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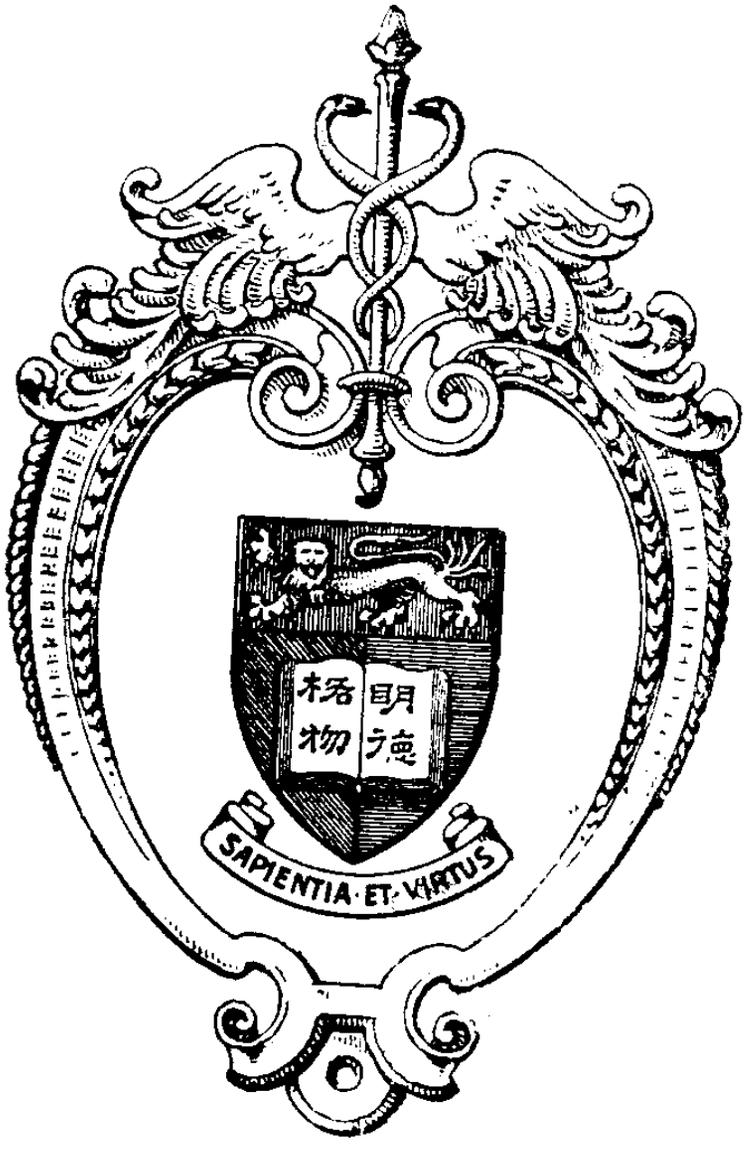
THE CADUCEUS



JOURNAL OF THE HONGKONG UNIVERSITY MEDICAL SOCIETY

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THE CADUCEUS

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NOTES AND COMMENTS

Foreword

The idea of starting a Journal of the Medical Society of this University is not a new one. It had been suggested some years ago rather timidly, but it was not until quite recently that it gained much practical support. The time is however ripe for the formation of such an organ, and the old excuse that the Society was too young and poor to bear the burden of publishing a journal that was really worthy of the name can no longer be advanced at the present time, when the Society is not only prosperous and self-supporting but includes among its members many who are spreading the knowledge of scientific healing among the vast populations of China and the Far East. If any further excuse is required for the appearance of the *Caduceus*, one has only to cast one's eyes into the future, and dwell upon the incalculable good such a journal, in conjunction with the excellent journals at present existing in China, is bound to exert in the field of research in this great country. It is not too much to say that in proportion as the *Caduceus* becomes wider known and its aims better appreciated, so will the influence of the Medical Society become more widespread and the University of Hongkong more a centre of medical education and scholarship for South China and the Far East. In other words, we do not intend merely to make this journal a record of the activities of the Medical Society of the University. We aim to make it one of the leading scientific journals in Asia. How far our aim will bear fruit depends a great deal on the support not only of the undergraduates and graduates of the Faculty but also of medical men and scientific workers throughout China. We aim high but that is because our watchword is—"Excelsior."

The "Caduceus"

It will perhaps interest our readers if we give a brief account of the origin and meaning of the word "Caduceus," which we have adopted as a name for this journal. Personally we think the name a particularly happy one, although a few critics object to it on the ground of its being too fanciful for a scientific organ such as this. They would prefer to take a deep breath and speak of it as the "Hongkong University Medical Society Journal." *Caduceus* is the Latin adaptation of the Greek for a herald's wand. It is supposed to be the staff used by the messengers of the gods and especially Hermes to conduct the souls of the dead to the world below. We fear the layman might seize upon this explanation as a confirmation of the true function of the doctor! But Hermes' caduceus which was given him by Apollo in exchange for a lyre was a magic wand which exercised influence over the living as well as the dead, bestowed wealth and prosperity, and turned everything it touched into gold. It originally consisted of a rod ending in two prongs twined into a knot. Later the prongs were replaced by two serpents with heads meeting at the top, and became the symbol of the settlement of quarrels. The very excellent cover design is the work of Mr. Basto e Castro to whom our best thanks are due.

The Medical Society, of which the *Caduceus* is the organ, was founded on January 12th, 1914, two years after the opening of the University itself, through the initiative of Professor K. H. Digby and

Dr. G. H. Thomas who may claim to be the "fathers" of the Society. These gentlemen have always shown a great interest—we may almost say, affection—for the Society. Dr. Francis Clark was elected the first President, Professor Digby Chairman of Committee, and Dr. Thomas the first Secretary. Since then the Society has flourished, but even greater progress is anticipated in the future. No fewer than fifty meetings have been held, of which the great majority consisted of reading of papers by students, graduates and local practitioners. Some of the papers are of high merit and it is hoped that in the future members of the Society will be encouraged to read the results of their researches before the Society, and have them subsequently published in this journal. Seven annual dinners and one concert have taken place since 1914, and their value in bringing together members cannot be overestimated. It would be an excellent idea if the date of the Annual Dinner could be fixed several months ahead, and members all over the world informed in time for those who could do so to attend. It could also be made the occasion to hold a conference at which members were invited to read papers and give demonstrations. Thus the University would be the meeting place for its medical graduates every year, where ideas could be interchanged and friendships formed or renewed. Prominent scientific men from China and elsewhere could be invited to this conference to give the younger generation the benefit of their experience and the fruits of their researches. The University would then be able to boast a Medical Faculty which was up-to-date and alive to the needs of young China and the twentieth century.

History of the Society

These prizes were instituted in 1918 through the generosity of Mr. Ho Kwong, and were designed to encourage undergraduates of the Faculty to read papers and engage in discussions. We are very grateful to Mr. Ho Kwong for his unfailing interest in the Society, and we hope the latter will continue to receive similar benefactions from gentlemen who are alive to the urgent needs of scientific research in the East.

Ho Kwong Prizes

Preparations are being made to include in future numbers a series of clinical lectures on practical subjects by men who have made a special study of these subjects. It is hoped that this pleasing feature will add to the value of the journal, and prove instructive to senior students and practitioners. We also intend to publish from time to time notes on interesting cases admitted to the University clinics. In this respect we welcome contributions from our graduates in China, Malaya, and elsewhere.

Clinical Lectures

The majority of our graduates are in private practice, and, considering that the general practitioner forms the backbone of the medical profession, it is not surprising that the average medical man fresh from his "Final" should throw in his lot among his fellowmen in the community. The general practi[illegible]r, from the very nature of his duties, is the only member of th[illegible]fession who has the opportunity of studying the early symptoms o[illegible]se and tracing it over a long period of time, and who is thus enabled [illegible]preciate the true significance of symptoms. There are a few, howe[illegible]ho have

Our Alumni

a liking for advanced laboratory research and prolonged hospital training, and there is no doubt that one of the most pressing needs of China to-day is the formation of a large group of trained teachers to man the hospitals and schools that will most certainly spring up during the present century. A striking instance of the unsatisfactory state of medical science in China at the present day is shown by the fact that while Great Britain with a population of forty millions has 50,000 qualified doctors, and Japan with a population of fifty millions has 100,000 qualified doctors, China with a population of four hundred millions has only 5,000 men trained in western medicine.

We are following the career of Dr. C. E. Lim with the greatest interest. He graduated M. B., B. S. in 1916, and worked under the late Dr. Macfarlane at the Bacteriological Institute until he left for the Peking Central Hospital and later for Johns Hopkins' University as a travelling Scholar of the Rockefeller Foundation. Since then he has been making distinguished progress in his special department of Hygiene, obtaining the diploma of Tropical Medicine at Liverpool and the doctorate of Public Health at Johns Hopkins. We understand he is devoting his energies to the cause of medical science in China. We wish him every success and hope that his career will constitute an example to be followed by many future graduates.

Dr. Wu Lien Teh

The other day there arrived in the colony a distinguished Chinese who has done great service to his country. He was among the first of the distinguished men to be honoured by the University with the honorary degree of LL.D. in 1916. A brilliant career at Cambridge, London and Liverpool, where he was associated with some of the giants of Tropical Medicine, such as Ross, Todd and Bannerman, was followed by a course of specialised study in Europe. Returning to the Straits after an absence of eight years, Dr. Wu devoted his energies to the abolition of the opium-smoking habit among the Chinese. This little-known work of his was followed soon after by the opening of the International Anti-opium Conference at Shanghai where the whole problem was thrashed out. He was appointed Chinese delegate to the Anti-opium Conference at the Hague in 1910, and was chiefly responsible for the drafting of the scientific part of the agreement. How far he was successful may be gathered from his own words: "My work in Penang was for a community; this is for the nation." It was, however, during the great Manchurian Plague outbreak in 1910—unique of its kind in the history of epidemics—that Dr. Wu gained international eminence as a scientist. He was Chairman of the first International Plague Conference at Mukden where scientists of eleven nations met to discuss the problem of preventing a similar outbreak in the future. A Plague Prevention Service was organized with Harbin as the centre and Dr. Wu as Director and Chief Medical Officer. A second epidemic broke out in 1920, and the immense value of the preventive work of the Service was shown by the rapidity with which the outbreak was quelled, and the comparatively few deaths that took place. As a recognition of his valuable services, His Excellency the President recently conferred upon him the Second Class of the "Chia Ho" (Order of the Golden Crop), the highest honour that has been conferred on any medical man in the history of China.

The Place of Women in the Profession

It is a pleasing fact that the University has now thrown open its doors to women. In conjunction with the Faculty of Arts, the Medical Faculty has been invaded; and although the number of women students is not large at the present time there is no doubt that within the next few years it will be a factor to be reckoned with. Whatever other advantages there may be, it is certain that the attendance at lectures has of late been exemplary! It is difficult to exaggerate the important rôle medical women will play in China. To those who are acquainted with the susceptibilities of the average Chinese woman it is not strange that there should be such a widespread belief in the mission of the woman doctor in carrying the knowledge of scientific healing into the Chinese home. We therefore heartily welcome women into our Society, and trust that the time will not be far distant when they will give evidence of their presence in these columns.

A University Hospital

The pressing need of a University-controlled hospital has been advanced so often that it is unnecessary for us to do more than add our voice to the general consensus of opinion. The possession of such a hospital is vital to the expansion of the Faculty. A hostel for senior students doing clinical work, situated within a few minutes' walk of the hospital, is a prime necessity if hospital work is to be really efficient. Research facilities should be provided and travelling scholarships instituted, with a view to training at other centres for future work in the hospital.

A Research Centre

One of the greatest drawbacks to the proper pursuit of research in this University is the lack of a fully-equipped library. Students keen on further study have still to look to Great Britain and America for greater facilities in prosecuting their work. China, however, offers such a comparatively untouched field for modern scientific research that the establishment of a great centre in South China, to which workers could conveniently go for the purpose of checking their results and working out details in the laboratory and the library, would undoubtedly prove of the greatest possible service to medical science. General practitioners from all over the country could, at intervals of five years or so, retire to this institution, bringing with them the records of their cases and obtain the co-operation of specialists in elucidating the more obscure cases, and in building up an organized standard for medicine in China. At the present time the Union Medical College at Peking—a splendid monument to the munificence of Mr. John D. Rockefeller and the work of the Foundation he has established—is the only institution in China that approaches anywhere near the ideals we have set forth.

As we go to press, we understand that an important scheme for the expansion of the Medical Faculty along the lines indicated is almost completed. We hope to be in a position to give full details in our next issue. In his speech on the occasion of the conferring of the honorary degree of LL.D. on His Royal Highness, the Prince of Wales, the Vice-Chancellor announced that the Rockefeller Foundation had donated half a million dollars for the establishment of a Chair of Medicine and a Chair of Surgery. Sir William also stated that a further

magnificent sum would be available for the Endowment of a Chair of Obstetrics and Gynaecology so soon as the University was in a position to accept it. We take this opportunity of warmly thanking the Trustees of the Rockefeller Foundation for their very generous support.

The late Dr. Jordan

In the death of Dr. G. P. Jordan, who passed away in England some months ago, the University and the colony have lost an enthusiastic and large-hearted man. He was especially popular with the undergraduates, by whom he was always spoken of as " The Grand Old Man ". He took great interest in the affairs of the University and the Faculty, and was always a friend of the Society of which he was a Vice-President.

Sir Patrick Manson

News is just to hand, as we go to press, of the death of Sir Patrick Manson, G.C.M.G., F.R.S. Of his great scientific attainments, his epoch-making discoveries in Tropical Medicine, his long and brilliant career, it is unnecessary for us to speak here. To us he was more than a mere scientist, a giant in the world of disease. He was bound to us by ties closer and more intimate than many of us imagine. As an honorary graduate of this University we felt that he was one of ourselves, but it is as a founder of the old Hongkong College of Medicine (which formed the nucleus of this University) that we wish most to associate his name. With Sir James Cantlie and the late Dr. Jordan, he was mainly responsible for the efficient working of the College in its early and most critical years. Perhaps it would not be out of place here to give some extracts from his Inaugural Address delivered as Dean of the College in October, 1887:—

"I can conceive no grander position or opportunity for any man to have than that we offer to each of our students. At his back the whole of European science, before him 300,000,000 to whom to give it. Such a position must fire the ambition of some of them. It is most strange that no great man, or great men, have arisen for this work. He, and they, will come. The old Greek cities used to boast of their great men and claim them with jealous care. Let us hope that in the new and greater China of the future, when the learned dispute of their great men, not a few may be claimed for Hongkong and for the School to-day inaugurated. . . . .

And when these reforms are effected and changes made, what to us Europeans will be the consequences? Politically over three hundred millions of the most industrious, thrifty, persevering, homogeneous, physically-adaptable, clever people, at present hardly a cypher in political calculations, will be no insignificant factor in the combinations of the future. Their numbers, no longer kept under by preventable disease, civil wars, infanticide, or polygamy, will rapidly increase and they will expand in all directions. Perhaps the deadly upas tree of opium will by that time have been uprooted. Minor peoples, Annamites, Siamese, Malays, will go down before them or be absorbed by them. A great homogeneous Chinese-speaking nation will spread from Siberia to Australia. It requires little of the prophetic to foresee this; the process has already commenced. In those days wise men will again come from

the East. The people who gave us the invention of printing will give yet other peaceful and useful arts; the first to use gunpowder will not be backward in the art of war; the discoverers of inoculation will add again to the prevention and cure of disease. Those hundreds of millions will double the recruiting ground of science and may yet give back to Europe more than they got. It seems to me sometimes that we are teaching the Chinese to beat ourselves."

"Into the breech!"

The seamen's strike which took the colony by storm recently and which has now been settled left its mark on the University. The sympathetic strike of servants and cooks left the hostels to the tender mercies of amateur performers for over a week, but it must be said that the residents were never better fed and the rooms never cleaner than during that eventful week! The Hospital was at one time threatened to be denuded of its staff of dressers, ward-boys and cooks. On the Society being informed of the critical state of affairs a special meeting was held and was attended by a large number of members called off temporarily from the kitchens. A special resolution was passed to the effect that in the event of a hospital strike the medical students would at once step into the breech and maintain essential services. Detailed plans were drawn up and a stretcher squad was also formed. The seamen's strike ended, however, before further developments took place, and the sympathetic strikers returned to their duties, to the considerable relief we must say of the amateur workers in the kitchen!

Our Donors

It is with great pleasure that we have to acknowledge the receipt of several handsome donations from practitioners and others who are interested in this journal. A list of donors appears in another column. Further contributions will be welcome and especially annual subscriptions.

Au-revoir

We are always ready to receive any criticisms and suggestions from readers which might help to make the journal more useful to medical men in China. We are conscious of many imperfections but feel confident that with our readers at our back we shall be soon able to make the *Caduceus* fulfil the purposes for which it was founded. Our motto is: EXCELSIOR.

C. Y. N.

ABSTRACT OF AN ADDRESS

DELIVERED BEFORE THE HONGKONG UNIVERSITY MEDICAL SOCIETY
BY PROFESSOR H. G. EARLE (PRESIDENT),
AT THE OPENING MEETING, ON FRIDAY, OCTOBER 21ST, 1921.

Gentlemen,

My first duty and pleasure is to thank you for electing me as your President for the current session.

Having relinquished the office of Dean it appears that I have exchanged a dictatorship for the leadership of a democracy. The change has not however liberated me from the necessity of speech making and

I therefore once more find myself giving an opening address. Last year I gave you a short review of the objects of the present medical curriculum and this afternoon I propose to give some account of conditions as I found them during the various visits I recently paid while on leave to University and Medical Centres in Great Britain.

I was extremely fortunate in being able to attend the Second Congress of the Universities of the British Empire which was held at Oxford from July 5th to 9th, 1921, under the chairmanship of Lord Curzon and the Chancellors of other Universities.

It gave me an opportunity of getting into touch with representatives not only from the Home Universities but from Universities all over the Empire and of seeing how far the work we are doing in Hongkong is really in line with that of other British Universities. The Congress was organised by the Universities Bureau, the importance of which has been recognized by the Home Government in the form of a financial grant of £5,000 towards the purchase of head quarters in the heart of London. The work of the Bureau is controlled by a Committee of fourteen members, seven representing the Home Universities and seven those overseas. We are fortunate in having a direct representative in the person of Sir Frederick Lugard, the first Chancellor of this University. (Applause).

Among the subjects discussed at the Congress were those referring to the newer courses, and the place of the Humanities in university education. The modernists carried the day, despite the plea of the Vice-Chancellor of Oxford for the retention of Latin and Greek in university curricula.

During my stay in England, I also visited Reading, Bristol, Cardiff, London, (where I saw the Medical Schools, the School of Economics and the School of Oriental Studies) Cambridge, Edinburgh, Dundee, St. Andrews, Manchester and Liverpool. I was surprised when I saw myself referred to with others as a *savant* of the British Empire. Wherever I went I found that the Universities were absolutely full, and many intending students turned away. There is a general feeling in England that residence in quarters in the University is quite essential to the training of an undergraduate. As you are aware, in this University residence is compulsory.

I was able to confirm the view that it is better for Chinese students not to go to England until after they have graduated at a university in China, and in this connection I am prepared to maintain that the facilities for the study of medicine in this University are in no way inferior to those that obtain in other British Universities. Evidence of this is forthcoming in the recognition granted to our degrees not only by the General Medical Council but also by the Royal Colleges of Physicians and Surgeons who confer upon this University the same privileges as are at present enjoyed by the Home Universities. A special degree, viz., that of Ph.D., has recently been instituted in London and elsewhere to be conferred on men undergoing a special course of post-graduate work. I cannot impress upon you too strongly the view that a man after obtaining his M.B. degree in this University has really not completed his medical education,

but should engage in post-graduate studies and hold an appointment at a hospital as House Physician or House Surgeon. In certain American universities an internship is necessary for qualification.

The tendency of medical education at the present time is to lengthen the curriculum. I think it is generally agreed that sixteen is too young for admission into the Medical Faculty, and it has already been suggested that seventeen should be the minimum age; but that an examination in the preliminary sciences, such as Physics and Chemistry should be passed before a student can gain admittance into the Faculty, thus giving more time for purely medical subjects. Further, there is under consideration, a proposal that the course should be extended to six years in order to enable students to engage in clinical work for a longer period—say, half the whole course. In this connection may be mentioned the change which is taking place at the present time in the teaching of clinical subjects, whereby, with the institution of whole-time Professorships in Medicine, Surgery, and Gynaecology they are put on the same scientific footing as Physiology, Anatomy and Pathology. This change comes from America where, however, the tendency has been to make medicine too scientific; in Great Britain this tendency is corrected by maintaining the old idea of an apprenticeship in medicine side by side with the introduction of the new system. Sir James Mackenzie, Director of the Institute of Clinical Research at St. Andrews, contends that the present system does not train men to become efficient medical practitioners He aims at the elaboration of a system whereby symptoms can be analysed from the very beginnings of disease, and too much reliance is not placed on the study of objective signs by laboratory workers. He suggests that clinical medicine should be taught in medical schools by trained general practitioners as well as by consultants and laboratory scientists.

Before I conclude, I beg you not to be disappointed if you do not happen to get qualified in the minimum period of time. In England only eighteen percent (18%) of the medical students get their degree in five years. The average is six years. I cannot urge you too strongly to advise your parents to recognise this fact. (Laughter and applause).

A NOTE ON ANAESTHESIA IN ANCIENT TIMES

By John Fenton, Ph.D., F.R.A.S.

I must premise that this Note is by no means a complete study of the subject; it does not profess to be exhaustive of the topic.

For one thing, it was compiled in the comparatively recent town of Johannesburg, where naturally the facilities for research are not as abundant as they are in Europe.

Further, the references to the East are conspicuously meagre; and it is my sincere hope that some enterprising medical graduate or undergraduate, in touch with the early history and customs of these countries, will co-operate with me by delving into the world-old archives of, say, China, to endeavour to trace the early references to the use of anæsthetics.

Some time ago, in conversation with a friend, the talk drifted to the advantages which the advancement of science in modern times has brought to man, and among other points we spoke of the inestimable benefit which the universal use of anæsthetics, both local and general, has conferred.

This conversation set me wondering whether the ancients did not make use of some anæsthetizing medium. I was well aware that they gave proof of surgical skill to a far greater extent than is usually conceded. (1) This is evidenced by the numerous collections of surgical instruments obtained from explorations among the ruins of "the Splendour that was Greece," (2) and the partially excavated Pompeii. Surgical instruments naturally connote operations; and one wonders how, without our anæsthetics, the patient could successfully have withstood the pain and the shock. On reflection, one cannot but be certain that these people, who apparently lived surrounded by every form of luxury, would not be likely to undergo painful operations without some means, more or less adequate, of alleviating pain.

That such was the case, investigation has proved abundantly; and a short summary of the results is embodied in the paper before you.

My statement will probably come as a surprise to many; but as a plain matter of fact, anæsthesia is but a renaissance, and when Morton, in 1846, discovered that teeth could be painlessly extracted from a subject under the influence of ether, he was only reviving, with a variation of medium, a practice as ancient as history itself. And we may venture to affirm that in that far-off story of Eden, we have at once an illustration and a symbol of the merciful oblivion induced by anæsthesia; for does not the Writer aver:—

> 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. (3)

Or, as a sixteenth century Poet quaintly puts it:—

> So God empal'd our grandsire's lively look.
> Through all his bones a deadly chilness strook.
> Siel'd up his sparkling eyes with iron bands,
> Led down his feet (almost) to Lethe's sands;
> In briefe so numm'd his Soule's and Bodie's sense,
> That (without pain) op'ning his side, from thence
> He took a rib, which rarely He refin'd,
> And thereof made the Mother of Mankind.

It appears to be indubitable that the ancients had their *Official Anæsthetic*, viz., *the Wine of Mandragora.*

Other anæsthetic agents are, it is true, on record.

Thus, Homer (4) mentions the anæsthetic effects of Nepenthe, the "sorrow-easing" drug obtained from Egypt. Herodotus (5) tells us that for this purpose the Scythians inhaled the vapours of hemp, throwing hemp seeds on hot stones. Pindar states:—

> "Machaon eased the sufferings of Philoctetes with a narcotic potion."

The Chinese physician, Hoa-Tho, in the third century B. C., gave his patients a preparation of hemp to render them insensible during surgical operations (6). We also read of an eminent Chinese physician of the second and third century A.D. who added surgery to his other qualifications. He was skilled in the use of acupuncture and cautery; but, if these failed, he would render his patient unconscious by a dose of hasish, and then operate surgically (7).

But Mandragora was their anæsthetic par excellence (8). Isidorus the philosopher, Serapion the physician, Rabbi Moses ben Maimon, (better known as Maimonides), (9) Dioscorides of Samos, (10)—who calls it also "kirkaia" from Circe the enchantress,—Pliny, (11) Lucius Apuleius Platonicus, Celsus, (12) Galen, Paulus Aegineta, Avicenna, Averrhoes, Kazwini, (13) all speak of it in this strain. It continued in use during the Middle Ages, and is referred to by Shakespeare and other Elizabethan writers. The last authenticated instance of its surgical use was in 1760, when the German surgeon, Weiss (Bernard Siegfried),—who, following the custom of Latinizing patronymics current in those times among scientific men, called himself Albinus,—amputated the foot of Augustus III., King of Poland, while under its influence (14).

Hemp and Mandragora would thus appear to have been the chief anæsthetic media of the ancients. Before, however, dealing more particularly with these two agents, I will say a few words about some earlier possible methods employed for producing surgical anæsthesia, viz.:—Arterial Compression and Hypnotism.

Arterial Compression.—It is probable that primitive man resorted to digital compression of the carotid in order to superinduce a lethargic state with at least partial anæsthesia. Curiously enough, "Carotid" in the Greek, connotes "a deep sleep" (karos); thus we may venture to translate "Carotid" as the "Artery of Sleep." According to Caspar Hoffmann, this method was practised by the ancient Assyrians before performing the operation of circumcision. And *Faulding's Medical Journal* is my authority for stating that semi-strangulation as a means of producing insensibility prior to operation is employed to-day among the natives of New Guinea and the New Hebrides.

This method was used by Valvardi in 1560; and Morgagni about 1750, employed it in experiments upon animals and suggested that it might be used on human beings. Compression of the nerves of the limb about to be removed was also proposed by James Moore in 1784, and tried by Hunter and others, but the results were not encouraging.

Dr. John Moore, (the father of General Sir John Moore, of "Corunna" fame) introduced a method of producing local anæsthesia by pressure. (Asclepiad, 1890, fol. 357).

Hypnotism.—The soporific properties of the poppy, were, of course, well known from the earliest times; but may it not be offered as a suggestion that, remarkably proficient as they were in the knowledge and use of hypnotism, they employed it on the operative subject as we do ether or chloroform? Plotinus (15) states that the Egyptian priests employed hypnotism as a therapeutic agent. That hypnotism can be

effectively used as an anæsthetic has been demonstrated in our own days. Thus, James Esdaile, (16) a surgeon at the Government Hospital, Calcutta, performed many major operations, such as the amputation of limbs, painlessly and with the most excellent results, by the aid of the so-called "magnetic sleep." One is, at first sight, inclined to doubt the genuineness of an anæsthesia produced by suggestion, but the number of surgical operations performed under hypnotic anæsthesia suffices to put its reality beyond all question.

HEMP.—(*Cannabis sativa L., indica, etc.*), has been known for its medicinal and intoxicating properties from a very early period. An ancient Chinese herbal, part of which was written about the 5th century B.C. while the remainder is of still earlier date, refers to hemp as a remedy. Earlier in this paper, I have referred to its use as an anæsthetic by Hoa-Tho and also by the Scythians. The use of it in India, under the form of Bhang, was noticed by Garcia D'Orta in 1563. Berlu, (17) in 1690, describes it as of "an infatuating quality and pernicious use."

Its modern medicinal use was due chiefly to experiments by Dr. O'Shaughnessey in Calcutta, between 1838 and 1842. Famuleuer and Lyons (18) believe that the only reliable preparation of Cannabis is a fluid extract made from the fresh drug. The apparent impossibility of obtaining pure and trustworthy samples of the drug has now led to its practical abandonment in therapeutics. When, however, a good sample is obtained, it is a safe and efficient hypnotic, at any rate in the case of a European.

