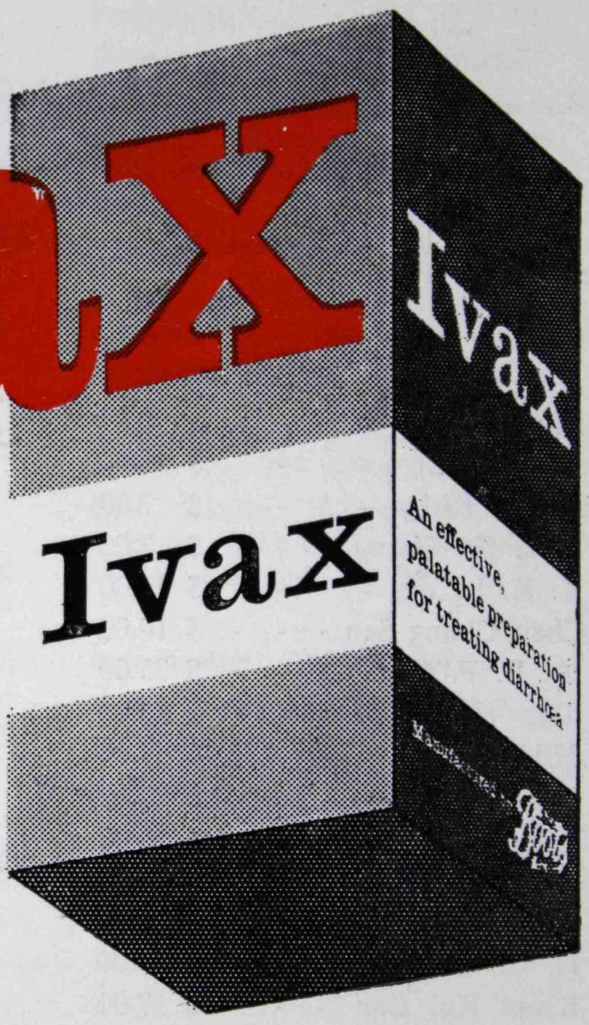

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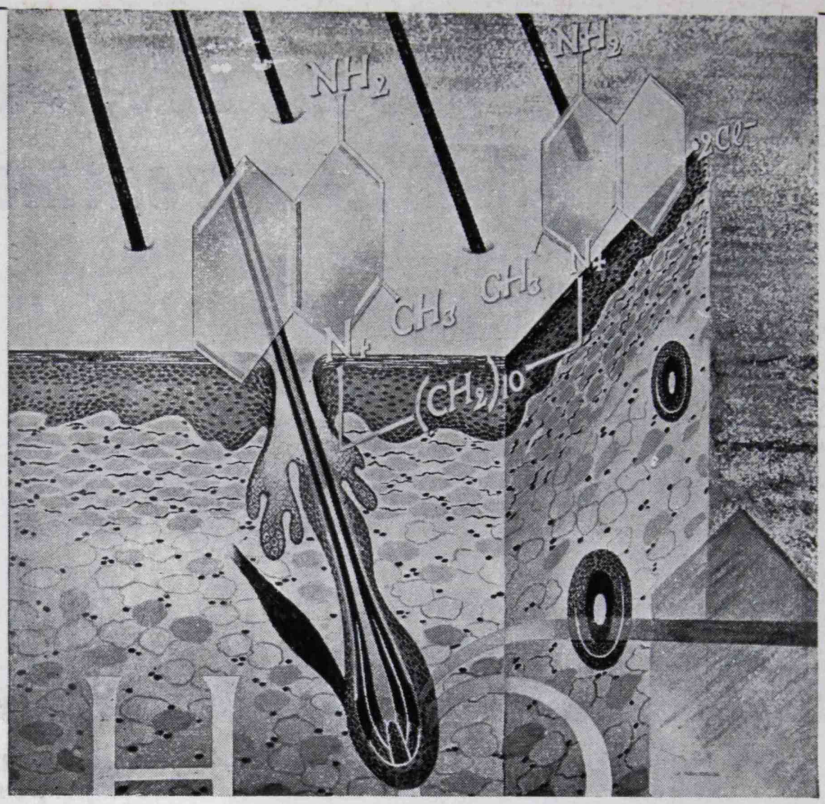

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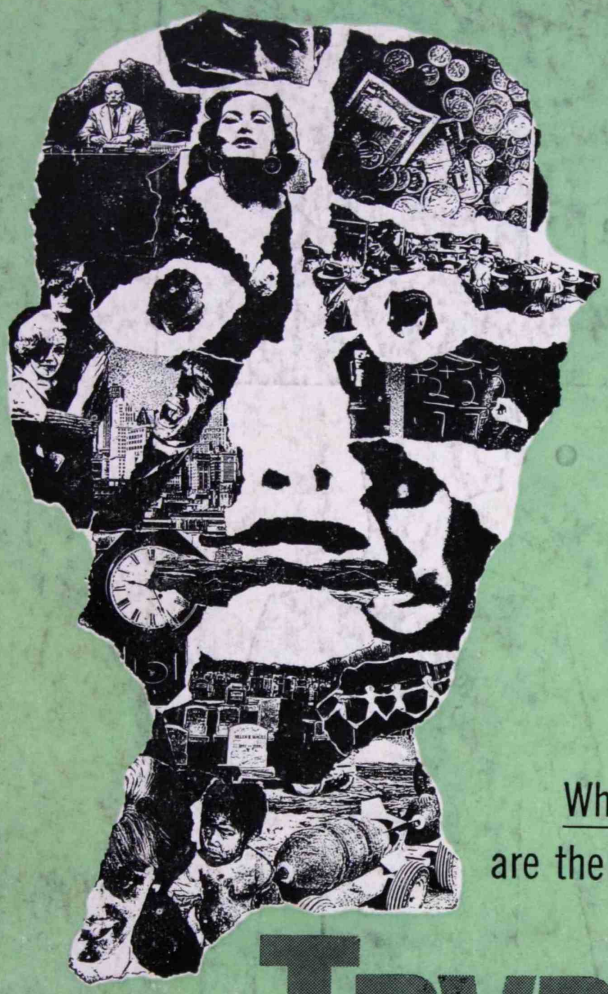

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1. Perloff, M. M., and Levick, L. J.: Clin. Med. 7:2237, 1960. 2. Freed, H.: Am. J. Psychiat. 117:455, 1960. 3. Ayd, F. J., Jr.: Psychosomatics 1:320, Nov.-Dec., 1960.

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