MANDRAGORA or "*Mandrake*," (*Mandragora officinarum, L., Atropa Mandragora, L.,*) is a perennial plant of the Solanaceous family, with a fleshy spindle-shaped root, (which is often forked beneath and therefore compared in shape to the human figure,) (19) and a short stem bearing a tuft of ovate leaves.

Dioscorides, who flourished in the time of Nero, is the first author to mention Mandragora as an anæsthetic; he says:—

> Some persons boil the root in wine down to a third part and preserve the decoction, of which they administer a cyathus (20) in want of sleep or severe pains of any part, and also before operations with the knife or the actual cautery, that they may not be felt. (21)

Further on he says:—

> A wine is prepared from the bark of the root without boiling, and three pounds of it are put into a cadus (22) of sweet wine, and three cyathi of this are given to those who require to be cut or cauterised, when being thrown into a deep sleep, they do not feel any pain.

Pliny (23) remarks that

> The juice of the leaves of the mandragora is more powerful than the preparations made from the root, and that some persons even die from a considerable draught, and that it has the power

> of causing sleep in those who take it. The dose is half a cyathus. (24) It is taken against serpents, and before cuttings and puncturings, lest they be felt. For these purposes it is sufficient for some persons to have sought sleep from the smell of the medicine.

From this latter remark, it is clear that this anæsthetic was also administered by inhalation.

Celsus recommends a pillow filled with the apples of the Mandragora to induce sleep.

Speaking on the same subject, Apuleius (25) says that

> If anyone is to have a limb mutilated, burnt or sawn, he may drink half an ounce with wine, and whilst he sleeps the member may be cut off without pain or sense.

Avicenna, the Father of Arabian medicine, gives special directions as to the employment of mandragora both as an anæsthetic and a hypnotic; and Averrhoes, another Arab physician refers to its soporific effects.

> Galen alludes to its powers of paralysing sensation, and Paulus Aegineta states:—

Its apples are narcotic when smelled to, and also their juice, that if persisted in they will deprive the person of his speech.

According to Isidorus,

> A wine of the bark is given to those about to undergo operations, that, being asleep, they feel no pain.

In a Celtic MS. of the twelfth century, mention is made of a preparation to induce sleep called *Potus Oblivionis*.

Hugo de Lucca, in the fifteenth century, had a lotion which he applied to a sponge, and which he called *Spongia Somnifera*. According to Bodin, the sleep produced was so profound that the patient often continued in that condition for several days afterwards.

Canappe (26) states that the *Confectio Soporis secundum* Dominum Hugonem was used by the surgeons of the period. (1538 A. D.)

Reginald Scott, also in the sixteenth century, gives the following recipe for an anæsthetic:—

> Take of opium, mandragora bark and henbane root, equal parts; pound them together and mix with water. When you want to sew or cut a man, dip a rag in this and put it to his forehead and nostrils. He will soon sleep so deeply that you may do what you will.

William Bulleyne, who practised as a surgeon in the reign of Henry VIII, describes an anæsthetic which he directs to be prepared from the juice of a certain herb, probably mandragora:—

> Pressed forth and kept in a closed earthern vessel according to art, it bringeth deep sleep and casteth man into a trance, or deep terrible sleep, until he shall be cut of the stone. (27)

The Elizabethan dramatist, Thomas Middleton, says:—

> I'll imitate the pities of old surgeons
> To this limb, who, ere they show their art,
> Cast one asleep; then cut the diseased part. (28)

And Marlowe,

> I drank of poppy and cold mandrake juice,
> And being asleep, belike they thought me dead,
> And threw me over the walls. (29)

The medicinal use of mandragora has now passed away, its place having been taken by its ally, *Atropa belladonna*. The substance enters into none of our modern official pharmacopaeias, even the Persian books not retaining it; though it is described unofficially in the United States Dispensatory. (30) In recent times, its properties have been fully discussed by Crouzel (31) and F. B. Ahrens, (32) while its physiological action was partially investigated by Richardson. (33) This latter, during the period 1869-1872, experimented with some roots obtained by Daniel Hanbury (34) from the isles of Greece, and found the wine of mandragora a general anæsthetic of most potent quality; as a local anæsthetic, he found that a few drops smeared on the lips produced in them an insensibility which lasted a full hour.

Beyond its use in medicine proper, it was used under the name of "*morion*" or "*death-wine*," to render insensible those about to suffer torture or even death by a lingering process, so that they might be spared their agonies. Thus "*the Wine of the Condemned*" is referred to by the Prophet Amos. (35) The Talmud likewise states:—

> If a man is led forth to death, he is given a cup of spiced wine to drink, whereby his soul is wrapped in night.

And again,

> Give a stupefying drink to him that loseth his life, and wine to those that carry bitterness in their heart.

There is further a tradition mentioned by Josephus that the Jewish women were accustomed to visit those crucified under the Roman rule, and administer to them "*morion*" on a sponge. By this means their sufferings were allayed, and the sufferers passed into a deep sleep, from which, after removal from the Cross, recovery so often took place that the Roman soldiers were instructed to mutilate the bodies of the crucified before allowing them to be removed by their friends for burial. (36) The New Testament narrative would seem to confirm this view.

The wine was also used, both in ancient times and during the middle ages, for purposes of enchantment so-called; and, in this connection, many authors enumerate the distinctive qualities of the male and female mandrake.

The Babylonians and the Egyptians employed it as a charm against sterility, and for this reason called it "the phallus of the field." (37) And if we are to judge from the story of Rachel in Genesis, (38) the ancient Hebrews also believed it to possess special virtue in this respect.

Concerning its use in enchantments, Bacon says:—

> Mandrakes, whereof Witches and Impostors make an ugly Image, giving it the form of a Face on the top of the root. (39)

In the works of Shakespeare, that compendium of the human knowledge of the age, there are references to the use of mandragora both in its medical and its magical aspects.

> Give me to drink mandragora . . . .
> That I might sleep out this great gap of time. (40)

> . . . . Not poppy, not mandragora,
> Nor all the drowsy syrups of the world
> Shall ever medicine thee to that sweet sleep. (41)

It is also "the sweet oblivious antidote" inquired after by Macbeth.

And the skilful Friar Lawrence (42), in giving the draught to Juliet, is all pat with the physiological description of the action of th mandragora:—

> In this borrowed likeness of shrunken death
> Thou shalt continue two and forty hours. (43)

When however he comes to the last part, for the sake of an inducement to Juliet, he makes the awakening much more pleasant than it is according to nature; for on recovering from the effects of

The insane root which takes the reason prisoner (44) there was wildness of the senses and fear, and hence the saying of "shrieking like mandrakes," which, in course of time, became applied to the plant instead of the person:—

> And shrieks like mandrakes torn out of the earth,
> That living mortals, hearing them, run mad. (45)

In conclusion, it may be interesting to hear from an ancient writer, the correct way of uprooting the mandragora, so as to counteract its evil effects:—

> To gather ye mandragora, go forthe at dead of nyght and take a dogge or other animal and tye hym wyth a corde unto ye plante. Loose ye earth round about ye roote, then leave hym, for in his struggles to free hymself he will teare up ye roote whych by its dreadfull cryes wyll kyll ye animal. (46)

Certain rites and ceremonies were sometimes performed before gathering the root, such as making three circles round it with a sword, and loosening the earth with an ivory spade; while to drown the cries of the fatal herb, a horn was sometimes blown by the gatherer.

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4—Homer,—Odyssey, IV. 220, 221, "Νηπενθές τ' ἄχολόντε, Κακῶν ἐπίληθον ἁπάντων" Also Faerie Queene, IV. 111. 33,

5—Herodotus.—Clio, I.202; Melpomene, IV. 74,75.
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10—De Materia Medica. 4. 76.
11—Hist. Nat.
12—De Viribus Herbarum, Paris (1528.)
13—Kazwini, I, 297, sub verb. "Luffah."
14—Sylvester, Med. Gaz. 12, 515, quoting from Meissner, published in 1782.
15—Plotinus, Ennead, IX.
16—Encyc. Britt. 11th ed. 14, 202.
17—Berlu, "Treasury of Drugs" (1600.)
18—Ann. Pharm., 1904.
19—2 Hen. IV., iii. 337-342. See also Gerarde's Herball, (1597) for further details and prints.
20—Rather more than 1½ oz.
21—De Materia Medica.
22—About 18 galls.
23—Hist. Nat.
24—6 drachms.
25—De Virtutibus Herbarum; an Anglo Saxon translation of the XIth century is still extant.
26—Le Gyidon pour les Barbiers et les Chirurgiens. (1538.)
27—A Bulwark of Defence against Sickness.
28—"Women beware Women."
29—"The Jew of Malta."
30—U.S.A. Dispensatory, 19th ed. (1907); see also Pickering, Chronol. Hist. of Plants, fol. 247.
31—Pharm. Jour. (1885) fol. 1967.
32—Berichte der Deut. Chem. Ges. (1889), 2159-2161.
33—Brit. & For. Med. Rev. (1874) 242; Asclepiad (1888).
34—One of the founders of the firm of Allen Hanbury & Co. celebrated for the so-called "Allenbury" products.
35—Amos, ii. 8.
36—Asclepiad (1888) 178.
37—Aug. C. Faust, XXII. 56.
38—Genesis, XXX. 14 et seqq.
39—Shakespeare's England, I. 524.
40—Ant. & Cleo. I. 5.
41—Othello, III. 3.
42—Romeo & Juliet, IV.
43—Romeo & Juliet, IV.
44—Macbeth, I. 3. 84; Lear, IV. 4. 14.
45—Romeo & Juliet, IV. 3.
46—Cf. Josephus, Bell. Jud. 7 (6), 3.

THE OBJECTS OF A MEDICAL SOCIETY*

BY

KENELM H. DIGBY, M.B., B.S., F.R.C.S.,

PROFESSOR OF ANATOMY AND HO TUNG PROFESSOR OF CLINICAL SURGERY,

DEAN OF THE MEDICAL FACULTY,

PAST PRESIDENT OF THE MEDICAL SOCIETY.

Societies such as this play a vitally important part in a university. A university should not be a mere technical school in which students are taught a number of facts.

It should be a place in which students *learn to think* for themselves. A university Professor should not be merely a purveyor of knowledge, but a stimulator of thought. There is always a danger for the learner to make a bad habit of merely picking up facts from his teachers, loading and overloading his memory with details and allowing the intelligent or thinking part of his brain to atrophy. The student then becomes no better than a gramaphone, perhaps with an enormous number of records, but still, a gramaphone, that is to say, a machine that can only render back just that which was put into it and nothing more. This danger should not be very great in a science course, where so much is continually put to the touchstone of experiment, but the medical curriculum is so overcrowded that the danger really exists and the student may get into the habit of always learning what others think till he ceases to think for himself. And this is especially serious for a medical man, for each patient he meets is in some respects a novel problem, and each case raises some perplexity not to be answered by any simple rule. Nothing does so much to remove this danger as the Medical Society, one of the aims of which is to promote the power of original thought and serious criticism. It is desirable that the great majority of the papers should be written by undergraduates and graduates, and that the critical discussion of the papers presented should be indulged in chiefly by students. This University is in its early childhood; it will not have fully established its title till it produces original research of value. By encouraging critical thought this Society may stimulate some of its members to attempt to add to the common store of knowledge, to attempt the fascinating exploration of the unknown which stretches on every hand.

When you leave the University to enter practice in the Far East, it will inevitably fall to the lot of nearly all of you to play a prominent part in the public affairs of your district. Questions of Public Health, of Education and so forth will come before you. It is, therefore, useful for you to take part in public discussion with confidence. A Debating Society also will instruct in debate, but it has many disadvantages. One argues like a lawyer to secure a verbal advantage over an antagonist.

In a scientific society, on the other hand, though we may at times be sarcastic or humorous at one another's expense, we are ultimately trying to arrive together at a solution of the problem under discussion. When

* *An Abstract of Address delivered before the Medical Society in September, 1919.*

we meet to discuss a problem in medical or other science, we can feel, that of whatever nationality, we are joining together in what has been termed the "Great Adventure" of Mankind to improve the lot of the species. Man has always been a rebel against Nature. Other animals remain stationary only improving in themselves or their condition by some blind chance. Man has always tried to improve himself by intelligent effort, and though his mistakes have often led him into disaster, his successes have raised him far above all other competitors in the animal world.

I have just returned from Europe—a saddened barely convalescent Europe where the fruit of the toil of centuries has been wrecked in a few years' madness. It makes one wonder whether the people of the East are really going to benefit from the learning of the West. You will remember that our late Vice-Chancellor at the valedictory dinner in his honour raised such a thought. I suppose the one distinctive feature of modern western learning is the Experimental Method. It has done more for the benefit of mankind in the last century than any other agency has accomplished in twenty centuries. It is true that during the last four years horrible mistakes have been made and are still being made in Europe; and perhaps the sudden great changes induced by scientific progress have predisposed to some of these disasters. However, though Science increases the potentialities both for evil as well as for good, yet it is only Science which is ever likely to abolish War or any of the other great evils of the World.

We must choose between two things:—A static mankind, riddled with disease, generally misgoverned, ignorant and superstitious throughout the Ages, or a mankind ready to take the risks of widespread education, science and research in an adventure to improve the common lot.

Our Society has another value besides encouraging original thought viz.—that of promoting social intercourse. This it does not only at its regular meetings, but also by its Annual Dinner and its occasional entertainments. This Society was founded on the traditions of two similar societies at Guy's Hospital where I was a student, and I can assure you that some of my happiest memories of my old medical school are memories of meetings at these societies. Let us hope that this Medical Society of Hongkong University will provide pleasant memories for many generations of graduates.

THE HO KWONG PRIZES

The first prize of the value of $40 in books will be awarded to the undergraduate member who writes the best paper during the session.

The second prize of the value of $10 in books will be given to the member who distinguishes himself most in the subsequent discussions.

Prize Winners for Paper

1917-18 Phoon Seck Wah.—"Eugenics"

1918-19 { Cheah Toon Siew—"Beri-beri"
Cheam Kim Cheang.—"Wound Infection"

1919-20 Ng Cheong Yew.—"Some anatomical Facts concerning Man's assumption of the Erect Position"

1920-21 { D. K. Samy,—"Common Cold"
Yeoh Hone Soo—"Treatment of Fractures"

Prize Winners for Discussions

1917-18 V. N. Atienza.
1918-19 Yeoh Hone Soo.
1919-20 Chen Ah Poh.
1920-21 Cheah Toon Lok.

VENEREAL DISEASE AMONG THE NATIVES OF HONGKONG

BY

H. MACFARLANE, L.R.C.P., L.R.C.S.ED., D.P.H.
LATE GOVT. BACTERIOLOGIST.

AND

G. E. AUBREY, M.D., HONORARY VISITING PHYSICIAN,
GOVT. CIVIL HOSPITAL.

In order to obtain some idea of the incidence of venereal diseases in the surrounding country as compared with that of the Port itself, the venereal histories of 500 men above the age of 20 years, in the Kwong Wah Hospital were taken. The large majority of these patients are country people. It was found impossible from their own account to determine the probability of a syphilitic infection, as it is apparently their custom and also that of the native doctors, to classify venereal sores, various generalized rashes, and inguinal buboes, as syphilis.

There was however no difficulty in ascertaining the history of a venereal sore or of gonorrhœa, as the Chinese coolie attaches no shame to the acquisition of these diseases. Each patient was examined for obvious clinical evidence of syphilis, for comparison with the same returns from the Govt. Civil Hospital.

The figures are as follows:—

Venereal sore	123 cases	24.6%
Gonorrhœa	114 cases	22.8%
Clinical syphilis	46 cases	9.2%

72 cases had both venereal sore and gonorrhœa.

263 cases were married.

237 cases were unmarried.

270 cases stated they had run the risk of contracting venereal disease, i.e., had visited brothels.

230 cases had not taken this risk.

Clinical Treatment of Syphilis

The only metallic drug used by the native doctors which has a known action on syphilis is vermillion. The manufacture of this is an ancient art in South China. It is given in the form of pills, about fifty pills for

one dose. The treatment usually consists of two doses, which are expected to cause violent purging and vomiting, they often cause salivation and occasionally necrosis of the jaw.

A man was sent to five native doctors to obtain treatment for syphilis, in two cases vermillion was the drug supplied but in the remaining three samples neither mercury nor arsenic was found. The use of potassium iodide is apparently not known. Syphilis is also treated by various concoctions of herbs and barks.

The treatment is only applied to primary and secondary syphilis. The later manifestations are not generally believed to be connected with the primary disease.

The Spread of Syphilis

There are two factors mainly concerned in the spreading of Syphilis.

(1) Prostitution.

(2) Concubinage.

(1) Resort to prostitution in the coolie class under consideration is about 50% in the rural districts, it must be more nearly 100% in the city areas. Nor does this estimate decrease as one proceeds up the social scale.

(2) Concubinage is almost universal in the moneyed classes in fact one may say 50% of the male population of towns with incomes above 100 dollars per month possess concubines and their numbers increase with the pecuniary status of the owner. They are drawn from two classes.

(1) Daughters of poor people who are sold for about 50 dollars.

(2) Professional prostitutes who are frequently bought for from 1000 to 10,000 dollars.

The former are usually free from diseases except from the hereditary form, the latter frequently suffer from previously contracted syphilis.

From these sources whole families frequently become infected and the number of abortions, still births and early deaths are enormous.

This deplorable state of affairs is made worse by the fact that infected persons are seldom cured, as they will seldom be treated after the actual symptoms have disappeared.

The Wassermann Reaction

The Wassermann reaction of 500 cases in the Government Civil Hospital was examined. These cases were all males above the age of 20 years. They were taken from both surgical and medical wards—283 being surgical, 217 medical, and the surgical cases being largely composed of injuries. Primary sores and early secondary rashes are excluded from these wards, such cases being placed in a special venereal ward. The cases may therefore be taken as a sample of the town coolie class and represent the amount of syphilis less the primary and early secondary cases.

No selection of any kind was made, batches of about 10 being taken on each occasion.

5.c.c. of blood was taken from each case and sent to the laboratory. The test usually being made the following day.

I am indebted to Surgeon Parker R.N. for the description of the methods employed by Dr. MacFarlane owing to the latter's death shortly after the completion of his work.

The test as a whole was based on the work of Browning and MacKenzie.

The reagents used were as follows:—

Patient's serum .05cc, inactivated at 55 degrees for 30 minutes. Saline .85%

Sheep's corpuscles, whipped and washed, 1cc of a 1% suspension.

Rabbit's antisheep hæmolysin, 3 minimum hæmolytic doses, standardised on each occasion of doing the test.

Antigen.

For the first series a simple alcoholic extract of Ox liver was used. Stock antigen 1 gm. Ox liver to 4cc alcohol, for the test this was used in a dilution of 1 in 6.

For the first part of the second series, 1% of cholesterin was added to the 1 in 6 dilution, but the greater part of the second series were tested with Browning' and MacKenzie's lecithin-cholesterin antigen obtained from England.

When he started the test he tested the antigens for anticomplementary effect and for specific fixing power, but he did not do this on each occasion of the test.

Guinea Pig complement, this used to be clotted off and was prepared over night. It was tested on each occasion.

Six tubes were used for each case containing respectively 1,3,5,7,9, and 12 minimum hæmolytic doses of complement.

Inhibition in the first tube and hæmolysis in the last five was read as negative.

Inhibition after the first but not beyond the third tube was read as doubtful.

Inhibition beyond the third tube was read as positive.

The first or fixing incubation was for 60 minutes, and the second hæmolysing incubation was for 60 minutes at 37 degrees.

The total volume in each tube was 2.05cc.

Patient's serum, ...	.05
Saline to equal volume ... ... } Complement ... ... }	.4
Antigen	.6
Sensitised corpuscles	1.0
	2.05cc.

At frequent intervals known syphilitic blood and known normal blood were supplied and compared with the results obtained. In no case in the known non-syphilitic blood did inhibition take place beyond the second tube.

Series I

	Tubes	Doses	Cases	%
A.	1	1	68	32.2
B.	2	3	48	22.7
C.	3	5	36	17.1
D.	4	7	36	17.1
E.	5 & 6	9 & 12	23	10.9
			211	100.0

Series II

	Tubes	Doses	Cases	%
A.	1	1	166	57.4
B.	2	3	33	11.4
C.	3	5	24	8.3
D.	4	7	15	5.2
E.	5 & 6	9 & 12	51	17.6
			289	99.9

Totals

	Tubes	Doses	Cases	%
A.	1	1	234	44.8
B.	2	3	81	17.1
C.	3	5	60	12.7
D.	4	7	51	11.2
E.	5 & 6	9 & 12	74	14.2
			500	100.0

Clinical Syphilis with inhibition in :—

1ST TUBE

1 locomotor ataxia, Argyll-Robertson pupils, ataxia, knee jerks absent.
1 locomotor ataxia, Argyll-Robertson pupils, ataxia, knee jerks absent, loss of tactile sensation in feet, history of chancre 10 years ago.

2ND TUBE

1 spastic paraplegia, choroiditis, optic atrophy, history of syphilis.
1 aneurism of the aorta.
1 locomotor ataxia, Argyll-Robertson pupils, ataxia, K. J. absent.
1 ,, ,, ,, ,, ,, ,, ,,

3RD TUBE

1 syphilitic iritis, proptosis which disappeared with Potassium Iodide.
1 choroiditis and optic atrophy, no sugar and no albumen.
1 arthritis (multiple), history of chancre and rash.
1 aneurism iliac artery, syphilis 10 years before.
1 periostitis of tibia, history of syphilis.
1 atheroma aorta.

Group A. is considered to be a negative reaction.

Groups B. and C. as probable negatives and possible positives. *(See note)*

Group D. as probable positives.

Group E. as strongly positives.

51 cases or 11.2% probable positives.

74 cases or 14.2% strongly positives.

In all 125 cases or 25.4% positive reactions.

If the 12 cases of clinical syphilis which do not give a positive reaction are added to these, it gives us—

137 cases or 27.4% of syphilis in these 500 cases.

In a series tested with both Ox Liver and with lecithin-cholesterin. Inhibition occurred in the second tube with the Ox Liver whereas it occurred in the first tube with lecithin-cholesterin.

In the 74 cases comprising Group E. strongly positive, 25 showed obvious evidence of syphilis.

In the 51 cases comprising Group D. probable positive, 13 shewed obvious evidence of syphilis.

In the 375 cases comprising Groups A., B. and C. negative and probable negative, 12 showed evidence of syphilis.

The Wassermann Reaction and Malaria

There were 7 cases diagnosed as acute Malaria in which the blood was taken during the attack, of these 6 gave a negative reaction and 1 positive. It is to be expected that many acute malaria cases would give a positive Wassermann as syphilis is extremely likely to induce an exacerbation in a chronic malarial subject and a combination of the two diseases is more likely to bring this class of patient to hospital than either alone. Malaria is so universal in the district and its acute symptoms so well known to the natives that they seldom go into hospital on that account alone.

Bell and Stewart[1] in the Government Civil Hospital found that a large proportion showed evidence of malarial infection.

Ten police stations in the New Territory, which can be taken as a sample of the Canton River Delta, show an annual incidence of 43.8%.

It is unnecessary to enter into a discussion as to the influence of Malaria on the Wassermann Reaction as it has been thoroughly done by Thomson and Miles[2] and it is probable there is no further connection than that already mentioned.

REFERENCES.

1. Bell and Stewart.—Journal of Tropical Medicine, September, 16th 1901.

2. Thomson and Miles.—Lancet, May 10th, 1919.

NOTE.—In this latter series Group C. might be considered as probable positives.

Cirrhosis of Liver

11 cases were diagnosed as Cirrhosis of the Liver.

4 had ascites with enlargement of the liver. Of these 3 gave a negative reaction and 1 positive.

2 had ascites with enlargement of the liver and spleen. One gave a positive reaction and one doubtful.

2 had ascites with no enlargement of the liver, these both gave positive reactions.

1 gave a history of Malaria, Dysentery and Syphilis and gave a positive reaction.

1 had an abscess of the liver and gave a positive reaction.

1 diagnosed as gumma of the liver and gave a positive reaction.

Out of these 11 cases 7 gave a positive reaction, one doubtful and 3 negative.

None of these cases gave a history of alcohol and it is likely that even the cheapest native rice wine was beyond their means. Cirrhosis is however a common disease and it is probable that syphilis plays a great part aided by Chronic Malaria and Dysentery.

There were three cases of Gangrene of the toes.

One case was associated with arteritis obliterans and all gave a negative reaction.

Two cases of Leprosy, both gave negative reactions.

ABNORMALITIES OF THE MUSCULAR SYSTEM

COLLECTED AND ANNOTATED BY YUE MAN KWONG, EX-STUDENT-DEMONSTRATOR IN ANATOMY, UNIVERSITY OF HONGKONG

This article gives a brief account of the chief abnormalities of the muscular system observed in the School of Anatomy from 1912 to 1920 inclusive. Although over 150 bodies have been embalmed and used during that period, some have not been completely dissected and others have been used for Operative Surgery so that it is unlikely that all the abnormalities present have been seen. No precise deductions as to the frequency of these abnormalities can therefore be made, but the large number of the irregularities of the Biceps Humeri strikes the attention.

As with other congenital abnormalities, the irregularities of these muscles often represent some earlier phases in the ontogeny or phylogeny of man.

The abnormalities recorded below may be classified as follows:—

(*a*) Extra heads of origin.
2a, 2b, 3, 8b, 12 and 15.

(*b*) Extra insertions.
4a, 4d, 8a, and 10c.

(*c*) One muscle passes beyond its insertion into the origin of another.
1, 2c, 3, 4c, and 9.

(*d*) Absence of the retrograde metamorphosis of a distal tendon normally found in man.
10b.

(*e*) Persistence of a part of the primitive musculature.
3, 10a, 14, 16a, 16b, and the abnormal muscles.

(*f*) Absence of the whole or part of the normal muscle.
4b, 11, 13, 17, and 18.

REFERENCES:

(1) Human Anatomy—*Piersol.*

(2) Ligaments, their nature and Morphology—*J. Bland-Sutton.*

(3) Human Anatomy—*Cunningham.*

I have to thank Professor K. H. Digby for permission to make use of these records from the School of Anatomy.

Abnormalities of Muscles

1 BRACHIALIS.

A slip arose in one cadaver, No. 106, from the lateral part of this muscle and passed downwards to blend with the superficial fibres of the supinator muscle in the cubital fossa. This slip received a distinct branch from the radial nerve.

2 BICEPS BRACHII.

(*a*) One Additional Head was found in seven cadavers, No. 38, on the left side; Nos. 47, 49, 75, on the right side and Nos. 71, 76, on both sides, and No. 1.

This was found coming from the shaft of the Humerus just lateral to the insertion of the coraco-brachialis. In No. 47, it was traversed by the musculo-cutaneus nerve whilst in the rest it was not traversed by the above nerve but in Nos. 71, 75, and 49, there was a communication between the median and the musculo-cutanous nerves.

(*b*) Two Additional Heads were found in two cadavers, No. 38, on the right side and No. 70, on the left side.

The first head came from just lateral to the upper part of the coraco-brachialis insertion.

The second head came from just lateral to the lower part of the coraco-brachialis insertion. In No. 70, this head however was traversed by the musculo-cutaneus nerve which previously sent a communicating branch to the median nerve.

Both heads were separated by an interval of 2 or 3 cm.

Comment:—The rarer form of variation in the total absence of its long head has however not yet been noticed in the subjects dissected so far.

(*c*) An Extra Insertion was found in one cadaver No. 83, on the right side only.

A slip passed from the lower part of the anterior surface of the biceps brachii to join the flexor carpi radialis muscle.

3 CORACO-BRACHIALIS.

An Extra Insertion was found in one cadaver.

Fibres were found to be inserted into the medial septum of the arm while a few superficial fibres passed on to the medial head of the triceps.

Comment:—The coraco-brachialis is the intermediate part of an originally extensive muscle sheet consisting of three portions. The homologous sheet in the lower limb gives rise to the various adductors. Therefore this extra insertion extending nearly as far down as the medial epicondyle of the humerus really represents the primitive inferior portion.[1]

4 EXTENSOR DIGITORUM BREVIS.

(*a*) A 5th Tendon passed to the little toe in one instance.

This tendon was just as large as any of the others and blended with the lateral border of the dorsal expansion of the long extensor tendon.

Comment:—The more common variation is the presence of an additional tendon to the 2nd toe.[1]

(*b*) Only three tendons were found in one cadaver on the left side the tendon to the fourth toe being absent.

(*c*) It gave an Extra Fleshy Slip which blended with the first dorsal interosseous muscle in one cadaver No. 133 on the right side.

(*d*) An Abnormal Insertion was seen in one cadaver No. 78.

Some fibres passed to be inserted into the dorsal aspect of the base of the second metatarsal bone.

5 FLEXOR DIGITORUM PROFUNDUS.

An Accessory Head was found in three cadavers Nos. 55 and 66 on the left side and No. 107.

A slender slip passed from the medial border of the coronoid process of the ulna to the flexor digitorum profundus. In No. 55 this slip joined the tendon of the index finger whilst in Nos. 107 and 66 it went to the tendon of the middle finger.

Comment:—This variation finds explanation in the historical development of the muscle. In the lowest group of the mammalia the monotremata, the flexor pollicis longus and the flexor digitorum profundus are joined with each other and also with the flexor digitorum sublimis to form a common flexor sheet. In slightly

higher forms this common flexor can be seen to consist of five portions. In man the five portions are assembled to form the three muscles just mentioned.[1] The connection between the flexor pollicis longus and the flexor digitorum profundus must therefore be regarded as the incomplete separation of a common flexor mass.

6 Flexor Pollicis Longus.

The Accessory head which normally comes from the medial border of the coronoid process of the ulna was found in one cadaver No. 66 on the left side only to take origin from the medial epicondyle of the humerus in common with the flexors of the forearm.

7 Flexor Digitorum Brevis.

An Abnormal origin of its fourth tendon was found in one cadaver No. 54 on the left side only.

The flexor digitorum brevis sent tendons to the 2nd, 3rd and 4th toes in the usual way. A slender tendon to the 5th toe came from a short inch of fusiform muscle which arose from the tendon of the flexor digitorum longus just before it received the fibres of the quadratus plantæ.

8 The Lateral Head of the Gastrocnemius.

(*a*) An especially well developed sesamoid bone was found in one cadaver No. 7. To this were attached the lateral head of the gastrocnemius and the plantaris muscle, and also the oblique popliteal ligament from the tendon of insertion of the semi-membranosus muscle. The sesamoid bone played on the back of the lateral condyle of femur during extension of the knee joint. The plantaris muscle was unusually bulky in this case.

(*b*) An Extra Slip arose from just above, the inter-condyloid fossa in one cadaver No. 92 on the right side only.

9 Latissimus Dorsi

An Additional Insertion was found in six cadavers, No. 1 on both sides, Nos. 133, 150 on the left side, No. 148 on the right side and Nos. 38 and 95. The anterior fibres of the muscle form a slip which runs in front of the axillary vessels and nerves from the brachial plexus into the aponeurotic origin of the coraco-brachialis in Nos. 1, 95, 150, and 148, and to blend with the deep fibres of the pectoralis major near its insertion in Nos. 38, 133.

Comment:—This slip is generally known as the axillary arch in contra-distinction to another fibrous slip, the dorso-epitrochlearis, which, if present, passes from the lower border of the tendon of the latissimus dorsi near its insertion to the long head of the triceps brachii. The axillary arch is the representative of a portion of a thin muscular sheet in the lower mammals which invests a greater or less portion of the trunk and which is known as the panniculus carnosus.[1]

10 Pectoralis Minor

(*a*) Five cases of Abnormal Origin were found in Nos. 1, 7, 31, 47, 81.

The first case:—Fibres arose from the 2nd rib and the 2nd intercostal space.

The second case:—A few muscular fibres arose from the 2nd rib close to the chondro-costal junction.

In addition a very distinct cord-like costo-coracoid ligament passed from the first rib to the coracoid process just behind the insertion of the pectoralis minor tendon.

Comment:—Are the costo-coracoid membrane and ligament merely the upper fibrosed part of the pectoralis minor?

The third case:—Fibres arose from the 2nd, 3rd, 4th, 5th and 6th costal cartilages and the anterior end of the 6th rib.

The fourth case:—Fibres arose from the 2nd, 3rd and 4th and slightly from the 5th ribs.

The fifth case:—Fibres arose from the 1st, and the 2nd ribs and the intervening intercostal spaces.

The cephalic vein did not pierce the muscle but went above the tendinous superior border.

(b) An abnormal insertion was found in two cadavers Nos. 83, 75.

The tendon passed over the coracoid process separated from it by a bursa, then dipped between the two limbs of the coraco-acromial ligament and went to to upper border of the greater tubercle of the humerus.

Comment:—In birds, the pectoralis minor arises from the sternum and passes through the foramen triosseum and over the shoulder to its insertion on the upper side of the humerus which it raises. In man, as a rule, this muscle becomes attached to the coracoid process and the distal part of the tendon undergoes a retrograde metamorphosis into a ligament—the coraco-acromial ligament.[2]

(c) Another abnormal insertion was found in cadaver No. 133.
The muscle sent a fleshy slip to the inferior aspect of the lateral part of the clavicle for half an inch.

11 Peroneus Tertius

Complete absence of the above muscle was found in one cadaver No. 9 on the left side only.

Comment:—The name peroneus tertius refers to its origin from the fibula but the muscle itself has morphologically nothing to do with the other peroneal muscles. It is a separated part of the extensor digitorum longus in spite of its insertion to a metatarsal bone.

12 Pronator Teres

An Additional Head was found in cadaver No. 106.

It arose from the upper third of the medial epicondylic ridge of humerus. The fibres formed a fleshy belly which lay lateral to and later crossed the median nerve and the brachial artery.

Comment:—It is said to be a more common abnormality for this muscle to receive accessory heads from the palmaris longus and the flexor digitorum sublimis.[1]

13 Quadratus Plantae.

Complete absence of its lateral head was found in one cadaver No. 24.

14 Subclavius.

An Abnormal Insertion was found in one cadaver No. 71 on both sides. Fibres were inserted into the medial border of the ascending part of the coracoid process and to the superior transverse ligament of the scapula.

Comment:—The subclavius is regarded as the persistent representative of a group of muscles more perfectly developed in lower mammals and especially in those in which the clavicle is more or less rudimentary. In the mammals which lack a clavicle—in ungulates for example—a strong muscle band known as the sterno-chondro-scapularis, passes transversely across the upper part of the thorax from the sternum and first costal cartilage to the scapula.[1] Perhaps the subclavius with its abnormal insertion in this case is the representative of the sterno-chondro-scapularis of the ungulates.

15 Semitendinosus.

An accessory head was found on the right side in cadaver No. 66. An intra-muscular tendinous intersection is of course normal in this muscle but in this case there was found a separate fleshy belly arising from the common origin and blending later with the medial border of insertion of the tendon.

16 Trapezius.

(*a*) An abnormal slip was found in one cadaver No. 105.

Upper Attachment:—A tendinous slip was attached to the medial point of trisection of the upper border of the clavicle.

Lower Attachment:—From the above slip muscle fibres arose and passed obliquely upwards and medialwards as a distinct muscle bundle to blend with the trapezius at lower part of trisection of its anterior border, the muscle bundle crossed superficially to the posterior belly of the omo-hyoid muscle.

Comment:—The trapezius is a compound muscle consisting of three distinct portions.[1] The presence of this abnormal slip perhaps indicates partly its triple constitution.

(*b*) An Abnormal Insertion was found in one cadaver No. 45. The anterior fibres of the muscle in the posterior triangle of the neck passed forwards to be inserted into a fibrous arch which was attached to a tubercle on the posterior border of the clavicle 5/12 of the whole length from the sternal end. Beneath the arch entered the external jugular vein and exited the posterior supraclavicular nerves.

17 PYRIFORMIS.

An incomplete origin was found in one cadaver No. 3.
No fibres arose from the fourth sacral vertebra.
In consequence the muscle was very narrow and the lower part of the sciatic foramen below the pyriformis was very large as seen from the gluteal region.

Comment:—The pyriformis is occasionally absent, and sometimes more or less fused with the gluteus minimus or medius. According to Piersol, the pyriformis is to be regarded in part at all events, as a portion of the musculature extending between the axial skeleton and the pelvic girdle or limb and is represented in the lower vertebrates by the caudo-femoralis.

18 DIAPHRAGM.

A congenital deficiency of a part of the lateral half of the muscle placed posteriorly and on the left side was found in two cases from the mortuary.

Comment:—The diaphragm is found as a complete septum between the thorax and abdomen only in mammals. Embryologically the postero-lateral part of the diaphragm is the last to close and in this fact is probably to be found the explanation of the above deficiency which permits the formation of a congenital diaphragmatic hernia.[1 and 3] Owing to the presence of the liver on the right side diaphragmatic hernia occurs on the left side only. When the infant commences inspiratory efforts at birth some of the abdominal contents are sucked up into the left pleural cavity and the left lung remains more or less unexpanded.

Abnormal Muscles

CHONDRO-EPITROCHLEARIS.

This muscle was found in one cadaver No. 78.

Origin:

(*a*) One slip arose from the axillary fascia.

(*b*) The rest arose below the lowest fibres of the pectoralis major from the aponeurosis of the external oblique abdominis muscle The fibres arched upwards and medialwards superficial to the pectoralis major muscle to converge, become tendinous and decussate with its fellow of the opposite side over the front of the sternum at the junction of the manubrium and body.

Comment:—It is doubtful whether this abnormal muscle is the chondro-epitrochlearis or not. Can it be the sternalis muscle or does it represent the two mentioned muscles fused together? Can it be regarded as a portion of the platysma or an upward prolongation of the external oblique abdominis or a displaced portion of the pectoralis major?

EXTENSOR BREVIS DIGITORUM MANUS.

(Extensor Digitorum Medius Et Annularis)

This muscle was found in one cadaver No. 42, on both sides.

It arose from the ulna below the origin of the extensor indicis proprius and also from the adjacent part of the interosseous membrane. It lay medial and distal to the extensor indicis proprius and its tendon passed through the same compartment in the dorsal carpal ligament.

It was noteworthy that the dorsal interosseous nerve ended in the muscle and did not descend on to the back of carpus.

Comment:—The deep extensors of the forearm originally arose as a common muscle from the lateral condyle of the humerus and the adjacent parts of the olecranon. The primary common extensor muscle consisted of five parts namely, extensor secundi, indicis, medius, annularis and minimus. The extensor secundi was the first to migrate down from the lateral condyle of the humerus to the ulna, gradually the indicis followed and acquired a new attachment to the ulna below the secundi, in the same way the medius and annularis migrated from the lateral condyle to the ulna below indicis. The minimus however retains its old attachment to the humeral condyle in all forms. In man the extensors secundi, indicis and minimus are normally represented, the medius and annularis as a rule, disappeared. In this case however they appear as functional muscles. As these muscles migrated from the neighbourhood of the elbow, they carried with them the branch of the radial nerve which supplied them, this subsequently became the dorsal interosseous nerve. Normally in man this nerve terminates meaninglessly on the back of the carpus. It has been suggested that the regression of the medius and annularis muscles has something to do with the mode of termination.[2] The above recorded case rather supports this view.

FLEXOR TERTII DIGITI PEDIS.

(*Flexor Digitorum Longus Accessorius*)

This muscle was found in one cadaver No. 58.

Origin:—Lower one fourth of the posterior surface of the fibula.

Insertion:—It blended with a much attenuated corresponding tendon of the flexor digitorum longus below the 1st phalanx.

Nerve Supply:—Tibial nerve.

Structure:—Pennate Muscle.

Relations:—It lay in the lateral part of the groove on the calcaneus for the flexor hallucis tendon.

PTERYGOIDEUS PROPRIUS.

This muscle was found in one cadaver.

The lowest fibres of the temporal muscle arising from the infra-temporal crest passed to be attached to the lower third of the posterior border of the lateral pterygoid lamina.

Comment:—The significance of this muscle passing between points which are immovable is obscure. Perhaps it indicates the common origin of the four muscles of mastication from a single muscular mass represented by the adductor mandibulae of fishes.[1]

STERNALIS.

This muscle was found in one cadaver.

Upper attachment:—Left side of the joint between the manubrium and body of the sternum.

It was tendinous for one and half inches then became fleshy for 3½ inches (with a width of 1½ inches) and lay lateral to the sternum and anterior to the pectoralis major muscle.

Lower Attachment.—Anterior part of the rectus sheath over the fifth right interchondral space.

Comment:—It is apparently asymmetrical. It has been regarded as either an upward prolongation of the rectus abdominis muscle or a displaced portion of the pectoralis major. However, the question of nerve supply is very essential before one can say which is the more probable supposition.

SCALENUS INTERMEDIUS.

This muscle was found in one cadaver No. 83.

A slip (apparently from the scalenus anterior) arose from the anterior tubercle of the transverse process of the 6th cervical vertebra and passed downwards to be inserted into the medial border of the 1st rib between the subclavian artery and the lowest trunk of the brachial plexus.

SUPRA-HYOID

This muscle was found in one cadaver No. 71 on the right side only. A slip passed from the greater cornua of the hyoid bone to join the intermediate tendon of the digastric and appeared to be in line with the anterior belly of the digastric.

TRANSVERSUS.

This muscle was found in the sole of foot of one cadaver.

It was attached laterally to the under surface of the cuboid bone immediately behind the origin of the flexor hallucis brevis and medially by an aponeurosis to the tuberosity of the navicular bone.

TEMPORO-PHARYNGEUS.

This muscle was found in one cadaver No. 24.

It was quite distinct from and in addition to the stylo-pharyngeus muscle. It was a thick rounded muscle passing from the vaginal process of the petrous part of the temporal bone to blend with the back of the middle constrictor.

In addition the attachment of the pharyngeal muscles to the occipital bone was very extensive.

Besides the superior constrictor, an inner stratum appeared to descend from the occipital bone vertically and blend with the middle constrictor.

SOME OBSERVATIONS ON THE USES OF FLAVINE, BRILLIANT GREEN AND EUSOL IN GENERAL SURGERY AND GYNAECOLOGY

By Arthur Woo, M.B., B.S. (London), M.R.C.S., L.R.C.P.

During the Great War many antiseptics have come into prominence among which can be mentioned Flavine, Brilliant Green and Eusol.

Flavine.—A dye which possesses a complicated formula, has been observed by Erhlich to have a marked therapeutic effect on Trypanosome infection. As a bactericide, it has been found that in the presence of serum, Flavine is 20 and 200 times more powerful than mercuric chloride and Carrel-Dakin solution respectively. Whereas in water, it is 5 times stronger than Carrel-Dakin's; doubly so than Chloramine T; 80 times stronger than Carbolic acid. In England, Dr. Browning was mainly responsible in making flavine known as an antiseptic. In strength of 1 in 1000, it was greatly used in war surgery by many English Surgeons, but the opinions on the results of the use of this wonderful antiseptic are still conflicting.

In the maternity wards of Middlesex Hospital, London, flavine in 1 in 1000 solution and 2% silver nitrate were used in alternate cases to wash the babies' eyes after the second stage of labour. All the cases tested gave very satisfactory results, and being non-irritating to the conjunctiva, flavine might be said to be worthy to be included in the impedimenta of an obstretrician. Used as a vaginal or intra-uterine douche, it is within my observation to find that flavine can maintain its own in its results against any other antiseptics used for the same purpose.

In Gynaecological operations, its use is only limited to septic cases, *e.g.*, after salpingo-oophorectomy for tubo-ovarian abscess where the pus has contaminated the surrounding tissues; an ounce of the 1 in 1000 solution is left in the pelvic cavity before the closing of the abdomen without drainage, and without exception it is found to give most excellent results.

It has been proved at the Front that flavine, used as a dressing in clean wounds, gave neither any irritation nor any toxic effect. Besides the granulation tissue was very healthy and healing rapid. In septic cases by its application, early secondary sutures were made possible.

Instances of satisfactory results from its use are not only obtained in the above-mentioned cases, but also in scalp wounds, compound fractures, carbuncles and appendectomy. In extensive burns, flavine 1% in vaseline is greatly indicated.

Brilliant Green.—This belongs to the Diamido-triphenyl-methane group, and exerts a most marked bactericidal action on the bacillus Coli group. It is frequently used mixed with Methyl Violet, and these two

substances possess actions similar to that of flavine except that they are a little more irritating to the tissues, but on the other hand, they possess greater penetrating powers. It has been found that when these two are mixed before use, a 1% alcoholic solution gives the best results. The formula for making the solution is as follows:—

Brilliant Green	5 grms.
Methyl Violet	5 grms.
Methylated spirit	500 c.c.
Normal Saline (double strength)	500 c.c.

It is better first to have the green and the violet dissolved in the 500 c.c. of methylated spirit, and let the solution stand for 18 hours before adding the double strength saline.

The solution, after being filtered, is ready for use. The stain can easily be removed by either methylated spirit or ether soap, or caustic potash solution, or eusol, or Carrel-Dakin's fluid.

When this Violet-Green solution is used instead of iodine for skin disinfection, the part is painted 12 or 18 hours before the operation, and then a gauze compress of this solution is put on where the incision is to be made, and finally the whole painted area is covered by a piece of jaconet, large enough to prevent any possibility of staining the bed clothes. A bandage is necessary to keep this in position. At the operation the compress, etc., are removed, the colour of the skin should be of dark purplish blue and no further painting of the part is necessary. Now this method of sterilising the skin has been found to be most efficient, conclusive proofs being obtained from the following experiments:—

1. A number of cultures were taken from the skin painted either with iodine, picric acid or the Violet-Green solution. This was done by scratching the painted portion of the skin with a sterilised needle in order to have a smear from the part of skin beneath the paint inoculated on the Agar. On many occasions the agar plates from the iodine and the picric acid plates showed the presence of colonies, whereas they were never found in the Violet-Green plates.

2. To further confirm the results obtained, a small piece of the supposed sterilised skin was taken, and put into a broth culture tube. Three tubes were used for the three antiseptics used. The skin painted with the Violet-Green solution had the paint removed before putting into the culture tube. The result was remarkable, for in 12 hours the tube that had the iodine or picric acid skin was full of organisms, whereas the tube containing the skin painted with Violet-Green grew no organisms for twelve hours or more.

The use of Violet-Green solution is not only confined to skin disinfection; considerable success has been obtained in septic wounds, bone abscesses and tuberculous sinuses with its use. This solution has also been used with most satisfactory results for the following:—

1. In Wertheim's operation for cancer of cervix, or total hysterectomy. Gauze soaked in the Violet-Green solution is used for packing the vagina before operation.

2. After dilating and curetting in suitable cases, the uterine cavity is swabbed with the solution.

3. In cystitis, 1 drachm of solution to 1 pint of saline is used for bladder washes.

It may be added that whenever this Violet-Green solution is used for the skin in an abdominal operation, and the case is straight-forward and requires no drainage, dressing was found to be unnecessary. For two successive mornings the wound incision should be re-painted with the solution. After observing 200 cases treated in this manner not a single one suppurated or proved to be a failure.

The most important use of this Violet-Green solution lies in the treatment of gonorrhœa in women.

The experiments began in observing the results of treatment by the different antiseptics such as (1) Picric acid 1% (2) Protargol 10% (3) Eucalyptus in olive oil 10% (4) Violet-Green solution 1%. After investigating a large number of these cases the conclusion was that the Violet-Green gave the best results in chronic ones. The technique is as follows:—

Every case with a definite history or possibility of infection, either married or single, has a culture taken from the cervix and urethra for bacteriological examination. In a suspicious case with chronic discharge, whether the report shows gonococci or not, the treatment is the same. The patient is put in the lithotomy position on a special chair made for the purpose. She usually has had a vaginal douche before coming in for treatment. The cervix and cervical canal are swabbed two or three times with this alcoholic solution of Violet-Green. Then the urethra is swabbed, provided there is a definite urethritis. Should the externalia show any sign of inflammation, every portion of it should be painted. Next a tampon soaked in the solution is inserted into the vagina next to the cervix for twelve hours. Care should be taken to remove all the paint before allowing the patient to dress. The wearing of a diaper after the treatment is recommended. This process is carried out twice a week, and the patient is advised to douche herself with normal saline twice or three times a day, in bad cases. The result after two or three weeks of this treatment is marked, and sometimes astonishing.

For acute cases no tampon is used. The urethra, vagina and vulva are painted with the Violet-Green in normal saline only, without the addition of methylated spirit. This is done twice a week, followed by daily douches. For sub-acute cases, the alcoholic solution is used once a week only, combined with daily saline douches. That many patients do not attend the clinic regularly makes one doubtful of the ultimate cure for every case under treatment. Out of 130 cases under treatment, 30 per cent were considered cured when (1) no gonococci were found in either the cervical or urethral secretions, (2) no further discharge was noticed, and (3) no further symptoms of any kind were observed.

EUSOL.—This is prepared by the action of boric acid on bleaching powder in the presence of water, or by shaking up 25 grammes of eupad (equal parts of boric acid and bleaching powder) in one litre of water, allowing it to stand for a few hours and then filtering off the free fluid. It contains 5 per cent hypochlorous acid, and must be used cold as its antiseptic power is rapidly lost in contact with living tissues or on warming. Prolonged application hinders the process of healing, when once the wound is clean. Infection with B. Pyocyaneus is best treated with eusol fomentations at four-hourly intervals.

A LOST CANDIDATE

(With apologies to the authoress of "A Lost Chord.")

Seated one May in the Grand Hall
I was worried and ill at ease;
And my brain was pondering idly
Questions the like of these:

"Describe me the Taenia Solium,
Give an account of its life."
A far more difficult problem
Than "love overcoming strife."

"What do you mean by a Hormone?
Give an example or two."
I had not the faintest notion,
I had not the slenderest clue.

I saw I should have to dissemble
And say what was not quite true,
Or state in illegible writing
The facts that I never knew.

I linked all perplexèd meanings
Into one hopeless mess;
I knew not what I was saying,
There was naught I could do but guess.

It may be that some bright angel
Will dazzle the examiner's eyes
And cause him to see in my answers
Some passably good replies.

It may be that he will give me
More credit than is my due;
It may be that chance may colour
My papers in roseate hue.

It may be that he will plough me!
Ah! me, what shall I do then?
It may be that only in Heaven
I shall pass that "Examen."
I shall feel in the Seventh Heaven
When I pass that "EXAMEN"!!

GENS INIMICA MIHI.

PELVIMETRY AND CRANIOMETRY
A CONTRIBUTION TO THE ANTHROPOLOGY OF SOUTH CHINA

By Wong Tsz Chuen, M.B., B.S. (Hongkong)

As we are dealing with scientific medicine, we are treating diseases in the scientific way. We must be as accurate as possible. Before we know what is abnormal, we must know what is normal, hence the study of Anatomy and Physiology before Pathology. The standard we study in our textbooks which we consider as normal is based on the average in the Europeans or Americans. We, in China, are dealing mostly with Chinese, hence the necessity of knowing the normal of the Chinese. The object of this article is not to deal with all the abnormalities of the Chinese, for which I hope, in years to come we are able to fix a standard. In this article I am trying to present the facts I obtained during my few years of practice. The measurements I am giving have a great deal to do with obstetrics. These measurements, I must make it clear, deal expressively with the female pelvis and the new born child. I must also add that these measurements were taken before labour from women belonging to the middle class.

When a patient has a difficult labour, and finds herself pregnant again, she sometimes goes to a doctor to find out what had better be done. It is in these circumstances that pelvimetry is at present most often called for. To begin with, what is a contracted pelvis? In an article published by Dr. Gardner of Shanghai in the China Medical Journal, she recorded a series of measurements based on a record of 1,837 pelvic measurements and 1,558 cephalic. Out of these cases only 117 of the former and 14 of the latter were from South China. Further she mentioned the slight differences between the Southern Chinese and the Shanghai and Northern Chinese. In this article I am giving a series of measurements taken from 1,000 cases that have come under my treatment. All these are normal cases.

There are two ways of measuring the pelvis, viz., complete and practical. By complete measurements I mean the measurements in all the dimensions as precisely as possible during the patient's life. This takes a long time and needs much exposure of the patient. Also it is very difficult to take the measurements accurately. For these reasons this method was not attempted. What I took were the few simple ones which in the present state of knowledge are enough to guide us in practice. Four diameters are taken, viz., Interspinous; Intercristal; External conjugate and Diagonal conjugate.

The following measurements were found:—

Interspinous.	Intercristal.	Ext. Conj.	Diag. Conj.	Total No.	%
9″	10″	7″-7½″	4¾″	189	18.9%
9¼″-9½″	10″-10½″	6¾″-7″	4¾″	365	36.5%
10″	11″	7″-7½″	4¾″	245	24.5%
8½″	9½″	6½-″7″	4¾″	122	12.2%
10″-10½″	11″-11½″	8″	5″	52	5.2%
The rest, viz— 8″ & 8¾″; 9″ & 9½″; 10″-10½″, etc.				27	2.7%
				1000.	100%

From the above figures you will see that the diameter of 9¼-9½ for interspinous; 10-10½ for the intercristal; 6¾-7 for Ext. Conjugate; 4¾ for Diag. Conj. is the most common. Perhaps in another series of cases you will find a higher percentage.

Coming to the head I found many variations. These diameters depend mostly on the weight of the child and whether it is full term or not. The figures I took are from those of full term children and of average weight, 5¾-7, mostly 6 lbs. For the head I took 5 diameters, viz., Biparietal; Maximum-vertico-mental; Occipito-Frontal; Occipito-mental and Suboccipito-bregmatic. These measurements are taken immediately or the day after delivery. The following measurements are found:—

Bipar.	Max. V. M.	O. F.	O. M.	S. O. B.	Total. number.
3½″	5″	4¼″	4½″	3¾″	264
3½″	5½″	4½″	5″	3½″	295
3¾″	5¼″	4½″	5″	4″	143
3½″	5″	4½″	4½″	3¾″	202
4″	5½″	4½″	5¼″	4″	96
					Total No. of cases 1,000.

From the above list you see that the diameters of 3½″, 5½, 4½, 5″, 3½″, occurred in the largest number of cases.

CONCLUSIONS.—The Chinese female pelvis is smaller than the European chiefly in the external diameters, possibly due to less fat or ill developed muscles. The internal diameter is about the same, possibly a little shorter.

The fœtal head measurements are slightly smaller in the Biparietal, the rest being approximately the same, the Max. V. M. slightly longer due possibly to the elongation of the head immediately after labour.

The above measurements were taken from cases in the Alice Memorial Maternity Hospital, Hongkong and a few private cases of the author.

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CLINICAL NOTES

(1) A Case of Septic Thrombosis of the Transverse Sinus Following Suppuration of the Middle Ear.

Patient C. C., male, age 32, was admitted to the University Surgical Clinic on 25th November, 1921, for continuous discharge from the right ear and from behind the right pinna. The following history was obtained. About 1½ years ago he had an attack of fever. At the same time he had noticed discharge from the right ear accompanied by swelling behind the right pinna. The discharge, according to the patient, was watery. The swelling and discharge persisted until two months later, when the swelling over the mastoid process burst with the escape of blood and pus. The meatal discharge was however diminished. About nine months ago he went to another hospital for treatment. Two incisions were made; one above the pinna and one behind it. He was discharged from the hospital with sinuses. After a time the wounds became larger. On admission, the patient looked depressed. A swelling was noticed at the back of the pinna over the mastoid process and there were two sinuses discharging pus. The pinna was markedly displaced downwards, outwards and slightly forwards Hearing was impaired on the affected side, deafness being of the middle ear type. No nystagmus was discovered. A slight discharge was noticed coming from the external acoustic meatus.

A complete mastoid operation was performed on 26th November, 1921. Carious bone was removed as far back as the occipital bone. The transverse sinus did not appear to contain pus. After the operation facial paralysis was noticed on the right side which however proved to be transient. The open wound was freely drained and dressed twice daily. The temperature chart, after the operation till December 22, 1921, shewed slight occasional rise. The wound during this period, healed rapidly. From December 22nd to the second operation which took place on 1st February, 1922, the temperature chart shewed continual rise; sometimes up to 102° F. During this interval, the patient felt occasional attacks of headache; he developed a swelling in the upper part of the right side of neck. The original wound over the mastoid process had nearly healed. The patient had repeatedly refused further operation, but on the first of February, 1922, when the abscess in the neck was pointing, he consented

to have this opened. The wound behind the ear was opened again and the swelling in the neck was incised and pus evacuated. Carrel-Dakin's treatment was employed for the mastoid wound. This operation appeared to do no good, the temperature keeping high. From 13th February, 1922, onwards the patient complained of headache and pain on the right side of his neck on swallowing his own saliva. His general condition, of course, was becoming worse and worse. Three days before death, patient was slightly delirious, developed a hiccough and pus intermingled with saliva was continually being expectorated. On 9th March, a lumbar puncture yielded clear fluid which was not under abnormal pressure. Patient had steadily refused further operation. He died on 10th March, 1922, at 8 a.m.

At the post mortem examination pus was found in the transverse sinus as far back as the Confluens Sinuum, and in the upper half of the Internal Jugular vein. The pus had broken through the vein into the space between the prevertebral and the pretracheal layers of the cervical fascia and from this space into the pharynx. The lungs were normal except for old healed apical phthisis.

Conclusions.—It is probable that at the first sign of persistent rise of temperature, the infection of the transverse sinus began, *i.e.*, on the 22nd December, 1921. Had the patient agreed to further operation, it is likely that his life might have been saved. The following possible conditions as causes of the continued pyrexia were discussed at the time:—

(1) Cerebral abscess.
(2) Cerebellar abscess.
(3) Extradural abscess.
(4) Suppurative meningitis.
(5) Transverse Sinus Thrombosis.
(6) Further Caries of bone.

No. 3 was impossible as the dura mater in the middle and posterior cranial fossae had been exposed. Moreover the absence of slow pulse, low temperature and cerebral or cerebellar symptoms were against Nos. 1 and 2.

No. 4 was excluded by the negative lumbar puncture. No. 6 was unlikely as all the obviously diseased bone had been removed during the operation.

With regard to No. 5—Septic Thrombosis—the transverse sinus had appeared normal at the first operation and had not been wounded at the operation, and infection afterwards is extremely rare with a freely drained wound. Moreover there were never any rigors nor pulmonary signs. On the other hand there was the tenderness and later the abscess in the upper part of the neck. In children pus may work through the mastoid process into the digastric fossa and appear in front of the sterno-mastoid (Bezold's Mastoiditis), but this does not occur in the adult. An abscess in the neck arising from a lymphatic gland may occur in the course of middle ear disease but this was unlikely with a freely drained wound.

I am indebted to the Ho Tung Professor of Clinical Surgery for permission to publish this case.

M. K. Yue

(Surgical Dresser, January—March, 1922)

(2) A Case of Fracture Dislocation of the Cervical Spine Between the Atlas and Epistropheus.

The patient P.P., a strong and well built coolie, was admitted on 4th January, 1922, for inability to move the neck.

Present History.—Patient was knocked down by a fast moving motor car which came from behind. He fell forwards and on being helped to his feet, found that he was unable to move his painful neck.

Condition on Admission.—The patient's neck was fixed in a position of slight extension, lateral flexion to the right side and rotation so that the chin pointed to the left side. The right sterno-mastoid was rigid. A bulging starting from just below the external occipital protuberance and extending down the middle line for 2 inches was noticed. Any attempt to move the neck caused intense pain. The patient was quite conscious, he was able to speak, and no paralysis of any part of the body was noticed.

An X-ray plate was immediately taken and a copy is shown in the accompanying skiagram. (Fig. 1).

Diagnosis.—Fracture Dislocation of the cervical spine between the atlas and the epistropheus.

Treatment.—Patient was put on Pearson's Fracture bed. Chloroform was administered. Patient's legs were shaved and plaster applied.

Surgeon stood behind the patient's head. He grasped the head with both hands, his thumb 1 inch anterior to angle of mandible and fingers at nape of neck, to regulate direction and extent of pull. At this point patient stopped breathing. Artificial respiration was applied. The operation was again carried out and the position of traction was maintained with bandages.

(1) A bandage after the manner of a jaw bandage kept the extended head tied to the head of the bed.

(2) The plaster strappings applied to the legs were attached to the foot of the bed. These acted as counter pulls.

(3) A bandage passing through the axillae and over the chest, and attached to the sides of the bed prevented the patient from moving his body.

(4) His hands were tied to the side of the bed to prevent him from interfering with his bandages.

Patient stood the treatment for 14 days without a murmur. At length he refused to be tied down any longer. Although warned that any movement of the head might mean death, he clamoured to be discharged. On the sixteenth day he was allowed to sit up in bed. Directly this was permitted him he started to undo his other bandages. He was discharged on 26th apparently normal except for inability to rotate his head.

I am indebted to the Ho Tung Professor of Clinical Surgery for permission to publish this case.

M. B. Osman,
(*Surgical Ward Clerk*)
January—March, 1922

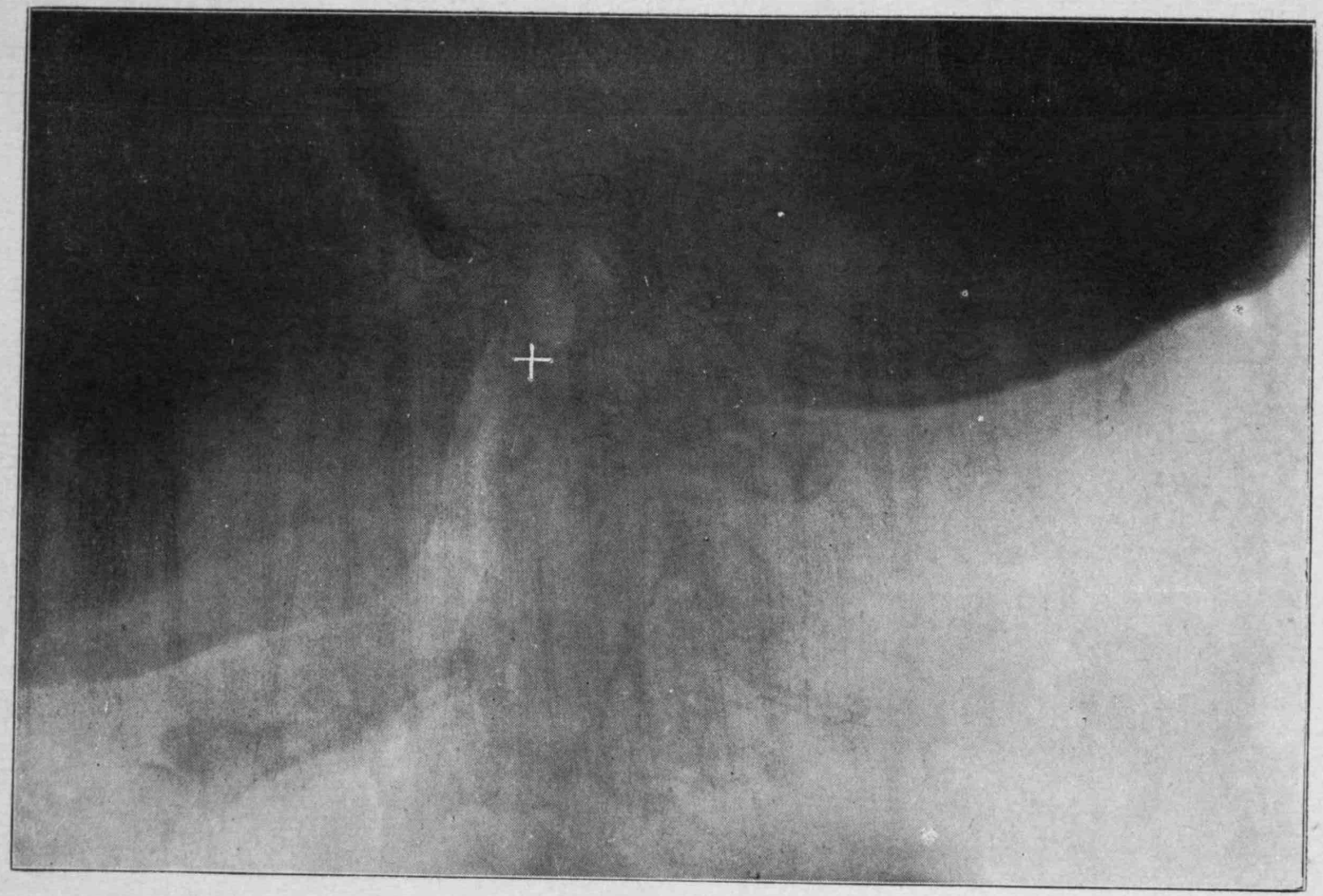

FIGURE 1.—Skiagram showing Fracture-dislocation between Atlas and Epistropheus. Note the gap between the first two cervical vertebræ. +

A RARE CASE OF CONGENITAL ABNORMALITY OF THE HEART

At the autopsy on the body of an unknown Chinese male child, about one year of age, which was found on the foreshore of Shaukiwan Street, the following rare abnormality of the heart was discovered. Death was apparently due to pulmonary tuberculosis and there was also tuberculous disease of the thymus.

At first sight when the chest was opened the heart appeared to be transposed as if it was a case of dextrocardia. Two thirds of the heart lay to the right of the middle line. The apex was formed by the right ventricle. On closer examination it was found that it was not a case of transposition of the heart but that the heart appeared to be tilted to the right as if the very large left posterior cardinal vein and duct of Cuvier which were present were pulling the left atrium downwards and to the left. When the heart was opened and the circulatory system had been dissected the following abnormalities were noted.

The left and right superior venae cavae were of equal size (down to where the left posterior cardinal vein joined the left one) and opened into a common atrial chamber with no signs of a septum. Into this common atrium also opened the conjoined hepatic veins: the rest of the inferior vena cava was absent. The right and left pulmonary veins also entered this common atrium. The ventricular septum was complete, the ventricles were of equal thickness, the right cavity was much larger than the left and the ductus arteriosus was patent while the aorta beyond was enlarged.

The right posterior cardinal vein was not seen but the very large left posterior cardinal vein draining all the blood from the abdominal parietes and the lower limbs and opening into the left superior vena cava had persisted, instead of being replaced by the new formation of the inferior vena cava. The latter was only represented by its hepatic constituents.

Other abnormalities noted in the body were:—

(1) The spleen was bifid.

(2) The left lobe and the papillary process of the liver were unusually large.

(3) There were only two lobes to each lung.

(4) The ascending colon had a well developed mesentery.

I am indebted to Professor K. H. Digby for supplying me with the facts and to Mr. S. H. To for furnishing the diagram. (Fig. 2).

M. K. YUE.

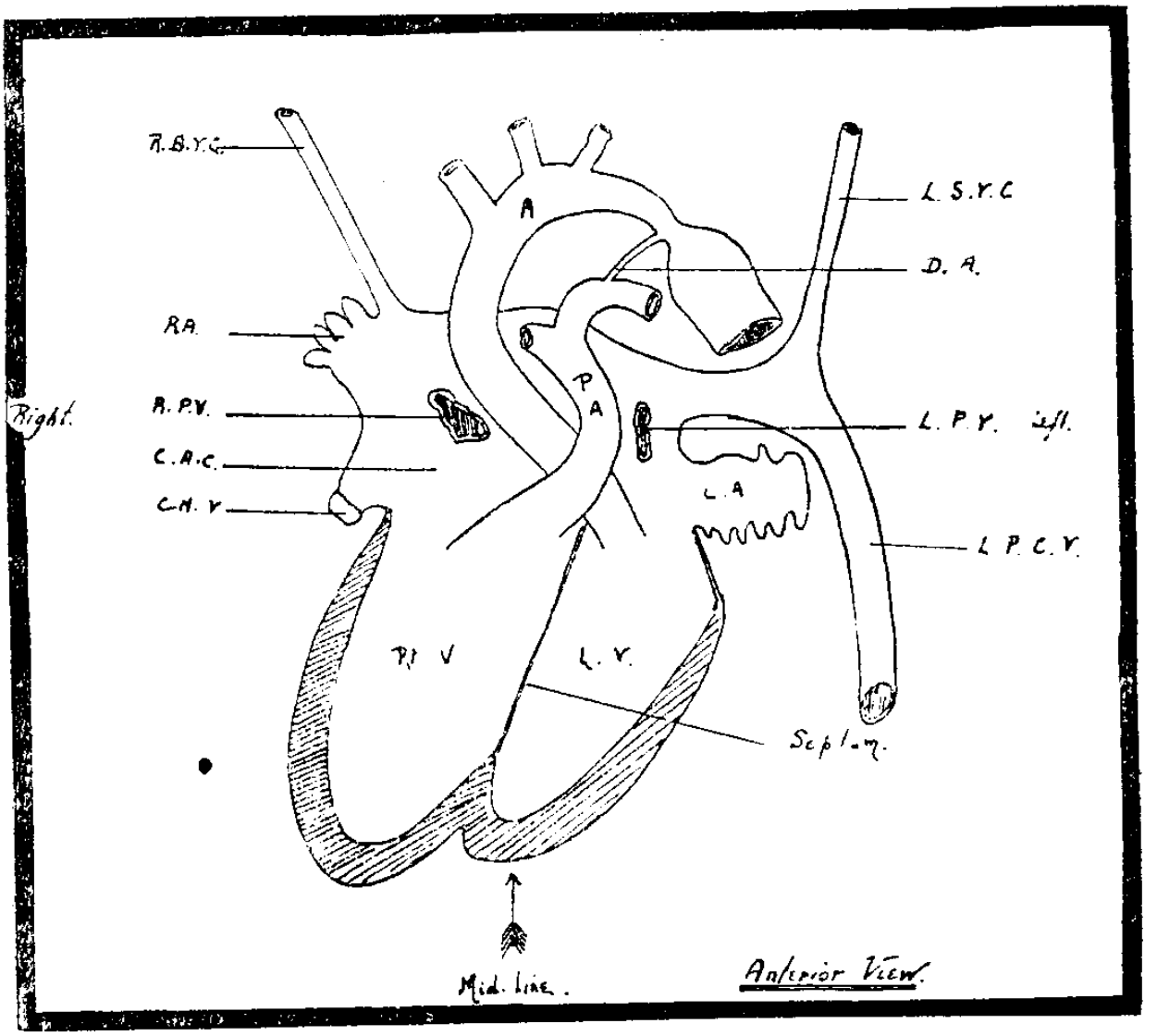

FIGURE 2.—DIAGRAM OF HEART.

D. A.=Ductus Arteriosus.
P. A.=Pulmonary Artery.
A.=Aorta.
R. S. V. C.=Right Superior Vena Cava.
R. A.=Right Auricle.
C. A. C.=Common Atrial Chamber.
R. P. V.=Right Pulmonary Vein.
C. H. V.=Conjoined Hepatic Vein.
Rt. V.=Right Ventricle.
L. V.=Left Ventricle.
L. A.=Left Auricle.
L. P. C. V.=Left Posterior Cardinal Vein.
L. S. V. C.=Left Superior Vena Cava.
L. P. V.=Left Pulmonary Vein.

LIST OF GRADUATES

DOCTOR OF MEDICINE, M.D.

NAME	DATE OF GRADUATION
Thomas, G. H.	1920

Bachelor of Medicine and Bachelor of Surgery, (M.B., B.S.)

NAME	DATE OF GRADUATION
Atienza, V. N.	1920
Basto, R. A.	1922
Chak Chiu Hang	1914
Chan Chung San	1918
Chau Wai Cheung	1916
Cheah Tiang Eam	1916
Cheah Toon Siew	1922
Chen Ah Po	1921
Cheong Chee Hai	1916
Cheng Kun Chen, D.T.M. (Lond)	1920
Cheong Wing Tai	1918
Chiu Chu San	1922
Eu Khay Hoe	1920
Fok Wing Kan	1921
Ho Chang	1922
Hu Chuin Ho	1922
Hu Tsai Kuen	1922
Ip Kam Wa	1921
Khoo, T. P.	1922
Krishnan, S. R.	1915
Li Ping Sum	1921
Li Sung	1922
Lim Chong Eang, D.T.M. (Liverpool); D.P.H. (Johns Hopkins)	1916
Lim Soon Kian	1916
Lum Mun Yoke	1922
Ma Chiu Ki	1919
Merican, A. O.	1918
Ong Huck Chye	1919
Ozorio, F. M. G.	1914
Phipps, H. A.	1920
Phoon Seck Wah	1922
Phoon Seck Weng	1921
Teh Lean Swee	1916
Teoh Cheng Toe	1916
Thivy, J. C.	1920
Thomas, G. H.	1914
Thung Siang Swee	1920
Wong, Benjamin C.	1918
Wang Chen Tsai	1921
Wong Fook Han	1920
Wong Hing Chuen	1916
Wong Kwok Kun	1918
Wong Siong Cie	1918
Wong Tsz Chuen	1918
Woo Loy Kung	1919
Yeoh Hone Soo	1922

GRADUATE APPOINTMENTS AT THE GOVERNMENT CIVIL HOSPITAL

G. H. Thomas	July—Dec., 1914
F. M. G. Ozorio	Jan.—June, 1915
G. H. Thomas	July—Dec., 1915
Cheah Tiang Eam	Jan.—June, 1916
Lim Soon Kian	July—Dec., 1916
Lim Cheong Eang	Jan.—June, 1917
Cheung Wing Tai	Jan.—June, 1918
Ong Huck Chye	July—Dec., 1918
Woo Loy Kung	Jan.—June, 1919
Wong Fook Han	June—Dec., 1919
V. N. Atienza	Jan.—June, 1920
Atienza (H.S.) / Fok Wing Kan (H.P.) / Fok Wing Kan (H.S.) / Li Ping Sum (H.P.)	July—Dec., 1920
Yeoh Hone Soo (Clinical Assistant and Research Scholar)	Jan.—June, 1921
R. A. Basto (H.S.) / Khoo Tiang Phean (H.P.) / Phoon Seck Wah (H.S.)	June—Dec., 1921
Hu Chuin Ho (H.P.)	Jan.—June, 1922
Ho Chang (Hon. Anæsthetist)	Jan.—Mar., 1922

STUDENT DEMONSTRATORS IN ANATOMY

Ng Cheong Yew	Jan.—June, 1920
Yue Man Kwong	Jan.—June, 1921

SCHOLARSHIP HOLDERS

(GRADUATES)

Cheng Kung Chen	Ng Li Hing
Cheung Wing Tai	Ng Li Hing, 1915
Chau Wei Cheung	Ng Li Hing, 1913
Chan Chung San	Belilios No. 3, 1916
Eu Khay Hoe	Belilios No. 3, 1914
Ip Kam Wa	Canton Govt., 1915
Li Ping Sum	Canton Govt., 1916
Ma Chiu Ki	Ng Li Hing and Chan Kai Ming, 1916
Ong Huck Chye	Belilios No. 1, 1914
Phoon Seck Weng	King Edward, 1915 and Chan Kai Ming, 1917
Phipps, H. A.	King Edward, 1914
Wong Tsz Chuen	Belilios No. 1, 1913
Wong Kwok Kun	Canton Govt.
Wong Siong Cie	Ng Li Hing
Wong Fook Han	Blake, 1919
Wang Chen Tsai	Yunnan Govt.
Yeoh Hone Soo	Blake, Ho Fook, and Research

SCHOLARSHIP HOLDERS (UNDERGRADUATES)

NAME	SCHOLARSHIP
Bau Tsu Zung	Butterfield & Swire
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Cheah Chong Chee	,,
Cheah Kay Chun	,,
Cheah Keng Seng	Cheah & King Edward VII
Cheah Kok Inn	King Edward VII & Loke Yew
Cheah Swee Cheng	Cheah
Cheah Toon Lok	,,
Chia Shih Ching	Chihli Govt.
Choo Shiu Kin	Cheung Pat Sze
Chow Tin Cham	Sacred Heart & Canton
Chow Wei	Yunnan Govt.
Gourdin, A	Chater Masonic & Nemazee
Kawn Kriang Krai	Siamese Govt.
Lee Boon Choe	Loke Yew Free
Li Tsoo Yiu	Yunnan Govt.
Liu Hung Ngan	Hupeh Govt.
Mok Tai Tin	Canton Govt.
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Oon Aik Keong	Loke Yew Donor & King Edward
Phoon Seck Foo	King Edward VII
Shi Man Wai	Canton Govt.
Shih Wei Hua	Peking Civil Govt. & Chan Kai Ming
Shin Kwai Shang	Canton Govt.
Su Chiu Pao	Chihli Govt.
Tang Yee Yuen, Luke	Canton & Mok Kon Sang
Teoh Beh Lye	Loke Yew Donor
Tsang Fuk Cho	Canton Govt.
Tseung Fat-im	,,
Tsoi Teng Ming	,,
Tsoi Tsz Shek	President & Canton
Wong Kam Thong	Tjong A Fie
Wong Yan Kwong	Canton Govt.
Wu Yee Tak	,,
Yeoh Cheang Hoe	Yeoh & King Edward VII
Yeoh Kok Chiang	Yeoh
Yip Keung Ki	Canton Govt.
Yue Man Kwong	President, Ng Li Hing & Chan Kai Ming
Zia I Ding	,, Chan Kai Ming & Ng Li Hing

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PAPERS (1914—1921)

1.	Psycho-Therapeutics	A. S. Tuxford.
2.	Some imperfections of the Medical Profession, general and local : Some comparison with other professions, and some critical advice.	G. M. Harston, M.D., D.O.
3.	Evolution and the Historian.	A. S. W. Salt, M.A.
4.	Some comments on the B. N. A. Terminology...	Cheah Tiang Eam.
5.	Mal-de-Mer.	Lim Soon Kian.
6.	The trials and troubles of a medical student ...	Cheah Tiang Eam.
7.	Man versus Microbe in the struggle for existence.	J. C. Dalmahoy Allan, M.D.
8.	Medical Ethics	Francis Clark, M.D., M.R.C.P.
9.	Heredity	K. H. Digby, M.B., F.R.C.S.
10.	The Economics of the Doctor's Fees	W. J. Hinton, M.A.
11.	Some considerations in the treatment of certain tropical diseases	J. T. C. Johnson, F.R.C.S.E.
12.	The physiology of fighting Power	H. G. Earle, M.A., M.B.
13.	The clinical aspect and Psychology of Pain ...	Lim Chong Eang.
14.	Amnesia and Analgesia in Parturition	C. E. Lim.
15.	Euthanasia	T. E. Cheah.
16.	Our Medical Course criticised	H. A. Phipps.
17.	Notes on some interesting midwifery Cases ...	F. M. G. Ozorio.
18.	The Significance of Dreams	V. N. Atienza.
*19.	Eugenics	Phoon Seck Wah.
20.	Psychic Phenomena	R. A. Basto.
21.	Hypnotism.	M. B. Osman.

22.	The Social Position of Women	J. C. Thivy.
*23.	Beri-Beri	Cheah Toon Siew.
24.	Influenza	F. M. G. Ozorio.
25	Hysteria	Phoon Seck Weng.
26.	The Ideal University Hospital	F. H. Wong.
27.	Some aspects of Rationalism	H. A. Phipps.
28.	Mistakes, Difficulties and Doubts in Surgical Practice	W. V. M. Koch, M.D., C.M.
*29.	Wound Infection	Cheam Kim Cheang.
30.	Our attitude as Medical Men towards certain Sex problems of To-day	G. H. Thomas, M.D.
*31.	Some Anatomical Facts concerning Man's Assumption of the Erect Position	Ng Cheong Yew.
32.	Some observations on the uses of Flavine, Brilliant Green, with Methyl Violet and Eusol in General Surgery and Gynæcology	Arthur Woo, M.B. B.S. M.R.C.S., L.R.C.P.
33.	Some Cases of Difficult Labour	Chau Wai Cheung, M.B., B.S.
34.	The earliest stages of development of the Blood Cells and Blood Vessels in young Embryos	C. C. Wang, M.D., CH.B.
35.	Recent Progress in Surgery and Medicine ...	Lum Mun Yoke.
36.	Man and Tobacco	Yeoh Hone Soo.
37.	The Science of Life	Phoon Seck Wah.
38.	The Influence of the Cinema	M. B Osman.
39.	Pelvimetry and Craniometry, a contribution to the Anthropology of South China	Wong Tse Chuen, M.B., B.S.
40.	Venereal Diseases	R. Hallam, M.D.
*41.	Common Cold	D. K. Samy.
42.	Anæsthesia in Ancient Times	J. Fenton, PH.D.
43.	Pathology and its Relation to Medicine ...	C. Y. Wang, M.D., B SC., M.R.C.P., D.P.H.
44.	Suicide	Phoon Seck Foo.
*45.	The Treatment of Fractures	Yeoh Hone Soo.

* Awarded Ho Kwong Prize

MEETINGS FOR SESSION 1921—1922

DATE.	SUBJECT.	AUTHOR.
Oct. 21st.	Presidential Address	Prof. H. G. Earle, M.A. M.B,
Nov. 7th.	Clinical Afternoon. (3 Medical & 3 Surgical Cases)	
Nov. 18th.	Venereal disease among the natives in Hongkong	G. E. Aubrey, M.D.
Nov. 29th.	Malignant New Growths	Mok Tai Tin.
Jan. 20th.	Ascites	Tsoi Teng Ming.
Feb 14th.	A Greek Hospital 600 years B.C.	J. Fenton, PH.D., F.R.A.S.
March 17th.	The appearances of the Human Retina in Health and in Disease. (with lantern slides)	G. M. Harston, M.D., D.O.
March 30th.	The Life History of a Surgical Ward Clerk ...	M. B. Osman.
April 24th.	The Manchurian Plague of 1921. (with cinematograph pictures)	Wu Lien Teh, M.A., M.D., LL.D., D.LITT.
April 28th.	Hernia	Chau Sek Nin.
May 5th.	8th Annual Dinner at the Hongkong Hotel ...	
May 8th.	An address	Francis Clark, M.D., M.R.C.P., D.P.H.

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1921-1922

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Business Managers	Hon. Treasurer and S. N. Chau

NOTICES

Inquiries regarding advertisements should be sent to the Business Manager.

Scientific Contributions for the next issue should reach the Editor not later than 1st September, 1922.

There will be three issues a year, in January, April and October.

THE CADUCEUS.

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Vice-Presidents	Prof. K. H. Digby
	Prof. C. Y. Wang
	Dr. G. H. Thomas
	Dr. H. H. Scott
	Dr. C. W. MacKenny
Chairman of Committee..	Prof. H. G. Earle
Hon. Secretary and Treasurer	M. K. Yue
1st Year Representative	K. I. Cheah
2nd Year Representative	B. C. Lee
3rd Year Representative	C. C. Cheah
4th Year Representative	S. N. Chau
Final Year Representative	C. Y. Ng
Representative on the Union Council:	Staff: Prof. C. Y. Wang
	Student: T. S. Khoo

EDITORIAL BOARD.

Chairman ..... Prof. H. G. Earle.
Editor ..... Yue Man Kwong.
Assistant-Editor ..... M. B. Osman.
Business Manager ..... Chau Sek Nin.

THE CADUCEUS

Vol. I No. 2. October 1922. 3 issues yearly.

CONTENTS.

EDITORIAL.

ORIGINAL ARTICLES.

Subscription Rates :—$1.00 per copy, $2.00 a year. Remittances should be made payable to the Business Manager "Caduceus."

Advertisements :—Rates furnished upon request.

THE CADUCEUS

JOURNAL OF THE HONGKONG UNIVERSITY MEDICAL SOCIETY.

Vol. 1 October, 1922 No. 2

All medical papers and other scientific contributions intended for the Journal, and all books for review and magazines in exchange, should be addressed to the Editor, "Caduceus", Hongkong University, Hongkong.

Changes of address of members of the Society and all business communications should be sent to the Business Manager, "Caduceus", Hongkong University, Hongkong.

EDITORIAL

THE ROCKEFELLER BENEFACTION.

Some account of the scope of this benefaction has already been made public by speeches and in the University Appeal just issued.

The appeal to the Rockefeller Foundation had its origin in the scheme of expansion which was outlined by the Medical Faculty in the Spring of 1919 and which received the support of the Commission in 1920.

One of the chief objects which the Rockefeller Foundation have in mind when giving assistance to medical education is the creation of complete departments each with a whole time staff in the Hospital as well as in the Laboratory. The teaching of medicine in the past, though there have been undoubted gains, has suffered from the fact that the teachers have been men with practices of their own and the hospital appointment has been regarded rather as a means to an end than as an end in itself—this has resulted in a sharp line of demarcation being drawn between the ancillary sciences of Anatomy, Physiology, and Pathology and the all embracing practice of clinical subjects.

The object of the Rockefeller Foundation is to make Medicine, Surgery and Gynaecology *units* each complete in itself on the same lines as the ancillary subjects and to link them all together.

This scheme has already been established with the aid of Rockefeller money at University College Hospital Medical School, London, and has received the support of the University Grants Committee of the British Government, who have allocated sums to other medical schools solely for this purpose.

In this University the scheme also involves the erection of a hostel for medical students in close proximity to the hospital, the creation of posts for whole time assistants to each Professor in the Faculty, the equipment of a medical library and travelling fellowships for promising

graduates. We think it can be said that this benefaction ensures the future progress and success of the Hong Kong University Medical School.

TO THE MEDICAL GRADUATES.

To our medical graduates, may we say with all sincerity and earnestness, a few words. What follows may appear to you to be bitter and unkindly but then the bitterness is sweetened and the unkindness is softened by the straightforwardness and good-will of the purpose that is behind them. We have always cherished high hopes and expectations of you, and our verbosity is a result of that interest.

Much indeed has of late been written about medical work and education in China and undoubtedly in the next decade or two, medical work, whether it be education, treatment or research, will be brought very much to the fore by the increasing number of medical men whom the various medical institutions, both at home and overseas are sending out. Let us advance into the realm of speculation and ask ourselves a few questions. With an increasing number of Chinese medical men, will any of them in the near future undertake the mission of healing conjointly with the foreign missionary doctors upon whose shoulders that work has fallen for the past years? The inevitable stares us in the face. We owe a great deal to the foreign missionaries and to other benevolent institutions, for what they have done and are still doing for us, but it is clear that we cannot depend upon the charity of other people for ever. In the future adventure for widespread medical education and research, the younger generation of western trained Chinese doctors must take the lead and assume the responsibility. If the gospel of healing is to be brought into the heart of every Chinese home, it is we Chinese that have do it.

May I ask candidly, how far in the past have our graduates contributed to the common store of medical knowledge in China and what part will they play in this "Great Adventure"? We look round despairingly for a favourable answer to the question—our contribution has indeed been neglible. With a few exceptions, most of our graduates have embarked on the life of a general practitioner in a British Colony. I simply mention the facts and I plead not to be misunderstood.

The vehement optimists among us will even go so far as to exclaim with disdain at such an indictment. What do you expect from a University so young and with so few graduates? To such a retort we have no reply. We are not in the least trying to show that this University ought to 'walk' before it can 'crawl', but we mean to say with all seriousness that this University ought by now to be 'crawling' on the field of China. We want our graduates, medical, or otherwise, to realise that China is open for PIONEERING work. To explore its

scientific fields, to liberate a China riddled with disease and to carry the banner of this University to every corner of this vast land, are the sacred duties of our graduates. To speak in the simplest of simple words "China is calling you and as graduates of this University you must answer that call and answer it NOW."

Most of our medical graduates, it is true, have come from families which many generations ago, emigrated to the British South Sea Colonies from the inland towns and coast ports of Southern China.

They are born and bred on British soil: some have paid visits to their home-land: some have read about China; others have done neither. It may be said with all respect, that with the present conditions in China they are not well acquainted. What, then, are the urgent medical problems that call for immediate solution? How can a medical man be useful? Limited space forbids us going into full details but a brief resumé of these problems will not be out of place. The first and foremost is the question of Public Health. China is lamentably backward in the prevention of infectious diseases. If reliable statistics were procurable, the percentage of deaths from infectious diseases would be found to be alarmingly high—it is a curse truely more terrible that internecine war. One counts sadly the few well organised public health bureaux throughout China in cities such as Harbin, Peking, Shanghai, and Canton. In the less modern treaty ports such, for example, as Foochow and Swatow, definite preventive campaigns are not organised until the epidemics have reached a high degree of malignity—attempts towards their eradication are then undertaken by such institutions as the Y. M. C. A.; and in the rural districts the epidemics are left alone to take their natural course. Any sane man will see that in the future evolution of rural and district public health organizations, medical men are greatly needed. So long as there is a lack of medical and Government support, so long will the curse of infectious diseases remain.

The next and not the least important rôle which a medical man can play is that of a general practitioner. In the vision of a future healthier China, one sees great value in the collective work and co-operation of a large number of medical practitioners.

We are at last beginning to notice signs of the dawn of a new united China—A China eager to learn and to improve. We shall see hospitals built, medical Colleges founded and sanitary boards formed. Who, then, will run the hospitals, teach and conduct research in the Colleges and organise the sanitary boards? It is a duty which the sons of this generation must needs fulfil.

To those graduates who are out for pioneering work in China, we venture to offer a few suggestions. The foreign educated Chinese have been rightly accused of over-westernisation. Some have come back to

China denouncing everything that is Chinese and advocating everything that is western. China has her own civilization which has stood the test of ages. What would it profit her, if we, the "new voices of awakened China" are going to condemn indiscriminately the Chinese civilization, to pull it to pieces and to build anew on a western basis? We want our graduates to reurn home morally, intellectually and in every way Chinese. We want them to come back with an open and unbiassed mind, mastering the quintessence of Chinese culture and with western knowledge and methods, sustain, improve and develop a China on her own age-long cultural lines. There is yet another point which we must specially bring home to our medical graduates, namely, the importance of a short period of first-rate post-graduate training and apprenticeship in up-to-date hospitals for those interested in clinical work and hospital administration and in well equipped laboratories for those keen on further research. In this University the various hospital appointments provide good opportunities for post-graduate training.

In the paths of our medical adventurers, there will be seemingly insurmountable difficulties; fate will sometimes be unkind to them; disappointment will meet them at every turn; but we say to them "conquer on, let courage lead the way".

DOWBIGGIN PRIZE.

At the annual dinner, Mr. H. B. L Dowbiggin replying to the toast of the guests remarked that he had read the first number of *The Caduceus* with considerable interest but thought there were not sufficient contributions from the medical graduates of this University.

In order to provide some encouragement in this direction, he would be pleased to offer an annual prize of $100 for the best article showing evidence of post graduate work contributed to the columns of *The Caduceus*.

With the approval of Mr. Dowbiggin, Professor Digby and Professor Earle, the following rules have been drawn up and the prize will be first awarded at the end of the academic year 1923, on articles contributed during the year.

It should be noted that all contributions sent in, provided that they are of sufficient merit, will be published, the prize being awarded at the end of the year, for the best.

RULES.

(1). The prize shall be called the "Dowbiggin Prize".

(2). It shall be of the value of $100 to be awarded annually for the best original contribution by a medical graduate of this University to the columns of *The Caduceus*, being the Journal of the Hong Kong University Medical Society.

(3). The value of the contributions shall be judged by a committee consisting of :—

The Dean of the Faculty.
The President of the Society.

and one other graduate member of the Society who has specialised in the subject of the contribution.
When the office of Dean and President are held by the same person, the Senior Vice-president shall act on the committee as well.

(4). In the event of there being no contribution of sufficient merit, the prize shall not be awarded.

THE FUTURE OF MEDICAL PUBLICATIONS IN CHINA.

Dr. Houghton's article on the future of medical publications in China in the May issue of the China Medical Journal has indeed set us thinking. His arguments for the production of a first class scientific medical journal by the unification of the medical journals now circulating in China are flawless ; his schemes for running each periodical are fundamentally sound ; so that one hesitates to comment unnecessarily. There is, however, just a shadow of doubt as we follow the writer's train of reasoning.

Dr. Houghton says : "The increasing number of well-trained and alert Chinese physicians connected with the institutions mentioned above, and others serving in hospitals or in private practice sould be borne in mind. The scientific medical literature of China should be predominantly in their hands in the next generation. Many of these men find the English language their most suitable medium"

We are tempted to question the soundness of the latter part of the statement. With the scientific medical literature in the hands of the future Chinese physicians, we believe that the production of a medical journal in Chinese will be inevitable. Indeed the present Chinese section of the China National Medical Journal can be looked upon as a nucleus for the creation of such a periodical, and we are sure that the founders of that journal have that object in view. Again it is doubtful whether the coming generation of Chinese doctors will find the English language their most suitable medium. After all, Chinese Language is their mother tongue. We are not in any way trying to take issues with Dr. Houghton, but we have a firm conviction in our mind that with the rapid progress of medical education in different part of China, there is room for more than a single scientific medical publication. We have recently been approached to consider Dr. Houghton's suggestions for a united medical periodical in China. We are, however, reluctant to say anything definite just at present as we understand that his proposals have yet to be received by the China Medical Missionary and China National Medical Association. Nevertheless we do feel that whatever may be the outcome of the present move, *The Caduceus* or Journal of the Hong Kong University Medical Society has a mission of its own to fulfil.

SOME POINTS CONCERNING THE GROWTH OF THE LONG BONES IN HEALTH AND DISEASE

Being some Abstracts from a Vacation Course of Lectures by Kenelm H. Digby, Ho Tung Professor of Clinical Surgery and Professor of Surgery.

Hard Secretion of Bone Necessitates Surface Growth Only

Bone differs from all other human tissues in this respect, that each bone cell tends to secrete a hard unyielding substance around it which eventually shuts it in so effectually as to prevent any multiplication by division. Cartilage is sufficiently yielding to permit cellular division in its substance, and other connective or bulk tissues tend to reproduce more or less evenly throughout their substance. Bone however can only increase in size by the multiplication of the young well-nourished cells not yet buried alive in their own hard secretions. *Bone growth in other words must always take place on the surface of bone.*

That the interior or substance of bone did not grow was shown long ago by John Hunter, who embedded two leaden bullets a couple of inches apart in the tibia of a young pig. (See "The New Physiology" by Rendle Short). When the tibia was fully grown the shot were still exactly two inches apart. * That bone increased in size by a growth of fresh bone on the surface only he also showed by feeding young animals on madder. The bone formed whilst madder is being administered is coloured by the dye. If the animal were killed after some months he found a broad rim of coloured bone at each end of the diaphysis and a very narrow strip beneath the periosteum. If the administration were stopped some time before the animal's death, the coloured bone was then covered by fresh layers of normal bone.

Growth Against Pressure

But if bone cells are to multiply they sometimes have another dfficulty to overcome. If exposed to pressure the young bone cells on the surface will be crushed against the hardened matrix of the old parts of the tissue and will die or be unable to reproduce. In providing the increasing length of young limbs the long bones increase in their long axes at a rapid rate. These bones are subjected to pressures through their long axes due to the tone of the longitudinally disposed muscles and to the weight of the body where the limbs support that weight. So we find that while the growth in thickness is a relatively simple matter of proliferation of surface bone cells beneath the periosteum, growth in length is a more complicated process.

*Footnote: It follows that the tibial diaphysis of a child transplanted into the spinous processes by Albee's operation for tuberculous spinal caries cannot increase in length as the child grows.

Scaffolding of Cartilage

Wherever subjected to pressure the growing surface or end of the bone is found to be protected by a scaffolding or framework of cartilage, hard enough to protect the young cells from being crushed, yet capable of undergoing absorbtion thus providing room in which the young cells can multiply. Indeed in the embryo small models of the adult bones appear in cartilage and about the 8th week after conception these cartilaginous scaffoldings commence to ossify.

But where the long bones play upon one another at the joints a cap of the preliminary cartilage remains, preventing the hard bones rubbing upon and damaging one another.

Diaphysis

The developing long bone thus consists of a rod of bone capped at each end by cartilage—a rod which increases in thickness by slow growth beneath the periosteum and in length by quick growth into the cartilaginous caps. The rod, of course is very soon converted into a closed tube by absorbtion of the interior thus providing the medullary cavity.

This tube is called the Diaphysis.

Epiphysis

The more the pressure the thicker the cap of cartilage which serves to protect each terminal growing layer. Where the pressure may be great as in the case of the limbs, further protection is given by independent ossification in the deeper part of the cap of cartilage thus providing an epiphysis. When there is less pressure the bony epiphysis appears late as at the medial end of the clavicle. (Of course, all epiphyses are not "pressure" epiphyses, but the "traction" and "atavistic" epiphyses lie outside our present consideration).

The Growing Layer (Figs 1 and 2)

The terminal growing layer of the diaphysis consists of growing cartilage as well as of young multiplying bone cells. As little or no bony matrix has yet been formed, this layer is translucent to X rays. The light line in an X ray print represents almost entirely the terminal growing layer of the diaphysis. At the end of adolescence the bony diaphysis fuses with the bony epiphysis. The resulting diaphysio-epiphysial junction can often be seen in a section through the adult bone as a distinct line in the cancellous tissue. It is unfortunate that the growing layer of the diaphysis and the ultimate diaphysio-epiphysial line of fusion should be called the epiphsial line. This term leads to confusion and should be avoided.

The Vulnerable Region (Fig 1)

Beneath the growing layer lies what may be termed the vulnerable region. Somewhat abruptly the young multiplying bone cells have begun to deposit bony matrix. In a section there will be seen a well defined line where brittle bone is joined to elastic cartilage containing soft young bone cells. The latter is penetrated by and intimately connected with the periosteum. The union of different materials is liable to be a weak spot in architecture and it is so here, between the rigid bone and the elastic growing layer; the two materials tending to separate under strain. The surface of union is however not a plane surface but presents a number of small convexities towards the growing layer. Sometimes, as in the upper end of the humerus the whole surface is also convex so that the growing layer and beyond it the bony upper epiphyses rest like caps upon the bony part of the diaphysis. These arrangements serve to reduce the liability to displacement.

Below the line of union the bone shows some degree of incomplete consolidation. The maximum of bony matrix has not yet been deposited. The cancelli though numerous are thin and somewhat easily broken down. Early in life it is the immediate junction of the growing layer and the hardening bone which is most liable to damage. Later in childhood the incompletely consolidated extremity of the bony part becomes involved in an injury also. Owing to the leverage afforded by the long bones this vulnerable layer is often exposed to violence. And the more rapid the growth of the growing layer, the more likely is the subjacent vulnerable region to come to harm.

There is a certain advantage in the relative weakness of the vulnerable layer. It is as it were a sort of safety mechanism for the protection of the growing layer. Were the actual growing layer the weakest place, injuries and diseases in this neighbourhood would inevitably result in subsequent arrest of growth.

Pathology of the Vulnerable Region.

This region is liable to a complete break in continuity resulting in what is known as "separation of the epiphysis". Sometimes the break goes nearly across beneath the growing layer and then runs up the shaft cutting off a splinter and leaving it attached to the growing layer. The term "separated epiphysis" is not quite a happy one. The so called epiphysis separated by trauma (or by disease) from the rest of the bone is not the bony epiphysis separated from the rest of a dead young bone by a process of maceration. It is articular cartilage and bony epiphysis *plus the terminal growing layer of the diaphysis.* Hence shortending of the limb from subsequent arrest of growth is quite infrequent.

A less severe damage in this region may result from slighter strains, and a small blood clot form. Doubtless such damage is usually repaired with rapidity. But if the child is in a poor state of health at the time and if a few bacteria happen to be circulating in the blood stream they may settle at this point of lowered resistance and set up a very serious illness. The two organisms specially prone to this mischief are the staphylococcus pyogenes aureus and the tubercle bacillus, though other micro-organisms, for instance the spirochoete in congenital syphilis may sometimes be responsible.

When the energetic staphylococcus is the invader it produces an illness almost fulminating in its intensity. Pus bursts inwards into the medullary cavity and outwards beneath the periosteum and rapidly spreads along and kills outright a large part of the bony diaphysis. (Fig. 2) This disease should be known as "Acute (Staphylococcal) Diaphysitis" which is a more descriptive and delimiting title than the many other names in common use for the disease.

The slower and more insidious tubercle baciallus when it attacks this region tends to spread to the adjacent joint rather than along the diaphysis. (The joint is rarely involved in acute staphylococcal diaphysitis save in the three instances (see further) where the vulnerable region of the diaphysis lies well within the joint cavity). Tuberculous disease of the vulnerable region is thus one of the origins of tuberculous arthritis.

In neither staphylococcal nor in tuberculous disease is the growing layer seriously affected so that arrest of growth is rare. It may however follow reckless surgical interference, and in acute staphylococcal diaphysitis very early removal of a large sequestrum may be followed by a buckling of the slender involucrum with some resultant shortening.

Pathology of The Growing Layer

Under the heading "Pathology of the Growing Layer" we have to consider rickets with its resulting deformities, cancellous exostoses, giantism, achondroplasia and other forms of dwarfism.

Rickets

This disease which first produces its effects in the growing layer leads to the deposit of a layer of incomplete consolidation which is very deep and is not so much brittle as soft. The soft bone yields to pressures and strains producing the bulging at the ends of the bones and the characteristic deformities These however are not confined to the soft recently formed ends of the diaphysis.

The shafts of the long bones increase in thickness by subperiosteal deposit whilst the interior is being absorbed at a slightly slower rate. The shaft of the femur at birth will lie snugly within the medullary

cavity of the femur at eight years of age. Hence in a few years much of the diaphysis away from the growing ends is formed of similar soft bone. The soft bone is more than usually liable to fracture and the fracture produced is often characteristic and known as a "greenstick fracture". Remote from the point of bending the soft bone tears, the hard inner layers of bone snap, and then the outer layer of soft bone at the point of bending merely bends separating as it does so from the hard central core.

Cancellous Exostoses

In this disease of childhood there has been some arrest of growth of patches of the growing layer. There may even be some general arrest for the patients tend to be stunted in their growth. Unequal rates of growth alter the plane of parts of the growing layer which now no longer grow in the long axis of the bone but project sometimes at an acute, sometimes at an obtuse angle with the shaft.

A typical exostosis has an appearance like a button mushroom but the stalk tends to be flattened from side to side and of the upper and lower borders one is usually concave and the other sloping. The summit of the exostosis is covered by a layer of cartilage beneath which is the growing layer. In excising these surgically the *whole* of the cartilage and subjacent area, that is the growing layer, must be removed if recurrence is to be avoided. These exostoses grow larger and more often from the more rapidly growing of the two diaphysial ends distal end of femur, proximal end of tibia and fibula, proximal end of humerus and distal end of radius.

Being freed from the restraining influence of pressure they may grow more rapidly than the diaphysial end from which they are derived.

Dwarfism and Giantism

We know that the growth of bone is largely stimulated by the secretion of the anterior lobe of the hypophysis (and possibly of other endocrine glands such as the thyreoid). In childhood the abundance of such secretions causes the steady increase in stature.

A deficiency of these may be the cause of cretinism and other forms of dwarfism. An excess will produce giantism.

Natural Arrest of Growth

At the end of adolescence there is a diminuation in the pituitary secretion and growth ceases. In the long bones of the limbs it stops permanently for the bony diaphysis fuses with the bony epiphysis and obliterates the growing layer. In the ribs much cartilage still remains and the stoppage is not permanent and indeed normally the ribs continue to increase slowly in size throughout the greater part of life. If subsequently the anterior lobe of the hypophysis becomes abnormally

active again as in the disease called acromegaly the long bones of the limbs cannot increase in length. The ribs, however can and do and produce the characteristic deformity of the chest. All subperiosteal growth of bone is stimulated especially where the bones are pulled upon at the insertion of muscles in great use.

The secretion of the anterior lobe of the hypophysis should favour callus formation and is worthy of trial in cases of delayed union.

Periosteum.

The bone is invested in a fibrous membrane called the periosteum. This periosteum plays the chief part in supplying the bone with blood. It nourishes all except the central part of the compact tissue and nearly all the cancellous tissue. It also gives blood to the subperiosteal layer of growing bone cells. It is firmly attached to and supplies the vascular growing layers at the ends of the diaphysis. The very young epiphysis is clothed in perichondrium which sends in a number of vessels to nourish the ossifying centre. As ossification extends, this perichondrium becomes the epiphysial periosteum. In the adult the periosteum covering the epiphysial part of the bone and to some extent the adjacent diaphysial part of the bone is especially vascular and sends in very large vessels. The foramina for these vessels are a very noticeable feature of the ends of the bong bones. These vessels not only supply the articular ends of the bones but also and indeed principally the red marrow in the meshes of the cancellous tissue. The periosteum has another function in receiving and to some extent in transmitting to the bone the attachment of muslces and ligaments. The capsular ligament is attached to the epiphysis. In a few cases the redundant capsular ligament and synovial membrane overlap onto and even secure a secondary attachment to the diaphysis. This is the case with the neck of the femur, the proximal end of the radius and the distal end of the humerus and to a much smaller extent in a few other cases (proximal end of the humerus and distal end of femur). The reflected part of the capusle may partly remain as bands on the surface of the bone called retinacula. In these three cases the growing layer of the diaphysis and the subjacent vulnerable region lie entirely or almost entirely within the joint cavity—an important matter in acute diaphysitis as has already been pointed out.

When a fracture has occurred the periosteum tends to keep the fragments more or less together.

Macewen has shown that the periosteum plays a part in limiting the growth of bone. If a piece of periosteum is excised in a lower animal a small boss of bone develops at that place. The removal of this restraining influence accounts in part for the callus which forms when the periosteum is lifted from the shaft in a sprain-fracture or in any other kind of fracture.

This restraining influence of the periosteum can be utilised advantageously in preventing cross callus in amputating through the forearm below the middle. Sleeves of periosteum are dissected up the radius and ulna and after the bones have been sawn these sleeves are tucked into the open medullary cavities and secured by purse-string sutures. In this manner, the power of pronation and supination is not jeopardised.

It used to be thought that the periosteum actually formed bone. Thus if the periosteum is raised by acute suppuration as in various forms of osteomyelitis, fresh bone forms beneath the raised periosteum though the original shaft of the bone may have been killed outright so that the new bone cannot have been formed from the bone cells of the shaf itself (Fig 2). Similarly if the periosteum is torn up in association with a fracture, bone forms beneath the periosteum, though the evidence is not conclusive here as the callus certainly in part and possibly in all might come from the bony fragments and not from the periosteum. Still it is hardly likely to come from the bone so largely deprived of its blood supply. In esquillectomy—the operation of removing fragments of bone subperiosteally—the French surgeons are convinced (Leriche "Treatment of Fractures" 1918) that the loss of bone is only satisfactorily restored if every shred of periosteum is raised as closely as possible from the fragments without tearing, and carefully preserved from injury. One has noticed, too, in excising an elbow-joint in a child, that if periosteun is left behind new bone formation tends to prevent the attainment of a movable joint.

On the other hand Macewen ("Growth of Bone") has recently denied that periosteum has any osteogenetic power whatever. He has shown for instance that if the periosteum be carefully raised it hardly ever forms bone when transplanted, though chips of bone under similar conditions of transplantation usually increase in size. Of course a great deal depends on *how* the periosteum is raised. Moreover it is well known that the successful growth of transplanted tissue depends on factors not at present fully understood.

The probability is that the true periosteum does not form bone, but that when it is raised by pus or blood from the shaft it carries with it the layer of young bone cells with great capacity for forming fresh bone. I also believe that the periosteum can with care be raised instrumentally from the bone in such a way as to include the proliferating young bone cell layer. To put it another way, the proliferating bone cell layer tends to adhere to the protecting periosteum rather than to the hard formed bone in injury or diseases, very much as the growing layer at the end of the diaphysis remains attached to the protecting epiphysis in similar misfortunes.

Endosteum

In the middle of the shaft this consists of yellow fat. At the ends of the bone it is composed of red marrow an important tissue for the formation and purification of the blood. In the former case it is supplied by the medullary vessels of the shaft; in the latter case by the penetrating vessels from the vascular periosteum at the articular end of the bone. In its turn the endosteum distributes blood to the deeper layers and trabeculae of bone. The endosteum also contains osteoblasts and osteoclasts. The presence of osteoblasts, that is the bone forming power of the endosteum, is seem in the internal callus in fractures and in the plug of new bone inside the conical sequestrum following a septic amputation stump.

It may be noted that the medullary cavity is practically a closed cavity. Hence a rise of pressure accompanying inflammatory action soon causes occlusion of the capillaries and leads to circulatory stasis.

Why is the interior of the bone hollowed out? Though pressure prevents young bone cells from multiplying yet it is pressure which stimulates the secretion of bony matrix. You will remember the pressure and tension lamellae in the neck of the femur. Ossific deposit has occured along the lines of strain. It has recently been questioned whether *tension* is a stimulus to bone deposit at all. (Murk Jansen) Probably, however, any strain which tends to cause deformation presses gently on some of the bone cells and stimulates them to throw out more ossific material, as it were in self protection. Thus in the curved tibia after an attack of rickets has passed the concavity of the curve taking nearly all the pressure becomes extremely dense and sclerosed. Partly owing to the great breadth of the articular ends, and partly owing to the arrangement of the cancellous tissue it comes about that the centre of the shaft transmits no pressure at all.

Medullary Vessels

The diaphysis does not derive its blood supply entirely from the periosteum. The contents of the medullary canal in the shaft and to a slight extent the inner part of the bony tube derive their blood supply from an artery and a vein rather inaptly termed the nutrient vessels.

All vessels of course are nutrient in a sense. These vessels should be called the medullary vessels as they primarily supply the medulla of the diaphysis.

The Oblique Canals

The medullary (or "nutrient") artery comes from the chief artery of the limb. It runs to the bone and then tunnels very obliquely sometimes for as much as two inches through the compact tissue of the diaphysial tube. The external orifice is known as the nutrient foramen, but I think we should do better to speak of the oblique tunnel for the medullary vessels.

If we look at the bone of a fourth month foetus, we see the same medullary canal though it is now hardly oblique at all. It probably represents the initial point of invasion of the cartilaginous precursor of the bone by osteoclasts and osteoblasts from the periosteum taking their vessels with them about the 8th week after conception. The obliquity which is so marked in later life is due to the fact that growth does not take place at the same rate at the proximal and distal growing layers of the diaphysis whilst the artery grows evenly throughout its whole length.

Determination of Rates of Growth.

I have pointed out (Journal of Anatomy and Physiology Vol. L) that the obliquity of the tunnel for the medullary vessels can be taken advantage of to estimate roughly the amount of bone formed by, and so the average rate of growth at, the two growing layers of a diaphysis. (Fig. 3)

It follows from its manner of formation that the oblique or so called nutrient canal always points towards the oldest part of the shaft of a long bone. It is more accurate to say that the canal points towards the site which the oldest part of the bone would occupy were it not that the osseous tissue first formed is subsequently absorbed in providing the medullary cavity. Indeed, but for this absorption the bottom of the canal would be formed by the very earliest deposit of bone.

If the various long bones of the body are sawn longitudinally so that the nutrient canal lies in the plane of division, the initial point of ossification may be easily determined, for it corresponds to that point in tha centre of the medullary cavity which is reached by an imaginary prolongation of the nutrient canal. The site of initial ossification having been determined it becomes easy to measure the precise lengths of bone which are formed from the two growing ends of the diaphysis

Relation Between Rates of Growth and Areas of Growing Layers.

The thickness of the diaphysis at the layer of growth is not the same at the two ends. Mr. Cheah Cheong Chee, a member of my present firm, helped to make the suggestion that growth takes place more rapidly at the thicker end; and this is found to be the case in those human bones chiefly concerned in transmitting pressure (Fig. 4). This is of easy comprehension when one reflects that the more rapid the growth the weaker the vulnerable layer of incomplete ossification and the more the need to distribute the strain over a greater breadth.

For the most part ossification of the overlying epiphysis starts earlier, and fusion of the diaphysis with the epiphysis (and so cessation of growth) occurs later, at the principal growing layer. That is, where the growth is the more rapid, there the protection of a bony epiphysis is provided more early, and also where the growth is more rapid it tends to continue to a later age.

As a long bone grows unequally at the two ends it slides within its tube of periosteum for we find that this ralative inequality of growth does not lead to a corresponding change of the relative position of the attachment of muscles.

While the diaphysis grows more from one end than the other the main artery grows evenly throughout its length so that the medullary artery tends to traverse the compact bone to reach the medullary cavity with increasing obliquity. The tunnel for the medullary vessels is directed away from the principal growing end, but this is of no consequence as the growing layers receive their blood supply from the periosteum and not from the medullary vessels.

Amputations in Children.

When a limb has to be amputated in a child the fact that the bone grows more from one end than from other has to be taken into consideration. Where more growth takes place from the proximal end the bone should be cut shorter than usual, where more growth takes place from the distal end, the bone may, if anything, be left a little longer than usual though of course it must be covered by the flaps. If such precaution is not observed the surgeon may, for instance, after amputating through the arm in a child, find to his chagrin, that several years later the more rapidly lengthening humerus is projecting through the scar and demanding reamputation. So, to a much lesser extent in amputation through the leg. In amputations through the thigh or through the forearm where the proximal end of the bone grows more slowly than the soft parts, the covering over the end of the bone merely tends to become a little more redundant with the passage of years. A knowledge of the amount of growth at the proximal end of the diaphysis enables one to determine by a formula the approximate amount of bone requiring removal when an amputation through the arm has to be performed in a child.

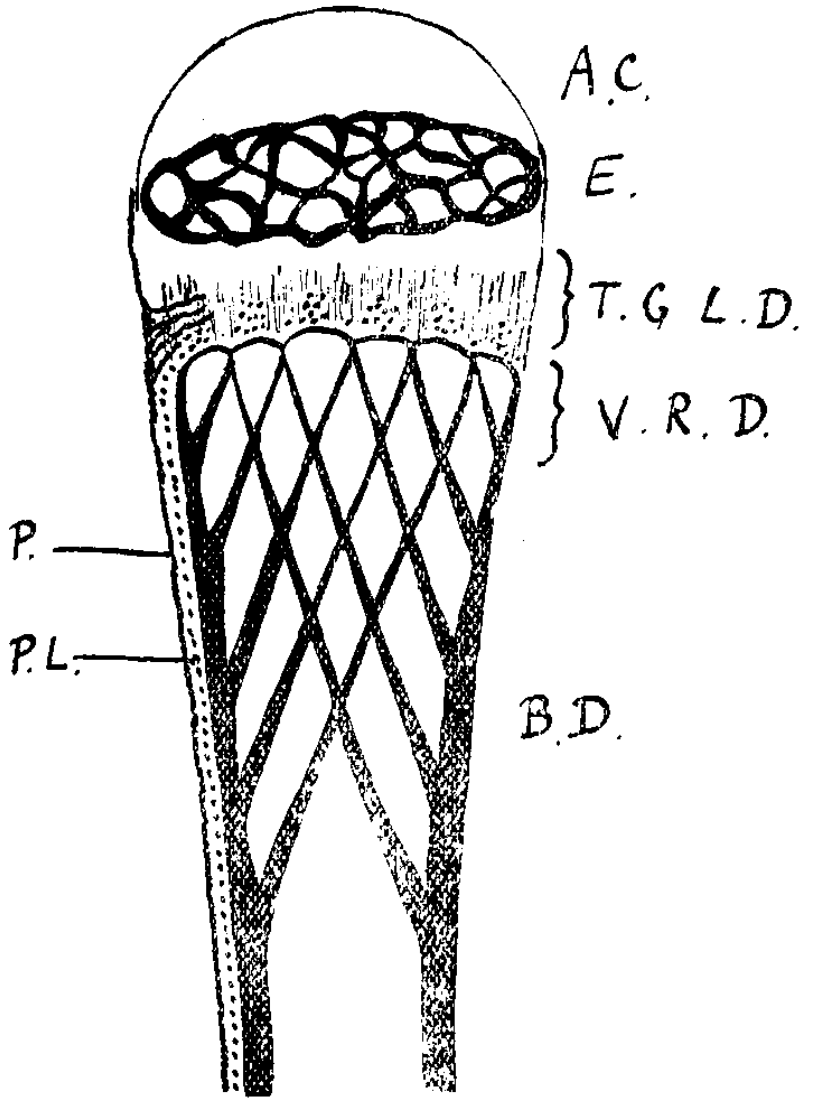

Figure 1. DIAGRAMMATIC SECTION OF THE GROWING END OF A LONG BONE.

A. C.	Articular cartilage
E.	Bony Epiphysis
T. G. L. D.	Terminal growing layer of the diaphysis
V. R. D.	Vulnerable region of the diaphysis
B. D.	Body of the diaphysis
P. L.	Subperiosteal proliferating layer of young bone cells.

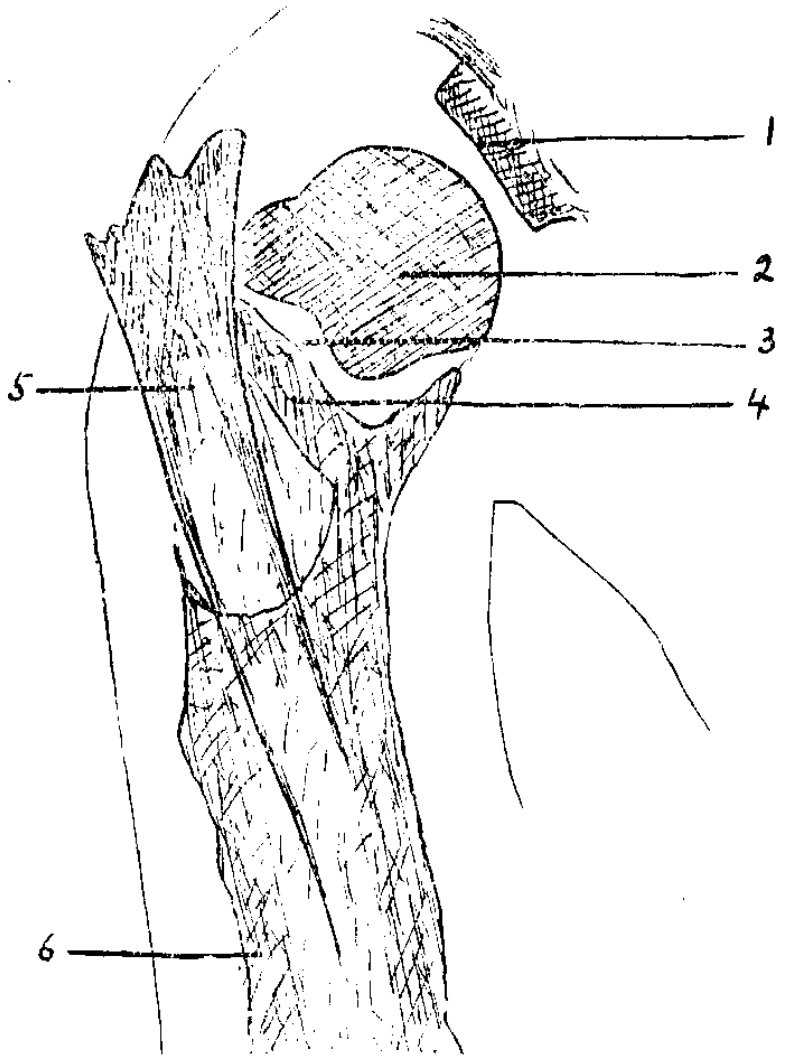

Figure 2. Tracing of an X-ray Plate from a Case of Chronic following Acute Diaphysitis in a Boy Aged Eleven years.

1. Glenoid cavity.
2. Fused proximal epiphyses of humerus.
3. Proximal growing layer of the diaphysis.
4. Four months new bone formed from the proximal growing layer of the diaphysis.
5. Sequestrum consisting of a large part of the diaphysis.
6. Involucrum—four months new bone formed from the proliferating subperiosteal layer of soft bone cells.

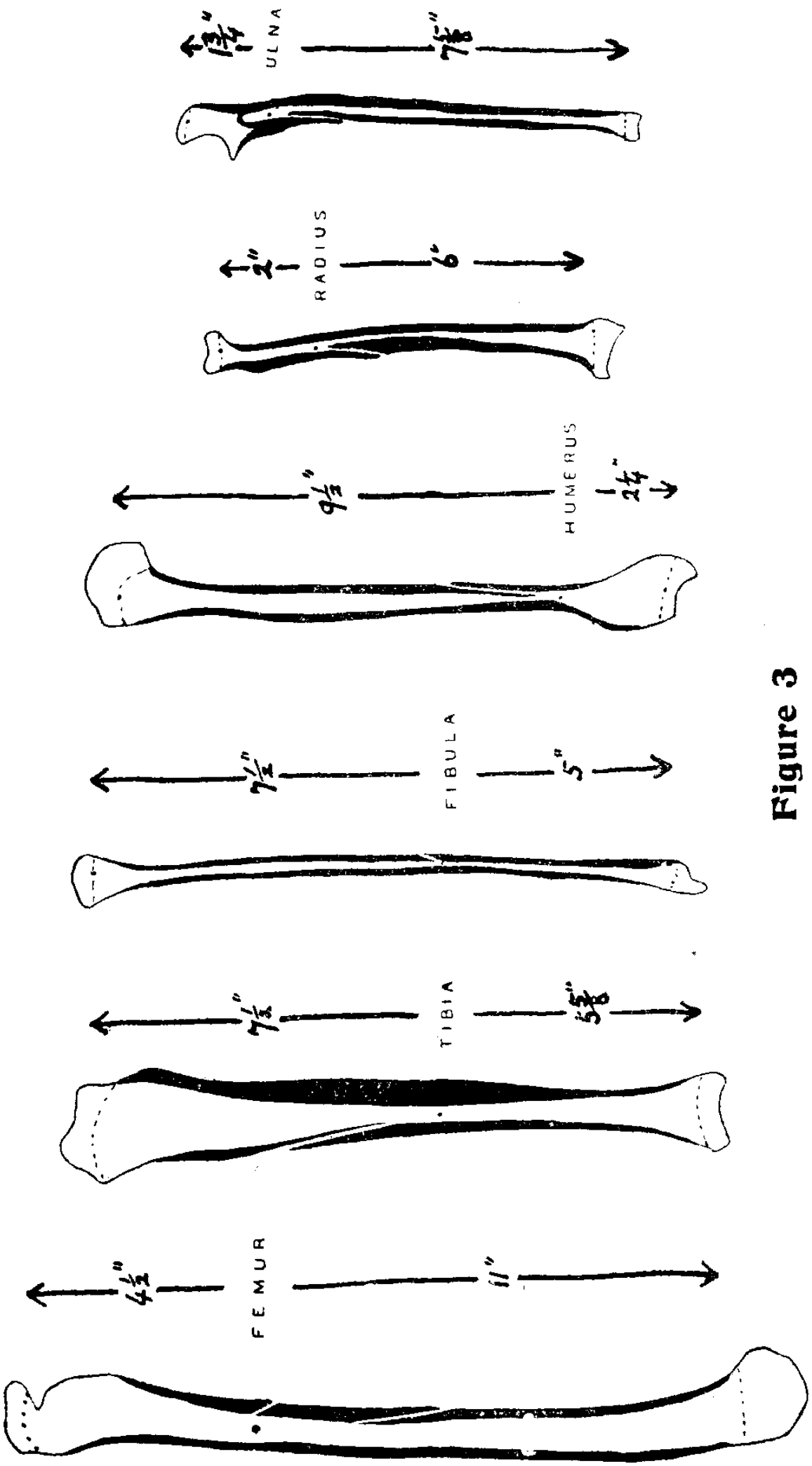

Figure 3

Figure 3. Diagrammatic Representation of the Amount of Bone formed by the Proximal and Distal Growing Layers of the Six Principal Long Bones. (These bones did not all come from the same subject).

From the above the following average annual rates of growth may be deduced for some of the growing layers :—

Distal end of femoral diaphysis	0.53	inches
Proximal end of humeral diaphysis	0.46	inches
Proximal end of tibial diaphysis	0.36	inches
Distal end of tibial diaphysis	0.31	inches
Distal end of radial diaphysis	0.29	inches
Proximal end of femoral diaphysis	0.24	inches
Distal end of humeral diaphysis	0.12	inches
Proximal end of radial diaphysis	0.11	inches

Note that the proximal end of the femoral diaphysis means the growing layer beneath the greater trochanter. The growing layer beneath the head is that of the apophysis and forms little more than the length of the neck.

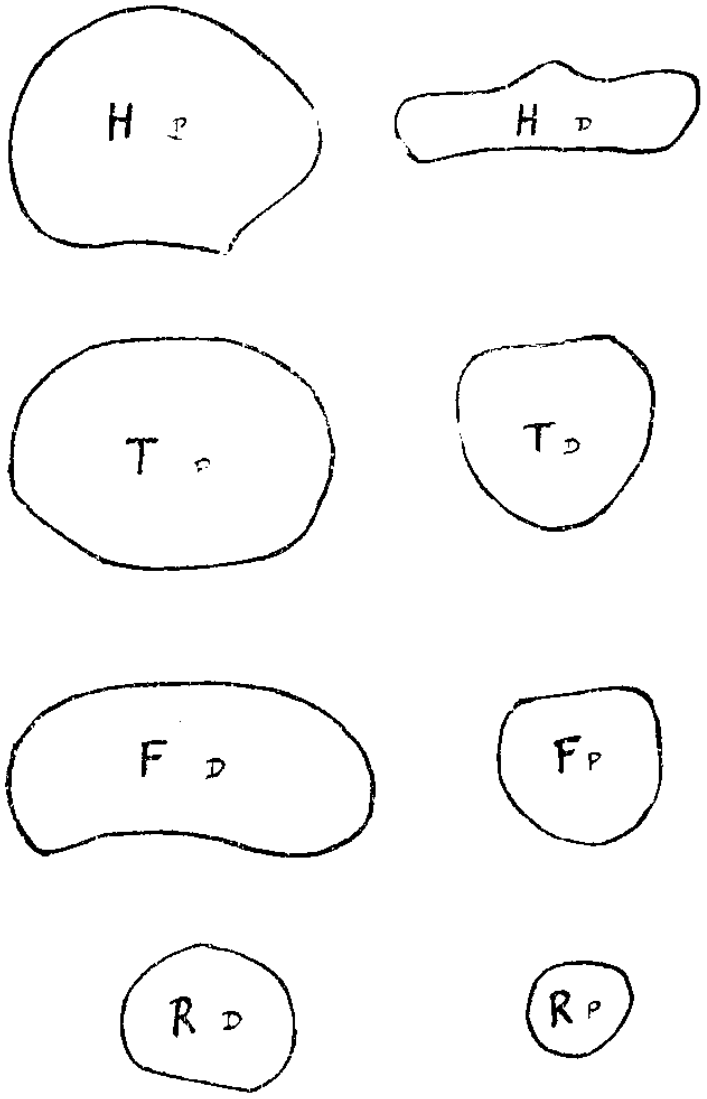

Figure 4. AREAS OF THE TERMINAL GROWING LAYERS OF SOME OF THE PRINCIPAL DIAPHYSES. THE LARGER OF EACH PAIR IS THE MORE ACTIVE ONE. FROM A CHILD OF ABOUT TWELVE YEARS OF AGE $\frac{3}{4}$.

H p	Proximal growing layer of humeral diaphysis	1.45″
H d	Distal growing layer of humeral diaphysis	0.60″
T p	Proximal growing layer of tibial diaphysis	1.60″
T d	Distal growing layer of tibial diaphysis	1.60″
F d	Distal growing layer of femoral diaphysis	1.39″
F p	Proximal growing layer of femoral diaphysis (i. e. the growing layer beneath the greater trochanter)	0.50″
R d	Distal growing layer of radial diaphysis	0.50″
R p	Proximal growing layer of radial diaphysis	0.20′

FREQUENCY OF TUBERCULOUS INFECTION IN MAN.

By C. Y. Wang, M.D., Professor of Pathology,
University of Hongkong.

Much attention has of late been directed to the question of frequency of occurrence of tuberculosis in man, and considerable amount of work bearing on this subject has been published and much of it has been widely accepted without comment. On account of the importance attached to this line of research, it is necessary to review the more salient evidence that has been advanced in support of the contention that tuberculous infection is, at one time or another, to be found in nearly every individual.

The evidence which is available for the purpose of estimating the share taken by tuberculosis in the cause of diseases in man comes, generally speaking, under three headings: —

1. Clinical evidence.
2. Experimental evidence based on the use of Tuberculin.
3. Post-mortem evidence.

Clinical Evidence.

In determining the prevalence of the disease, any results based on clinical observation alone must necessarily be misleading, as it is universally recognised that, on the one hand, in many cases of tuberculosis the lesions in the body may be and often are so minute as to escape the detection by the most elaborate clinical examination, and that, on the other hand, other diseases may be wrongly diagnosed as tuberculosis.

Tuberculin Reaction.

Many investigators in the attempt to map out the extent of tuberculous infection in man have placed considerable reliance on this test, either alone, or in combination with post-mortem findings. Von Pirquet[1], as the result of his observation based on the test which he himself introduced, stated that beginning at birth, tuberculosis is more frequent in succeeding years of life until at the period of between 13 and 14 years of age, 90 per cent. or over of all individuals are affected and have tuberculous lesions somewhere in the body, either in an active or passive condition.

Figures comparable to these were similarly obtained by Hamburger and Monti[2]. Their observations as such have been confirmed by McNeil[3]. It is not the object of this paper to discuss the value of

this mode of examination or to measure the extent it can solve the question at issue. Suffice it to mention the fact that in the applicability of the test in this direction support must be found in post-mortem examination, and this it is necessary to discuss at some length.

POST-MORTEM EVIDENCE.

It is mainly on the statistics obtained at autopsy by some Continental observers that the opinion of the extraordinary wide-spread nature of the disease is based

In the well known papers published by Naegeli[4] in 1900 on 500 cases observed at the post-mortem rooms of the Zurichershen pathologischen institut, it was shown that, in 88 cases of children 15 (18 per cent.) had lesions of tuberculosis, while among adults out of a total of 420 autopsies 391 (93 per cent.) revealed evidence of past or existing tuberculous lesions. Working on the same line Burkhardt[5] found that out of 190 children and 1,262 adults who had been examined post-mortem there were respectively 72 and 1,149 cases showing lesions of tuberculosis, or a 38 per cent. in the former case and 91 per cent. in the latter.

These authors regard as evidence of tuberculosis, besides obvious tuberculous changes, all such lesions as calcareous or caseous glands or nodules. They even go so far as to include, without giving reasons for the procedure, all small fibrous nodules and scar tissue in the lungs among lesions of a tuberculous nature.

This assumption, for such it is, characterises the works of many Continental writers on this subject. Abrecht and Arnstein-Wein[6] have conducted an investigation concerning the frequency of tuberculosis of the tracheo-bronchial lymph glands in 100 children between 6 and 16 years. They found that 38 of these cases could, without hesitation, after a post-mortem examination, be put down as that of fatal or evidently advanced tuberculosis, and of the remaining 62 cases, 36 were proved after a careful macroscopic examination to be definitely tuberculous. There still remained, therefore, 26 cases of the 100 which even after the most careful naked-eye examination did not show any signs of tuberculosis anywhere in the body, but by means, however, of histological examination of the glands half of this number, that is 13, were discovered to be tuberculous. Consequently there remained in all only 13 cases as finally negative. Hence in their opinion among these 100 children there was a frequency of tuberculosis of about 87 per cent. But we find in their records of investigation that, among the 87 cases which they called tuberculous, 19 showed as the only lesions in the body some completely fibrous encapsulated calcareous nodules (Karlherden) or hyaline nodules in the glands. Besides, there were 13 cases in their series, diagnosed as tuberculous, the diagnosis being based on evidence furnished by histological examination alone, but as to the nature of such histological evidence we are not told.

Ghon[7] out of 644 post-mortems conducted by himself at the St. Anne's Children Hospital in Vienna found 184 tuberculous cases. Of these we are told that in every instance a primary infection of the lung could be determined. The evidence for this statement was obtained by a careful macroscopic examination of the lungs and of the tracheo-bronchial glands. He states that where these glands showed any tuberculous changes, he could almost invariably trace them to one or more primary foci in the lung, which in some cases could be so small as not to exceed the size of a pin's head.

Amongst the cases which he regarded as tuberculous one finds the following examples:—

1.—Page 15, Sekt. Nr. 439. A male, aged 6 years; a pea size calcareous subpleural nodule at the apex of the left lower lobe, and caseation and induration of the tracheo-bronchial glands were discovered.

2.—Page 15, Sekt. Nr. 861. A male aged 8 years; a calcareous subpleural focus of pea size at middle of anterior surface of left lower lobe and calcification and contraction of the tracheo-bronchial gland.

3.—Page 16, Sekt. Nr. 850. A male aged $7\frac{1}{2}$ years; an ill-defined induration of bean size, with calcareous central nodule of pin head at right apex. Partial calcification and contraction of the glands.

4.—Page 16, Sekt. Nr. 742. A female aged 11 years; a greyish black induration of hemp seed size at right lower lobe with a pin head sized calcareous focus in a tracheo-bronchial gland.

5.—Page 37, Sekt. Nr. 642. A male aged $10\frac{1}{2}$ years; three subpleural calcareous nodules of pea size at left lower lobe with partial calcification of the tracheo-bronchial glands.

6.—Page 93, Sekt. Nr. 909. A male aged 5 years; a calcareous and contracted nodule of hemp seed size in upper apex of left lower lobe. Calcified and contracted tracheo-bronchial glands.

7.—Page 113 Sekt, Nr. 1001. A male aged $11\frac{1}{2}$ years; a calcareous nodule of hemp seed size in left upper lobe; small calcareous nodules in several tracheo-bronchial glands.

8.—Page 132, Sekt. Nr. 615. A female age 14; a narrow scar in middle of upper right lobe. A calcareous nodule of poppy seed size in tracheo-bronchial gland.

Besides these, many other similar instances are found in the record of his cases. In none of the eight cases quoted were there any lesions of tuberculosis elsewhere in the body and his diagnosis of the condition was founded on macroscopic examination alone. Again he put on

record (Page 45), 5 more similar instances which presented on examination no other evidence than a single scar in the lung varying from the size of a hemp seed to that of a pea, and these he regarded as tuberculous.

Sufficient has now been quoted to enable us to examine carefully into the whole subject. The assumption of the extreme frequency of tuberculosis, such as we are led to believe by Naegeli and his followers, is mainly based on the fact that very often on the post-mortem table in persons who have died of diseases other than tuberculosis, calcareous nodules or indurated fibrous areas can be found in the lungs or the tracheo-bronchial glands. In many cases, however, only the most minute examination can reveal their presence. I shall now attempt to point out the more important fallacies associated with the work of these authors who have asserted that tuberculosis is practically universal in the human subjects.

In the first place, the material with which Naegeli and Burkhardt have made their investigations is, in respect to age and source, quite inappropriate to allow a generalised conclusion to be drawn from their work. It is inappropriate as regard age, because the material was derived from Infirmaries which are essentially frequented by people of adult age between 20 and 50, in whom causes of death other than tuberculosis play a comparatively small part. The disease on that account comes more into the foreground than in a population normally composed of all ages. The material is further inappropriate in respect to its origin. The incidence of tuberculous infection depends very largely on the social conditions, since it is a fact that the disease occurs among the poor class many times more often than among the better class. The Infirmaries, as charitable institutions, mostly accommodate patients belonging to the lower class and therefore the subjects which go to the post-mortem rooms of these institutions naturally in the majority of cases come under this category. Besides, there is a further objection to the deduction of these observers. I do not doubt for a moment that they have found as often as they have stated, after a careful examination and after a long and searching pursuit, a very small nodule, scarcely as large as the head of a pin, in the lung or a slight pleuritic scar, or other small chalky deposits as calcareous nodules, either in the lungs or in the bronchial glands. But I cannot agree with them to consider these lesions, without other substantial evidence, as aetiologically equivalent to tuberculosis; for in their investigations, an important factor has either been entirely overlooked or not recognised as a determining element, namely the possibility, or the probability of these lesions having resulted from causes other than tuberculosis. This consideration has led me to an investigation of cases in which on post-mortem examination no evidence of tuberculosis was found other than some calcareous or caseous nodules in the lungs or in the bronchial glands. The results I obtained[8] is that such nodules

from 5 out of 27 cases among adults gave rise to a tuberculous infection in guinea-pigs on inoculation, an equivalent to 18.5 per cent. In the cases among children 2 out of 8 were found tuberculous by the same test. The British Royal Commission[9] found that out of 7 cases 2, both being children, contained tubercle bacilli. Eastwood and Griffith[10] have studied 16 similar cases in children and in 12 instances acid fast bacilli simulating tubercle bacilli could be demonstrated in smears, whereas none of them were found capable of infecting guinea-pigs on inoculation. Stanley Griffith[11] has also investigated 5 cases in children of like nature but found none could produce tuberculosis in the inoculated guinea-pigs. Microscopic examination, however, was positive in smears from one case out of three examined.

I have also investigated 6 consecutive cases in which no lesions of tuberculosis were found on gross examination in any part of the body[8]. As many of the bronchial glands as could be obtained were made into an emulsion and injected into three guinea-pigs in each case. None of the animals subsequently developed tuberculosis. The lungs of these 6 cases were also cut in thin slices and minutely examined for the presence of nodules, either fibrous or calcareous in nature. In the three cases of children no such lesions were found. Among the three adults two showed the presence of these nodules, which after preparation were cut in serial paraffin sections, stained with Ziehl-Neelsen and examined for tubercle bacilli. In all, 1081 sections of these nodules were examined, but in none could the organism be demonstrated, nor were histological changes resembling a definite tuberculous lesion found. A summary of the cases investigated by different workers gives the following table :—

	Total No. of cases,		Acid Fast bacilli found microscopically.	
	Adult.	Children.	Adult.	Children.
British Royal Commission.....	5	2	—	2
Eastwood and Griffith.....	—	16	—	12
Stanley Griffith.....	—	5	—	1
Wang	27	8	—	—
Total..	32	31	Total.. —	15

	Tuberculosis produced in guinea-pig		Percentage of Tuberculosis	
	Adult.	Children.	Adult.	Children.
British Royal Commission.....	—	1	0	50-100
Eastwood & Griffith	—	—	—	75
Stanley Griffith.....	—	—	—	20
Wang.....	5	2	18	25
Total..	5	3	Total.. 15	10–55

One therefore finds that of the calcareous or fibrous nodules 15 per cent. in adults and 10 per cent. in children gave a positive indication of tuberculosis on animal injection. If also those cases, however, were included in which only acid fast bacilli morphologically identical with the tubercle bacilli were demonstrated the incidence of such infection in children is 55 per cent. Hence there remains a large proportion of these cases, even excluding those presenting on examination no other changes beyond one or more fibrous scars in the lungs, which cannot be definitely accounted for, and yet these would be assumed by Naegeli and his supporters to be of a tuberculous character. It cannot be denied that some of these lesions in which neither the microscopic nor animal test could establish the presence of the tubercle bacilli may possibly or even probably be tuberculous at the start, but on the evidence before us it is unwarranted to ascribe every such lesion to a tuberculous origin.

In this connection there is yet another important evidence which speaks against Naegeli's supposition. In dealing with the question of latent tuberculosis I[12] have shown that only in about 10 per cent. of cases where no tuberculous lesions were demonstrated macroscopically or microscopically were latent tubercle bacilli proved to be present on animal inoculation. The tissues employed for this test were the tonsils, the cervical, the bronchial and the mesenteric glands. If Naegeli and his followers were right in their contention one would have expected that these glands draining as they do the important channels whereby tuberculous infection is conveyed to the body should reveal lesions of tuberculosis in a large proportion of cases, and should generally, though perhaps not invariably, be capable of infecting the inoculated animals. Without the slightest intention of disregarding the great prevalence of the disease I conclude on the ground of the arguments already outlined that unless convincing evidence is forthcoming in the future it is rash and unwarranted to place reliance on the view of Naegeli and his pupils that tuberculosis is really a disease so universal as to be found in nearly all persons at one time or another of their existence.

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BASAL METABOLISM.

By H. G. Earle., M.A. M.B., (Cantab), Professor of Physiology,
University of Hongkong.

When I was asked by the Editor of *The Caduceus* to write an article on Basal Metabolism I thought I should be able to give a connected account of the observations we have been making in the School of Physiology during the long vacation. But as with most research work, we were led into various byways, interesting in themselves, but taking time for their investigation and preventing the completion of the main research. In fact research can not be rushed or done to time, and so I propose in this article to give a general account of the subject which may be of interest and possibly encourage more students to co-operate in a real study of human physiology as it presents itself in the Chinese race.

Metabolism.

Now what exactly is metabolism? It is simply a word signifying the constant chemical changes which accompany the phenomena of life and especially those which enable the body to use food as fuel. Food is oxidised in the body with the same results as fuel in an engine, about 75% of its potential energy being set free in the form of heat, the remaining 25% being converted into other special forms of kinetic energy such as muscular contraction and glandular secretion.

The exact details of metabolism are not known, though much time has been expended on their investigation and many interesting facts have been established and theories of action put forward.

It is quite clear however that oxidation is the chief chemical change common to all forms of living activity and that this always involves a production of heat. How far this heat is necessary for the other changes of metabolism and how far it is simply a by-product to be lost by cooling devices such as sweating, is a question which cannot be settled in the present state of our knowledge. The fact remains that oxygen is the substance we can least do without and that the greater proportion of the food we eat, is converted into heat and eventually lo t by radiation, evaporation and convection through the skin. Further there is considerable evidence to show that the total heat production under resting conditions is controlled by the surface or skin area, in other words that basal metabolism is a function of the body surface.

Basal Metabolism.

But we must define what is meant by basal metabolism. A better term would perhaps be minimal metabol ism. since it indicates the intensity of general metabolism in an individual lying at rest after a 12 to 14 hours fast, in other words, lying at rest after a good night's sleep before breakfast. It is true that prolonged fasting for days and weeks further reduces the level of general metabolism, so that perhaps it would be better to define basal metabolism as the daily minimal metabolism. Under these conditions, muscular contraction and glandular secretion are reduced to a minimum and an expression is obtained of the intensity of oxidation necessary to keep the individual alive apart from all forms of external activity or work. However, before we consider what exactly makes up this basal metabolism, it will be as well to describe how its intensity or basal metabolic rate is measured.

Measurement.

There are two possible methods known as direct and indirect calorimetry. The first is best adapted for animals and consists in the direct measurement of heat loss in a specially constructed calorimeter, and the second is best adapted for man and consists in a measurement of the respiratory exchange, either oxygen absorption, carbon dioxide excretion or both.

I dont propose in this article to discuss the relative merits of the different methods, as such a discussion would only be appreciated by those actually engaged in metabolic research.

It will be sufficient to state that where both methods have been used on the same individual, the results are identical and that in the indirect methods, the oxygen absorption, as might be expected, is a more correct index than the carbon dioxide excretion.

In the Benedict clinical apparatus, used in the School of Physiology, the subject breathes into and out of a closed circuit, consisting of a spirometer, two-thirds filled with oxygen, a soda-lime jar for absorption of carbon dioxide and an electric fan for maintaining a rapid circulation of oxygen and lung gases. During the test the mean volume of gas in the spirometer becomes reduced and this affords a direct measurement of the oxygen used. Further, by means of a kymograph, a record of the whole test, showing the character of the breathing as well as the rate of oxygen absorption, is obtained and this affords a valuable addition to the original apparatus.

In this method the only observation made as far as metabolism is concerned, is the amount of oxygen used by the subject in a definite period say 10-15 minutes. It is found convenient, however, for purposes

of comparison with the results of other methods, to express this in terms of the calories known to be produced when the observed volume of oxygen is used; and, assuming that the conditions under which the observation is made could be prolonged, to express the result as calories per hour or 24 hours.

The present apparatus is the result of a considerable amount of research by Benedict and his co-workers. There have been two main difficulties to overcome—first, how to confine the breathing to a relatively small space and second, how to avoid the necessity for an analysis of the gaseous exchange which takes much time and requires a good deal of skill.

Under ordinary circumstances people are accustomed to breathe direct from the atmosphere, where there is a free supply of oxygen and a free removal, by diffusion, of carbon dioxide.

Benedict has solved the problem of confining the breathing to a cylinder only 9 litres in capacity, by using an electric fan for the rapid circulation of its contents, and, a jar of soda lime for absorption of carbon dioxide.

The problem of ventilation is thus seen to be one of air movement rather than of air space and by substituting movement for size, the apparatus has been reduced from the size of a room, first to that of a breathing chamber and finally to that of a readily portable machine.

Further, by using a closed circuit, a direct measurement of oxygen absorption is obtained without the difficulty of gas analysis.

Other Measurements.

Observations are also made of the body temperature and of the pulse rate and blood pressure, before, during and after the test. Any change in the heart and circulation is then readily detected and a check obtained on the normality of the conditions. Measurements of the height, weight, sitting height, chest and lung capacity are also necessary in order that comparisons may be made with the various standards and constants of other observers.

Indirectly, a valuable record of physical measurements is obtained which will be useful in the study of other conditions—this is especially the case with lung or vital capacity, since it has been shown that very definite variations exist in early pulmonary tuberculosis, as well as in certain cases of early heart disease.

Basal Metabolic Rate.

But this is a digression, we must return to the main question. On what does the intensity of basal metabolism depend?

Body size was the first thing to be tackled and it wa soon shown that smaller individuals produced more calories per unit of weight than larger individuals. Since however the ratio of body surface to weight is greater, the smaller the individual, and since it is known that heat loss is directly proportional to surface area, it appeared more rational to express metabolism in terms of surface area, the difficulty, of course; is the calculation of the surface area, which, obviously, cannot be directly measured in each individual. Direct measurements have shown however that it can be calculated as a function of the weight, or better from the height and weight combined (Aub and Du Bois) and that the rate per unit of surface area is fairly constant regardless of variation in size.

Benedict after an exhaustive research, has come to the conclusion that basal metabolism is not a simple function of the surface area as calculated and prefers to use direct measurements of height, weight etc., for its prediction, while Dreyer of Oxford has come to a similar conclusion, though he uses a different method of predicting the normal standard. There are, however, besides actual body size, (whether it be weight, height, surface area), other conditions, such as age and sex, which affect the basal metabolism, and investigation of diseases of the thyroid has shown that internal secretions play an important part in setting and regulating the metabolic pace.

Looking at the subject in the light of our knowledge of physiology, apart from actual observation of the metabolic rates, it appears obvious that in order to maintain the body temperature at a constant level, heat production must at least be equal to heat loss and that this must depend primarily on the surface area of the body.

But it would appear that more heat is usually produced than is necessary to compensate for heat loss and that the problem of temperature regulation in animals and man is how to lose rather than how to produce heat. Further it is clear that production will depend on the mass of tissue, in the body, undergoing active metabolism, in other words on the weight, though passive structures like bone and adipose tissue (fat), which form a large proportion of the body weight and in the case of fat often account for its variation, do not influence the general metabolism apart from movement.

Age will affect the rate partly because of the growth changes involved and partly because of the variations in the mean level of muscular activity at different ages, while sex will affect the rate owing to the different part played by the sexes in the process of reproduction and all that it involves.

From present results, it would appear that the rate diminishes slowly from the age of 14 onwards and is always lower in the female

than in the male, though this does not of course apply to the rate during pregnancy and lactation.

The investigation of human metabolism on a large scale is however, a new thing and much work will require to be done before we can fully interpret all the findings.

Still, sufficient has been done to show that given the age, sex, height and weight of a subject a very fair prediction may be made of the normal metabolism and that in thyroid disease, a measurement of the basal metabolic rate affords very valuable evidence in diagnosis, prognosis and treatment.

Race and Climate.

In conclusion, I should like to refer to the question of what may be termed physiological personality. We hope to publish detailed results later, but from the 50 or so observations already made on the normal Chinese student, making all allowances for stature, weight, sex and age to which reference has been made, it would appear that the metabolic pace is set at a lower level than that of western subjects and the question arises how far this can be correlated with other differences between the eastern and western peoples.

Has the rush of western civilization produced a higher metabolic rate ?.

Is the low metabolic rate of the Chinese a physiological expression of their more philosophical outlook on life ?.

How far do climatic conditions apart from race affect the metabolic rate ?.

Before these questions can be answered much work will have to be done; it will at least be necessary to repeat the present series of observations in the cooler weather, and compare the results with observations on westerners under identical conditions.

Apart from these interesting questions however, it is quite obvious that before we can say whether a Chinese subject is normal and use this method in the investigation of disease, we must establish our physiological standard.

Finally I should like to thank the students of all Faculties, who have already co-operated in this investigation, for submitting to the inconvenience of observations at an early hour without breakfast during the long vacation and I specially want to thank Mr. Yue Man Kwong who arranged the appointments and assisted me with the various measurements. I trust that we shall continue to receive the help of students and others in order that we may be able to answer some of the questions that have already been raised.

ABNORMALITIES OF THE VASCULAR SYSTEM.

COLLECTED AND ANNOTATED BY YUE MAN KWONG.

In my article of the last issue on the abnormalities of the muscular system, I pointed out that the abnormalities were observed in bodies, some 150 in number, enbalmed at the School of Anatomy for Practical Anatomy and Operative Surgery during the period of 8 years 1912-1920 inclusive.

My present attempt to record another series of abnormalities of the Vascular System was made possible through the kindness of the Professor of Anatomy who has given me every possible help and has allowed me to use the records kept and collected at the said school during the above period.

Again I have to say that I am unable to draw any definite conclusions from the abnormalities recorded below. Perhaps it may be pointed out that as far as our experience goes, the more gross abnormalities of the vascular system are less frequently seen on our dissecting tables than those of the muscular system. The reader, however, is warned not to infer too much from the above statement.

A brief account of the development of the vascular system will perhaps be not out of place here, as it will give a plausible, though by no means a complete, explanation of the variations in the gradual and most complicating evolution from the embryonic blood vessels into the adult ones.

This subject may be briefly dealt with under the following headings :—

1. ORIGIN OF THE VASCULAR SYSTEM.

Most conflicting views are being held as to the exact origin of the cells which form the vascular system and indeed this question is one of the intensely disputed problems of the mammalian embryology. The early investigators including Kollicks, Robinson and Heape, etc., after repeated researches on mammals, have firmly advocated the view that the blood islands of the mammalian embryos are to be looked upon as special localised proliferations of the mesoblast. On the other hand, the later researches of Ruckert have led him to believe that although lying in the mesoderm, these vascular anlagen may have actually arisen from the hypoblast. C. C. Wang, a strong supporter of the latter school, after a careful study of the ferret's heart, came to the conclusion that the endothelium of the blood vessel has its origin from the mesoblast and the blood cells have a separate origin from the hypoblast.

2. The Primitive Form of the Vessels in any Area and the Mode of Change from this to that of the Adult.

Two theories have been put forward concerning the primitive form of the development of the vascular system—one, that the arteries and veins are simply single growing trunks, the other, that a plexiform network of capillaries always precede the formation of secondary arteries and veins in any embryonic vascular area. The former view has been proved to be erroneous as a result of careful researches which are greatly facilitated by the recent introduction of methods of injecting the embryos, whereby the intricate as well as delicate vascular system in appropriately filled up and easily studied. Keibel and Mall[1] definitely state "Arteries and veins do not grow out as such, but that the blood vessels tended always to be laid down in a multiple capillary anlage rather than in single trunk-like forms, and that this is true even where the position of the vessel is apparently predetermined by inheritance. In many areas however (e. g. the head and the limbs) we have more typical plexuses from which, through the secondary enlargement of some channels in the mesh and the coincident atrophy of others, arterial and venous vessels develop." They attribute the cause of the early appearance of the vessels in multiple capillary form to the view that this represented the fundamental method of vascular growth and that larger vessels only came into existence secondarily when the number of capillaries induced an increased supply of blood. It may be mentioned here that the embryonic arteries eventually lost their power of giving off capillaries so that in the adult this function is exclusively reserved to the true peripheral capillaries.

3. Vascular Variations.

Aeby and later Krause attempted to explain the variations by assuming the presence of original uniform meshworks of vessels in which a vessel can course in any direction[1]. Ruge, however, demonstrated very clearly that when variations occurred, they tended to group themselves into quite definite groups which could be explained by the over-development of normally inconspicuous vessels so-called aberrants. It is no wonder to notice the numerous variations in the adult vascular system when one considers the fact that there is always a tendency to a lingering plexiform type in the main stem and to constant occurrence of the capillary meshes, any part of which, may, as it were, be called into active service.

Again these abnormalities have not only an embryological interest but an important surgical relation as well. Variations in the larger trunks in the adult may undoubtedly influence many surgical operations.

Variations of the Arterial System.

1. Abdominal Aorta.

In Cadaver, No. 38, the following pecularities were noticed in its branches :—

(*a*) The right inferior phrenic was absent.

(*b*) The left inferior phrenic arose from the coeliac artery.

(*c*) There were two gastric arteries on the left side, one arising from the hepatic artery and the other from the aorta.

(*d*) There were two renal arteries on each side, the upper slightly larger than the lower ones and the origins of the arteries on either side were separated by a distance of about 3 inches.

(*e*) The right spermatic artery arose from the lower right renal. The left spermatic artery had its origin from the aorta, and it hooked above and in front of the left renal vein in its passage downwards.

Comment. The presence of accessory renal arteries may be explained by the fact that these arteries are derived from the Wolffian body vessels and Broman's derivation of the normal renal artery from this source clearly confirms the above explanation. Embryologically, the inferior phrenic, adrenal and sex gland arteries are derivatives of the mesonephric vessels. One therefore may safely expect the combination in origin of the stated vessels[1], e.g., rt. spermatic from the rt. lower renal in this instance. Again the mesonephric arteries are not necessarily lateral aortic derivatives, many of them may come off from the ventro-lateral side and in its further growth may be incorporated with a neighbouring ventro-branch of the aorta, hence the common origin of coeliac and inf. phrenic arteries.

2. Axilliary and Brachial Arteries.

The following variation was noticed in Cadaver, No. 38, on both sides—.

The end of the axilliary artery was unusually small but in its usual position and disappeared after giving off :—

(*a*) the usual branches of the 1st and 2nd parts.

(*b*) a large and superficially placed Vas Aberrans, which divided in the cubital fossa into radial and ulnar arteries (as the brachil artery normally does), having previously given off an inferior ulnar collateral and a few muscular branches.

(*c*) subscapular

(*d*) ant. and post.-humeral circumflex

(*e*) profunda brachi

(*f*) superior ulnar collateral artery.

Comment:—This Vas Aberrans is undoubtedly the so-called superficial brachial artery. Muller has demonstrated that the main artery of the upper limb split into two branches to surround the median nerve, one lying ventral to the nerve while the other dorsal to it. It is the retaining of the former arterial channel which leads to the presence of the above artery[1].

3. DESCENDING THORACIC AORTA.

In cadaver, No. 124, the above artery lay to the left of the spine, so that the oesophagus came to be anterior to it at the lower part of the posterior mediastinum.

4. DESCENDING BRANCH OF THE TRANSVERSE CERVICAL ARTERY.

In cadaver, No. 7, this branch which normally arises from the transverse cervical artery had its origin from the third part of the subclavian artery.

Comment:—Gray mentioned that the ascending branch of the same artery sometimes came directly from the thyreo-cervical trunk[1].

5. EXTERNAL MAXILLARY ARTERY.

In cadaver, No. 7, it arose by a common trunk ½ inch long with the lingual artery.

6. HEPATIC ARTERY.

In cadaver, No. 120, the above artery was given off independently from the aorta, crossing the neck of the pancreas superficially, downwards and to the left. The splenic and the left gastric arteries were normal, coming off the coeliac artery.

In cadaver, No. 102, it arose from the superior mesenteric art.

Comment:—The Coeliac and Sup. Mesenteric Arteries have their roots in an uninterrupted chain of anastomosing vessels and perhaps it may be imagined that the latter may take over any branches of the former.

7. INT. MAMMARY ARTERY.

It was given off from the third part of the subclavian artery just beyond the lateral border of the scalenus anterior muscle on the right side of cadaver No. 124. The left artery was normal.

9. LINGUAL ARTERY.

(*a*) In cadaver, No. 24, on the left side only, the artery was seen to lie superficial to the posterior third of the hyoglossus muscle and then pierced it passing forward deep to the ant. third. The dorsalis lingue was given off just as the main artery pierced the hyoglossus.

(*b*) The artery in cadaver No. 7, arose by a stout trunk ½ inch long in commom with the ext. maxillary artery.

8. INTERNAL MAXILLARY ART.

The above artery was seen in one subject to pierce the post part of the ext. pterygoid muscle, so as to lie superficial to the greater anterior portion of the muscle.

10. MIDDLE SACRAL ARTERY.

Abnormal origin of the above artery from the 5th lumbar artery was noticed in cadaver No. 3.

Comment.—Different views have been held as to whether the middle sacral artery should be regarded as an end branch of the aorta and together with the two illiacs forming the tripartite division or a branch of dorsal origin from the aorta. A true wandering must needs happen in this instance if the former view is to be adopted.

11. OPHTHALMIC ARTERY.

An abnormal position of the above artery was discovered in cadaver No. 24, the artery crossing below the optic nerve instead of above it. The superior ophthalmic vein and the nasociliary nerve was running as usual.

12. PROFUNDA FEMORIS ARTERY.

Three cases of High Origin were noticed :— In cadaver No. 47, on the left side. in cadaver No. 123 on the right side and in cadaver No. 99 on both sides.

The artery, in each case arose from the medial side of the femoral artery immediately below the inguinal ligament.
In cadaver No. 99 the artery crossed superficial to the femoral vein and then dipped deeply giving off medial femoral circumflex artery. The lateral femoral circumflex came off from its lateral side lower down.

In cadaver No. 123, it gave off at its commencement the inferior epigastric artery. The lateral femoral circumflex was given off independently from the femoral artery in two divisions, 2 inches apart.

13. Posterior Humeral Circumflex Artery.

It was seen in cadaver No. 71 on both sides to take origin from the profunda brachii artery.

14. Subclavian Artery.

The second part of the above artery lay anterior to the scalenus anterior muscle in cadaver No. 102, on both sides.

Comment.—Subclavian arteries vary considerably in their course. Generally they pierce the scalenus anterior muscle. They sometimes rise 4cm above the clavicle or may only reach to the level of its upper border.

15. Spermatic Artery.

In cadaver No. 81, both spermatic arteries were noticed to arise from the respective renal arteries.

16. Superior Thyreoid Artery.

In cadaver, No. 106, on both sides, the branches of this artery came off in two distinct trunks 1cm apart. The lower trunk divides into the ant. and post. thyreoid arteries and the upper into the sup. laryngeal and the sternomastoid arteries.

17. Transverse Scapular Artery.

(*a*) In cadaver No. 7, the left artery arose from the 1st part of the axilliary artery. It ran below the superior transverse ligament of scapula and the subscapular nerve.

(*b*) In cadaver No. 83, the left artery was seen to pass under the superior transverse ligament of the scapula.

18. Ulnar Artery.

It passed between the two heads of the pronator teres muscle on the right side in cadaver No. 108.

19. Vertebral Artery.

Abnormal origin from the arch of aorta was found in two cadavera Nos. 86 and 28 on the left side only. In cadaver No. 86 the artery gave off the inf. thyreoid artery and entered the costo-transverse foramen of the 5th cervical vertebra.

Comment:—The vessels of the 4th branchial cleft are represented in the adult on the left side by the arch of aorta and on the right side by the right subclavian artery. The left subclavian is one of the branches of the arch, therefore, in this instance the vertebral artery must have shifted its origin from the subclavian to the aortic arch

An abnormal artery was noticed arising from the 1st part of the subclavian artery crossing middle and lower trunks of the brachial plexus under the scalenus anterior and leaving between the scalenus medius and levator scapulae muscles.

Variations of the Venous System.

1. Common Facial Vein.

It entered the anterior jugular vein in cadaver No. 106 on both sides.

2. Femoral Vein.

This vein was seen in one subject to divide in the centre of the adductor canal into two equal parts which however reunited after about an inch. Nothing was discovered traversing the opening and the artery was normal.

3. Vena Azygos.

This vein was completely absent in cadaver No. 73. Venae hemiazygos and hemiazygos accessoria formed one trunk which was joined by the right 5th, 6th, 7th, 8th intercostal, left superior intercostal and left 5th, 6th, 7th, 8th. 9th, 10th and 11th intercostal veins. The right first intercostal and 2nd, 3rd, 4th intercostal veins (as a single trunk) opened into the right innominate vein.

References.

1. Manual of Human Embryology — Keibel and Mall
2. Human Anatomy — Gray.
3. The Earliest Stages of Development of the Blood Vessels of the Heart in Ferret Embryo — C. C. Wang.

THE LIFE HISTORY OF A SURGICAL WARD CLERK *

Mr. Chairman,

I hope, Sir, that, notwithstanding the austerit of the chair, your good nature will incline to some degree of indulgence towards human frailty. You will not think it unnatural that those who have an object depending, which strongly engages their hopes and fears, should be

* Read before The Medical Society by M. B. Osman on 31st March 1922.

somewhat inclined to superstition. I must admit, that when I entered this room, I entered with some considerable anxiety as regards the reception of my paper; but I find to my infinite surprise a bigger house than I had expected. I cannot help looking upon this as a fortunate omen.

But I must, however, hasten to correct a few of the notions that some of you may have entertained with regard to the paper you have come to listen to. I am here to-day, Sir, to give some information and to express some opinions. That is all.

We shall not attempt, Sir, to go as far back as the time when we first decided to become a medical student and trace our development from the elementary biologist, who thinks he knows a world of science to the elementary physiologist or anatomist who realises how easy it is to forget. Nor shall I say a word of the time spent in the various schools and laboratories, when to be threatened that you will not be signed up or that you will surely be ploughed, is a matter of daily occurrence. Truly, Sir, the path of endeavour to the summit of attainment is narrow and thorny.

We shall, in fact, follow up at once the fortunes of the student who has managed to deceive the examiners of his second M. B., B. S. exam. He finds himself suddenly compelled to apply for the wardclerkship of either the medical or surgical clinics of one of the hospitals. Fate had evidently decided I should first pry into the intimate secrets of elementary surgery. It meant hard work and care was taken to have this bit of information driven forcibly home to me.

And so it came to pass that on the First of January, 1922, I became a surgical wardclerk at the Government Civil Hospital. My life as such has not been very eventful and I am sure it will not interest you. But as luck would have it, I came across an old friend of mine, back on vacation from a medical school, who had a lot to tell, I venture to make his story mine and to present to you an accurate account of his life as a surgical wardclerk, partly that I may prepare the younger members of this Society what to expect; and partly that I may refresh and fortify the memories of those who have finished their clerking.

"Truth," Sir, "Like the juice of the poppy, in small quantities, calms men; in large, heats and irritates them; and is attended by fatal consequences in excess." (Landor). And, Sir, in order that I may not be held responsible for any fatal consequences, I shall often be persuaded to deliver his truths, which shielding themslves behind veils, are best spoken by implication—even as the sun which veils itself in its own rays to blind the gaze of the too anxious starer. I know quite well, Sir, that different men often see the same object in different lights and therefore, I hope, it will not be thought disrespectful to those

gentlemen, if, entertaining as I do opinions of a character very opposite to theirs, I shall speak forth my sentiments freely and without reserve. And also, Sir, should some of us present, after hearing my paper, find themselves moved by a desire to accuse me of having employed "argumentum ad hominem", I shall, before going any further draw their attention to these famous lines :—

> What woman in the city do I name
> When I say, the city woman bears
> The cost of princes on unworthy shoulders ?
> Who can come in and say that I mean her,
> When such a one as she, such is her neighbour ?
> Or what is he of basest function,
> That says his bravery is not on my cost,
> Thinking that I mean him,—but therein suits
> His folly to the mettle of my speech ?
> There then ; how then ? what then ? Let me see wherein
> My tongue hath wrong'd him ; if it do him right
> Then he that wrong'd himself ; if he be free,
> Why then, my taxing like a wild goose flies,
> Unclaim'd of any man.
>
> (Shakespeare)

But let us get back to our wardclerk. And so with the opening of the term he finds himself initiated into the intricacies of no-hand-touch and other operations. Mimeographed notes, unintelligible to the most intelligent, were given to guide him through his course of operative surgery. He is at once forced to make the acquaintance of certain carpentary tools which enjoy the dignified appellation of surgical instruments. Even before he has the vaguest ideas as to the rough requirements of the new subject he is called upon to perform an operation on the cadaver. No introductory teaching was considered necessary. "What are the notes there for, anyway" ? .

A pair of extra critical eyes watch him begin. Failure to hold the knife in a recognised way, the "dinner-fork" fashion for instance, means the loss of a mark. And the embryo surgeon has only five marks to lose. The small pair of delicate ridged pincers, which he afterwards learnt are called pressure forceps, must, when used as a needle holder, be held in the thumb and ring finger. The middle finger, must for some reason or other, be placed in a certain desired place. Any deviation from that mode of handling the miserable thing means the loss of another mark. When sawing through a bone, you may not splinter it. One more mark goes if you do. Why, even if advantage of better lighting (and better lighting simply means nearer the window) is not taken of, you lose a mark. And so ad nauseam. Thus, at the end of the operation, your new wardclerk finds a nice round cipher against his name ; and he leaves the School of Anatomy, dumbfounded

at the sudden discovery that a surgeon in addition to being a scientific butcher, must also be a carpenter, a tailor and half a dozen other artizans as well. An expletive, sometimes, help to restore the equanimity of his thus disturbed nervous system.

During some mornings he attends lectures on Surgery. Behold the dreamer sitteth! All the information regarding the various afflictions to which humanity is heir, simply pass by him as the idle wind he respects not. He finds it necessary to go home and read for himself. A few hours of looking over the pictures and diagrams in Rose and Carless or glancing through the Synopsis of Surgery, has only the effect of bringing him closer to the awful realisation that the human body is in constant danger of destruction. Death dealing diseases with mysterious names lurk everywhere. The causal agent of some are known, of yet others are unknown. The latter are given the high sounding name of "idiopathic". One is sorely tempted to call it idiotic. Lectures on certain diseases, like syphilis, promise some interesting information; and the student leaves the lecture room wondering whether the homonyms civilisation and syphilisation are synonyms or not.

And so ends the first hour of the day. Leaving the lecture room, force of habit makes him wend his way to the General Office for his mails. He does this invariably, with the exception, perhaps, of the early days of the term when the sight of the Registrar may remind him that it is customary to pay fees on the first day the University begins work. After this, habit again directs his foot-steps to the Union. I have nothing to say against such a habit. After a lecture, be it ever so interesting, the student is a little worn out. A few pieces of cake and a cup of coffee or strong cocoa generally renders him a little more fit to face the rigours of hospital work.

He reaches the hospital a few minutes after ten, which is, of course, an infringement of the law that says that work at that institution begins at ten prompt. The reason for this tardy arrival is always demanded for by the head of the firm, who, I suspect, is about the only one not usually considered to be within the pale of this rule. But I ask you, Sir, do you honestly think that you can work from 8.30 to 1. and sometimes to 2 with only two eggs as breakfast? Perhaps not. But then I have heard it said, "Thy blood be upon thine own head. Why did you not have a more substantial meal? Why didn't you do this and that"? Besides, WHY, you are told in the School of Anatomy, is not a scientific question. I leave to you, Sir, who are well acquainted with hostel culinary accomplishments to imagine any answer you like. I hesitate to give any. But I certainly would not question the indulgence of a post-lecture meal when I had some one to look after my breakfast and when I carried a vacuum flask filled with refreshing nectar with me in my chair to my work.

But we are digressing. Let us now consider the events that happen the first day your new wardclerk goes to hospital. His first impression of the place will, no doubt, be interesting. He sees before him an ugly building fenced all round by an unsightly granite wall 15 feet high. On the top of this wall, pieces of glass have been ingeniously fixed. The main entrance is guarded by a massive wooden door, reminiscent of mediaeval castles. Why they have this wall, this miserable looking door and why those pieces of glass exist there, I am at a loss to understand. The paint on the walls of the hospital, I shall not attempt to describe. Why they chose that particular paint, I am also at a loss to understand. Why, Sir, the whole thing has more the appearance of a place where dangerous enemies of society are caged rather than a building where humanity, manifesting pathological conditions are nursed back to health and life.

But let us go on. Your new wardclerk has reached the hospital. He makes the acquaintance of a newly graduated student now styled the House Surgeon. Personally, Sir, I have reason to feel proud and happy to be able to work under the present H. S. He is a regular brick. I never compliment people—I, therefore hesitate to begin now.

Then the wardclerk follows his dresser to the wards. His first sight of all sorts and conditions of men on the sick bed in a grim and gloomy room is not very pleasant. I have a faint suspicion that even if a real live strong man were kept in a room like that for ten days he would become ill also. An inquiry as to what his work was, simply evoked the reply, "Go on, take that case." A passage from Tacitus is easily understood compared with this phrase. The actual meaning of taking a case is still to be learnt. You are directed to a drawer where may be found some pieces of paper, printed in parts, dotted in others and simply blank lines in the rest. You are required to fill in that sheet. The surgeon's name, the dresser's name and the wardclerk's name are filled in easily enough. But you will find it a little troublesome to drag out from the patient his name, occupation and address. But the real difficulty comes when you have to fill in the necessary information for the next page. What is he admitted for? You ask him. You may, perhaps, think it is the business of the doctor rather that of the patient to find that out. However, let us say you discover a hard oval swelling on the upper point of trisection of the lateral surface of his right leg. You write that down. Then you proceed to inquire into the intimate secrets of his family life and habits. Was he married? Had he any children? etc. Does he indulge in alcohol, opium? etc. Then you pursue your enquiry into the regions of his past illnesses. I shall not tell you to what particular diseases you are to pay special attention, how to question him and how you can safely interpret a negative answer. Then you go on to inquire into the exact cause of his present affliction. You ask him how and when it began. He gives you a Chinese date and you do your best to make

how long it is. Generally, you call in the assistance of the hospital dresser. This worthy will come and stand near you in great agony as if wrestling with some formidable mental problem. Then he tells you something that is not quite reliable : 30 or 40 days. If you write that down and if the surgeon finds out, you will realise that even such a small word as OR is enough to create any amount of distress.

Then you proceed to describe his general condition and after that, the local condition. You press here and there to see if the swelling is hot, tender, fluctuating and all that sort of thing. This curious behaviour on the part of the wardclerk may seem queer to you, but it is nevertheless necessary. Besides these points have an important bearing on the diagnosis. Even a sigh is significant. Of course, there are many other steps besides these and some of them are decidedly unpleasant. I shall not mention them.

All these signs and symptoms, what little you hear and what little you see, you carefully write down. In this connection it may be metioned that most of the patients are not really keen on giving information. Now and then, in comes a patient who speaks a language strictly his very own, intelligible to no one in the hospital. Some are deaf. Some, a trifle crazy. Some are worse still—they are mere babies. So you see, case-taking is not so very easy after all. Yet in spite of any difficulty real or virtual, a report must be at hand.

The next step is urine. It simply must be tested. Woe betide the miserable wardclerk that cannot give the surgeon the necessary information about it. He will be severely reminded of the dreadful consequences of his negligence. Sugar and albumen in the urine may mean this and that and acidosis and even death during anaesthesia. Oh it is awful ! It is like being accused of murder. And yet, Sir, some emergency cases have been operated upon in spite of the presence of sugar, in spite of the presence of albumen in the urine. And yet, Sir, they lived to be happy ever afterwards. Why then is this great fuss over urine testing ? It is easily answered. It is part of routine. We have developed a mistaken conception of routine. We have made it a fierce and fiery god whose convenant we must blindly keep and whose commands we must implicitly obey—The penalty for disobedience is three months extension of work !

So ends the report of the case for the time being. Soon after this the House Surgeon comes round, makes a diagnosis and generally gives a report number. A very special importance is placed on these numbers. Any neglect in this connection is also looked upon a a serious crime.

Next day, perhaps, you find the case scheduled to be operated upon at 10. a m. I may mention that it is seldom or never that we start before quarter past. The reasons for this delay are not far to

seek. The patient is not always sent up to the theatre at the scheduled time. The dressers and wardclerks are sometimes late. Neither is the surgeon always on time. Even if he appeares before ten, he is sometimes called away to attend cases other than his own. Of course, there is no need for any particular hurry.

The patient is carried to the theatre in a stretcher by four strong coolies. I have nothing very much to say about these coolies, only that they are a little difficult to get at. They have a peculiar knack of disappearing into their mysterious hiding places when you want them most. Besides they very conveniently lapse into states of deafness when there is work to do.

Anyway, the patient reaches the theatre. There are two sets of steps leading to this room, one via the main building and the other built after the style of a fire escape, just beside the operation room. The former, being well sheltered from sun and storm may be used by anybody except students. The fire escape one, on which the storms and the typhoons may do their worst, is left to us to do our best with. On one occasion some particular students had dared to use the former staircase. It was a very wet day and torrential rains were pouring down with annoying continuity. The chief of the firm happened to see them. He walked to the door communicating with the fire escape, looked through it, turned to these presumptuous youths and promptly reminded them that that amount of water would not drown anybody. But, that is by the way.

The patient on the table is ready to be anaesthetised. The usual anaesthetic used is ether, administered by the closed method. I am sure that no new wardclerk can ever possibly avoid being asked the reasons for this preference. I am also sure that no new wardclerk will ever give the exacting enquirer the required answer, and I am also sure that he will then be promptly enlightened (?) I purposely query the last statement.

An ounce of this wonderful liquid is poured into a curious looking instrument. I cannot pretend to describe it. It has a strong metal barrel which holds the ether. At one end is attached a paper bag and this expands and collapses as the patient breathes. At the other end is a celluloid mask lined at the free edge with a pneumatic rubber cushion.

But what happens while the patient is getting under? The surgeon and his assistants are getting washed up and dressed. You can say anything you like about our clinic but you can never accuse us of not being aseptic. We scrupulously are. Hands and forearms are washed with soap and running water, the brush being severely used. Then carbolic lotion is used, to be followed by biniodide of mercury and then by boracic lotion. Sterilised gloves are worn. There is a very special

way of negotiating your hands into them. You will have to change them if the surgeon sees you wearing them any old how. A sterilised cotton cap covers the head and a sterilised cotton mask covers the face. Only the eyes, the windows of the soul, can be seen. They are purposely exposed to show, perhaps, that even surgeons have some kind of a soul. The whole body is clothed in a sterilised gown. Even the fiercest bug under the sun has no chance against this formidable array.

During the washing the surgeon comes out of the washing-room, off and on, to hurl numerous questions at the unsuspecting wardclerk. The strengths of the various lotions used to wash the hands, the whys and wherefores regarding caps and masks and so on, must be known. It is not usual that he gets the correct answer. Then the wardclerks are at once asked if they have by any chance caught a glimpse of THAT little red book called the "Surgical Ward Clerk's Note Book." I would advise new wardclerks to "swot" through that red book very, very thoroughly, because there is, at least one, who, possessing a good memory about its existence, will not hesitate to strengthen yours about it.

Mind you, Sir. I did not say that the surgeon never gets answers to his questions. He does, but he seldom believes them. Look at this, for instance: "Why do surgeons wear caps, Mr.....?" Answer, "To prevent the hair from dropping out," Then comes the rejoinder, "Don't say that. It will be a sad business, if a surgeon, every times he operates, has to leave the theatre haggard and bald." In many cases it is still a mystery to me why our surgeon does not leave the theatre haggard and bald.

But let us come back to our operation. The surgeon comes out with his assistants. All the necessary instruments boiled and ready are on the tables. The operation begins. The wardclerk writes down all that takes place for a description of the operation must be in the report. It is his privilege to be able to listen to all the remarks made by the surgeon as regards the behaviour or misbehaviour of his helpers. These remarks are generally mirth provoking but you are, of course, not expected to laugh. Now and then, the even tenor of the operation is punctuated by the invasion into the theatre of a presumptuous fly. There is considerable commotion for some time and the surgeon goes on passing uncomplimentary remarks on the invader and those responsible for its entry into this holy of holies until some cruel hands swot it. At other times the surgeon suddenly misses an instrument or two. More remarks can then be heard and only their appearance can calm him. Sometimes something is excised. A porringer must be at hand to receive that which has been cut. It will be the business of the wardclerk to be near with one. The new wardclerk though there, is seldom there with a porringer. He is at once hurried down to the hospital dispensary for one. There, he meets the apothecary under whose very strict care

are kept these very precious porringers which cost ten cents a dozen. He politely askes for one. This worthy then proceeds to ask for whom and what the thing is wanted. He generally gives a short discourse on its exact nomenclature, what the Scotchman calls it and what the Irishman calls it. All this is of no consequence to the wardclerk—to him the rose by any other name would smell just as sweet. The thing is to get one. At last his patience is rewarded and a miserable clay pot is grudgingly handed to him. He rushes off to the theatre only to find his late arrival severely commented upon.

But the troubles of the wardclerk does not end with the operation. His multifarious duty includes the sending that which has been excised to the School of Pathology for Section. He has to pay special attention to the pathologist's report, he has to copy it down into the case report, and he has to remind the surgeon about it. The inevitable short lesson on the microscopic appearance of the section follows. A few unanswerable questions are put and sometimes, even a drawing of section is requested.

In certain operations instruments with names ending in scope are used. They are marvellous to look at. They have beautiful lights attached to them and what with a wonderful arrangement of lenses and mirrors for the better direction of light, the darkest parts of the human body can be explored. They represent the triumph of mind over matter, they stimulate the wardclerk's interest, excite his imagination and they make him gasp with astonishment. But there is this about these up-to-date instruments. They seldom work. And then someone blames the weather. Everybody blames the weather nowadays.

In some cases, patients have to be X-rayed before the operation. If a plate is taken and it generally is, it will then be the wardclerk's unhappy business to make a tracing of it for the report. A lesson on skiagram interpretation is almost certain. The wardclerk, generally says, "Yes" to everything to hasten the end of the lesson. Sometimes a print is necessary. It will also be his duty to see that the prints come back. One of them must be in the report. Speaking about prints reminds me of photographs. It will be his unforgivable fault if some special cases are not photographed before and after the operation. The X-ray installation we have in the hospital is a little curious. Sometimes, it works for a long spell without showing the slightest desire to strike work. Then suddenly it breaks down and no amount of persuasion will be of any use. Got fed up, I suppose.

Now, Sir, I shall present to you some facts concerning Wednesday, the busiest day of the week. All forenoon is occupied with operations and all afternoon with outpatients. I am still at a loss to understand the great value some people say outpatients has. Patients come straggling in, a lightning diagnosis is made and a one line prescription

is given. Sometimes the surgeon speaks at length on a case or two. Even if we strenuously deny the usefulness of out-patients we cannot run away from the fact that it is absorbingly interesting. I am sure, Sir, you will like it. When at a loss to prescribe anything, why, just put down something—Mist. Gentian : Co., for preference. The patient will be quite happy about it and there is no reason why you should not be likewise.

On certain days, Fridays for instance, no operations are done. Instead, the surgeon walks round the wards teaching. He stands by the bedside, just like a prophet of old, preaching some entrancing doctrine, to a chosen circle of disciples. His discourses, some rather lengthy, are always punctuated by questions. Sometimes, one is directed at the wardclerks. Failure to answer, means another reminder as to the existence of that mysterious red book. Senior men are naturally expected to answer any question he desires to put. Failure to answer on their part, brings forth an expression of wonder at the display of ignorance so near the exam.

But let us leave the wards and work for the time being.

One meets strange people in the hospital. I shall not bore you with any reference to them.

Of course, there are members of the nursing staff. There are two sets of them, the nurses and the sisters and a very real distinction exists. Do not, I pray, make the grave error of calling a nurse a sister within the hearing of the latter. The ancient writers attribute strange chemical powers to the dreadful gaze of a disturbed woman. If a hard cold stare can freeze a human being, I would have been turned into a crystal block long ago.

Months before this, when I heard people talking about nurses or sisters, I used to picture to myself, slim delicate pieces of femininity all in spotless white. I have no doubt that some of you are fancying the same. I fancied to myself that these ministering angels often smile to their patients and the patients' lives are worth while because they smile. I use to look forward to the time when I shall be allowed to work with them, to bask under the sweet sunshine of their splendour. Then the grind of Anatomy and Physiology will not have been in vain. I had hoped that their gentleness will induce us, uncouth students to diligence and industry. Honestly, Sir, I have dreamt all these dreams, entertained all these hopes. Perhaps, the beautiful pictorial representations of nurses that you see in books, and the movies may have been responsible. But come, ye budding disciples of Aesculapius, ye misguided youths, come to the hospital and be disillusioned.

And the sisters—they come from a foreign land, brought up according to higher ideals, belong to a superior race. What

have they to do with you, mere students, at the hospital on the most provoking sufferance. When you ask for a match stick because your professor wants it, it is customary for them to come out and interview the professor himself to make quite sure about it. Sometimes they criticise the surgeon's treatment. Oh! In London we use to do this, we use to do that and the other thing. How I wish I were in London! It must be a wonderful place, medically speaking. Sometimes they prevent you from doing what you have been told to do. You may not dare to argue with them—you will be reminded that after all you are only a student fellow. If you persist, you will be promptly reported with dreadful consequences.

And the nurses. But they do not come from foreign places across the great seas. Thank heaven for that! They have no London to tell stories about. Thank heaven for that also! A quieter set of females is difficult to imagine. They sedulously avoid you. And one is persuaded to believe that they are pretty fond of taking refuge in that beautiful phrase, "I don't know." They even, sometimes, say "I don't know" to your "Good-morning nurse." Some of the students who frequent the hospitals have, rather unkindly, given them nicknames. I am sure, Sir, you will be tempted to do the same if you saw them. I hear they also stigmatise us with equally complimentary epithets. That simply shows, Sir, how co-operation will generate mutual appreciation.

But, Sir, hospital work is not all humourous. I am sorry if I have directed your opinion in that direction. There are times when we have occasions to be sad. We are but human, and being human, are not altogether devoid of feeling. A man well advanced in years, may, perhaps come in seek of surgical aid. With a slow infirm step he walks into the wards. He is thin and anaemic. His watery eyes speak volumes of agony and suffering. He tells a disconnected history of his suffering. In a pathetic vioce he tells a pathetic story. The surgeon makes an examination and asks questions. With great efforts he answers them. Poor man, he cannot even open his mouth properly. Yes, it is a case of mailgnant growth, a tumour which will ultimately kill him, a tumour which is even now slowly killing him. The case is about inoperable now. But why did he not come in earlier. The extent of the growth, his condition and his age do not favour an operation. The most experienced hand cannot now postpone the end. The mills of the gods, though they grind slowly, they grind surely and mercilessly. And for him the grind is nearly over.

"But do not say that you cannot do anything for me," he moaned "Cut it out, O! only cut it out, and I shall be satisfied. I know I shall survive. Any one will when you cut it."

As it is, he may yet live for some time. An extensive operation may mean the grave. No, the surgeon will not undertake it. Some one

tells him the gravity of his case. He still insists. Yet others try to open his eyes to the disaster which may await him. In plain, in brutally plain language, they tell him. Still he is adamant. Can it be possible that those whom the gods wish to destroy they first make blind? Two operations will have to be performed. He is perfectly willing to have ten done. The trust, the faith of man staggers the imagination. Perhaps, his faith will make him whole.

The first operation is successful. Would that the second one be equally so. A week later he is again on the table to have the growth excised, to have his faith shattered, to have his doom rendered near. An extensive operation is performed, an extensive amount of tissue is removed, an extensive quantity of blood, real warm red blood is spilt.

He is carried back to the room they brought him from. He is carried back to die.

The golden sun has sunk behind the hills and a dusk which is not of the night and yet not of the day, a kind of mystery wherein a man may see his god, has crept in to fill the wards. There on a lonely bed lies a lonely man with a face wonderful to look upon. No more wrinkles, no drawn, distorted lineaments, an expression of extreme humility, blended with gladness of hope, a serene brightness, and an ideal straightening of the outline, as if the Divine Finger, source of supreme beauty has been laid there.

And he disappeared over the edge of beyond. He went back to the land of his fathers, the land from whose bourn no traveller returns. Thus passed away, one born of woman who had out a short time to live, and is full of misery. He came up, and is cut down and has fleeted away like a shadow.

But your wardclerk is fast growing old. His term of work is nearly done. The long days spent in the wards have altered him; his opinions of the place and its inmates have become very much modified; in some instances, absolutely changed. Some of them he may even learn to appreciate. There is at least one of them, a Sister, who is as near the sister of your dreams as can be. So graceful, so good, and so kind. And she wears $6\frac{1}{2}$ gloves. Women, who wear $6\frac{1}{2}$ gloves, are always like that. You will perhaps, be tempted to treasure the beautiful memories of the time you spent in the wards while she was on duty with the greatest tenderness. Even the nurses you will learn to understand after a time. I am told that some of the senior students have even reposed some affection for some of them. Yes, Sir, you will understand them.

I shall stop now. In the days of the Old Testament it was considered a miracle for an ass to speak; now nothing short of a miracle will keep him quite. Perhaps, you are already wishing that a miracle would happen.

ASCITES.

By Tsoi Teng Ming.

As Senior Medical Wardclerk at Tung Wah Hospital, I was given the opportunity to examine quite a number of cases which presented the symptoms of ascites. I became particularly interested in them, as I believe, that ascites, which is a very common complaint among the poor Chinese of this Colony, has never been satisfactorily treated.

Unfortunately, owing to the short duration of my appointment, and the difficulty in tracing end results of these patients, it is almost impossible to write a complete and valuable report. Again with the lack of post-mortem findings, one could only classify the cases clinically.

During the three months, when I was at Tung Wah, there were 50 cases admitted to the University Clinic and among these 50 patients, 21 were ascitic.

The following three tables show the relative frequency of the common causes of ascites.

Table 1 is taken from Richard Cabot's book on Differential Diagnosis and Table 2 from Ludlow's article on operation for cirrhosis of liver in the May issue (1922) of the China Medical Journal.

Relative Frequency of the Common Causes of Ascites.
(Clinical Records)

TABLE 1

	Cabot's Series.	No.
1.	Cardiac Weakness	1,397.
2.	Renal Disease	665.
3.	Hepatic Cirrhosis	325.
4.	Peritoneal Tuberculosis	263.

TABLE 2

	Ludlow's Series.	No.
1.	Renal Disease	5.
2.	Peritoneal Tuberculosis	5.
3.	Hepatic Cirrhosis	4.
4.	Cardiac Weakness	3.

TABLE 3

	Tung Wah Hospital, Hongkong.	No.
1.	Renal Disease	8.
2.	Chronic Malaria	6.
3.	Cancer of Liver	4.
4.	Hepatic Cirrhosis	1.
5.	Peritoneal Tuberculosis	1.
6.	Cholangitis	1.

The above tables distinctly point to cardiac weakness and renal disease as the two commonest causes of ascites. It is interesting to note, however, though that cases of cardiac weakness are very commonly seen in Tung Wah Hospital such as mitral regurgitation and stenosis, aortic regurgitation and stenosis and mitral and aortic incompetence, these patients generally show oedema of the legs and face, but not ascites.

Renal Disease. (Chronic Parenchymatous Nephritis)

The middle-aged people between 30-40 were usually affected. The occupation had no special relation. They came to the hospital because of the swollen abdomen which had been interfering with their ordinary work. They also complained of thirst. Their physical appearance was generally quite distinctive: white square flabby face, balloon like abdomen and oedematous upper and lower limbs. The urine picture was both characteristic and imporant.

1.	Total amount of urine in 24 hours	10 to 26 ozs.
2.	Specific Gravity	1005 to 1015.
3.	Colour	always straw yellow
4.	Reaction	slighty acid to litmus
5.	Albumin	present in great quantity
6.	Casts	granular and hyaline
7.	Uric acid	present
8.	Sugar	absent.

The oedema usually started on the face and soon generalised. The cardiac system was normal but a haemic murmur could sometimes be detected and a slightly dilated heart to the right side might be present. The cardiac signs are attributed to the increase of blood pressure as a result of renal disease. The respiratory system was normal and pleural effusion was rare.

Chronic Malaria or Malarial Cachexia.

The patients in this class were young adults. They shewed marked general wasting and there was always a greatly enlarged spleen present. The direction of the enlargement is downwards and forwards towards the right side. They were mostly admitted for repeated attacks of fever. The cardiac system was rarely involved, though a haemic murmur might be detected. The respiratory and renal systems were not affected.

The Cancer of Liver.

The victims of this class were generally over 40 years of age. They showed extreme emaciation. An enlarged liver with hard irregular nodules could be felt. The cardiac, respiratory and renal systems were normal.

The Ascitic Fluid.

The quantity of ascitic fluid tapped each time varied from 5 to 10 pints. The renal cases yielded large quantities of fluid. The contents of the fluid have not been analysed. The colour of the fluid was opaque or white in renal cases, yellow in chronic malaria and blood stained in cancer of liver. The rate of re-accumulation of fluid after tapping was unfortunately not recorded.

ANNOTATIONS.

A Case of Tube-Graft Surgery.

The patient, male age 9, was admitted to the University Surgical Clinic with a defective left half of upper lip. Photo I

Present History.

Four months ago, a small inflamed area made its appearance on the upper lip left to midline. A Chinese plaster was employed and gangrene of the part took place.

Treatment: Tube-graft surgery.

First Operation, 27–3–22.

A flap 1½ins. wide was raised over the left sternomastoid from a point just behind the angle of the mandible to a point 1 inch below the clavicle. This flap, which included skin, fasciae and vessels, was turned into a tube, the T. O. T.* stitch being employed. The raw edges of resulting wound were undermined and approximated. Photo II

Second Operation, 10–4–22.

The distal end of the tube was divided and opened out along the line of suture for a distance of 1½ inches. It was then swung to the mouth and the opened end was sutured to the defective area. Photo III.

Third Operation, 27–5–22.

The tube was divided at the corner of the mouth and the lip end, suitably sutured into position. The remainder of the tube was reopened along the line of suture into a flap. The scar on the neck was reopened, also along the line of suture, and the flap was returned to its original position. The remaining bare area on the chest was skin-grafted.
Discharged. 21–5–22. Photo IV

I beg to thank Professor Digby, surgeon in charge, for his permission to publish this case.

M. B. OSMAN.

* T. O. T., i. e., through over and through again at the same point—a continuous, combined plain and square stitch which is much used in our clinic at the present time.

Ü Fok Hang, M.9. Rep. 107—1922.
Defective upper Lip (Before operation)
Fig. I

2nd Stage. Fig. II

Fig. III

Condition of Discharge. Fig. IV

Photos by A. Fong

NEWS AND COMMENTS.

Two Special Lectures.

The Society has reason to congratulate itself on the visit of Dr. Wu Lien Teh, Director of the Harbin Plague Prevention Service.

On the 24th April, at 5 p.m., before a large gathering of friends and members of the Society, this famous plague expert delivered a most interesting address on "The Manchurian Plague Epidemics of 1910 and 1920." For over an hour the carefully planned account of the etiology, mode of spread, treatment and prophylaxis of the Manchurian Pneumonic Plague, commanded the attention of the audience. After the lecture, moving pictures taken during the epidemics were screened. They were both interesting and impressive.

During the epidemic of 1910 which took Manchuria and the medical world by surprise, Dr. Wu gave the mortality as 60,000; but that during 1920 was only 8,000—a remarkable decrease. These figures afford eloquent testimony of the brilliant work of Dr. Wu and his colleagues.

The lecture made a deep impression on the students and we utter a pious hope that, perhaps some time in the future, some of us may have equal opportunities to be of service to China. We are apt to forget that the measure of the value of a nation is neither the bushel nor the barrel but *mind*; and that meat and wheat, though useful and necessary, are but dross in comparison with those intellectual products which alone are imperishable. The country wants scientists and there is no more potent antidote to the corroding influence of mammon than the presence in the community of a body of men devoted to science, living for investigation and caring nothing for the lust of the eyes and the pride of life.

We were again fortunate at the beginning of May to have Dr. Francis Clark with us. His association with the earlier days of the University is still green in the memories of many. It will be interesting to recollect that he was first Dean of the Faculty, first Professor of Medical Jurisprudence and the first Warden of Lugard Hall. The old members of the University can still remember with what ease a hale and hearty old gentleman use to negotiate the steep paths leading to the hostels. Eight long years have since gone by before we see him again. "His eye was not dim, nor his natural force abated." We are greatly indebted to him for having given us that instructive address on "Man's Insect Enemies." The Chancellor and many prominent members of the community were

present at the meeting. In the course of his paper he dealt with most of the diseases which are known to be communicated to man through the direct or indirect agency of some member of the insect world.

We had hoped to publish his address in *The Caduceus* but Dr. Clark, with his customary zeal, had it rushed into print before we could lay hands on it. We understand that he is taking up the post of Medical Officer of Health in Mukden, Manchuria. We wish him every success.

The Eighth Annual Dinner.

It was originally intended to hold the dinner on May 5th, but owing to the death of the Hon. Mr. Lau Chu Pak, a member of the University Council and a close friend of the University, it was postponed till after the Examinations.

It was however, held at the Hong Kong Hotel on June 1st, with Professor Earle in the chair. The large attendance included The Hon. Mr. Chow Show Son, Mr. Ho Kwong, Mr. Dowbiggin, Mr. Sayer, The Registrar, Presidents of the Sister Societies and the lady undergraduates. Indisposition prevented Sir W. Brunyate and Sir Robert Ho Tung from attending. Mr. S. W. Tso was unavoidably absent because of the Ferry Strike.

After the customary toasts of the King and the President had been given, the Registrar proposed the toast of the Medical Society. Sir William was to have honoured the Society in this connection, had he been present. However, in Mr. Mackintosh, we had a most eloquent and inspiring substitute. He congratulated the Society on its flourishing condition and in having Professor Earle as President. He drew our attention to the Rockefeller benefaction and attributed the success of the negotiations to the marvellous "digging" power of Professor Earle. He concluded by laying special stress upon the great influence a society like ours is capable of exerting. Professor Earle replied, thanking the Registrar for all the kind words he had said about the Society and its President. He proceeded to give a brief review of a satisfactory year's work and spoke at length on the Rockefeller Scheme. He thanked those friends of the Society who had so generously contributed to *The Caduceus* Publication Fund, and who had so kindly taken an active interest in the Society. He said that the University did not see enough of its graduates and hoped that the Medical Society would afford a meeting ground for graduates, undergraduates and staff with opportunities for free discussion and expression of opinion on matters concerning the well being of

medical education, practice and research. Owing to the scattering of graduates which was bound to occur for geographical reasons, he thought it was absolutely essential that all members of the Society should regard *The Caduceus* as the chief link, binding the members together. He asked them to give it their most earnest support.

Mr. Ng then proposed the health of our guests. His vivacious speech, pregnant with humour, included an invitation to Mr. Sayer to visit the backyard of May Hall where he professed to have isolated some mosquitoes of the Anopheles and Culex type. Mr. Dowbiggin replied on behalf of the guests and in the course of his speech, he very kindly offered a prize with a view to encouraging post-graduate research.

The Secretary was then called upon to propose the toast of the graduates. We are still searching for the causal agent of Mr. Yue's vigorous outburst. To those who know him, that night's oratorical explosion came as a revelation. Mr. K. C. Cheam replied. He too, appeared to be infected with same rhetorical bacillus as Mr. Yue and made one of the best speeches of his University life.

A Medical Hostel.

The senior medical students hear with extreme gratification of the possibility of erecting a medical hostel near the hospital. In and out of season we have been deprecating the non-existence of a real university hospital with a hostel attached. We shall not be so ungrateful as to look upon the projected building of this hostel as sop to Cerberus; rather we are persuaded to believe that it is but the harbinger of conditions as they should be. The urgent need of such a hostel cannot be exaggerated. It is most unreasonable to expect students to walk up and down from the present University hostels to hospital, four times daily during the hot season. It is said that in Oxford they teach laziness during the summer. We feel tempted to say that here during a similar period, they help to lay the foundations of a rebellion. We are sure that with certain facilities the impetus to devote more time by the bedside will come. We do not say that the students pay but scant attention to ward work: rather we feel that they are prevented from devoting more.

If we may offer a suggestion or two as regards the new hostel, we shall certainly say: bigger rooms and a tennnis court. In certain quarters of the University there is a deplorable tendency to accuse the students of indulging too much in sports. We are however of opinion they do not do enough. In

a university like this where routine and methods are household gods, the students are not allowed sufficient time with "labours assiduous due pleasures to mix".

A University Hospital.

We plead again for a university hospital. Our predecessors have pleaded before and we shall hand down this heritage to our successors.

The beginning of the present century saw many remarkable changes and reformations, among which in far-reaching general importance, not one is to be compared with the reform or rather evolution in the teaching of the science and art of Medicine. The improvement has been in three directions: in the demand from medical students of a better general education; in the lengthening of the period of professional study; and in the substitution of practical for theoretical teaching. With regard to the first, the University is agreed; the second, it is already contemplating, but the third, is impossible until we have a University Hospital.

We would do well to recall the words of Holmes: "The most essential part of a student's instruction is obtained, as I believe, not in the lecture room, but at the bedside. Nothing seen there is lost; the rhythms of disease are learned by frequent repetition; its unforeseen occurrences stamp themselves indelibly on the memory. Before the student is aware of what he has acquired, he has learned the aspects and causes and probable issue of the diseases he has seen with his teacher, and the proper mode of dealing with them, so far as his master knows."

We firmly believe with Abernethy: "The hospital is the only proper college in which to rear a true disciple of Aesculapius."

Professors of Surgery, Medicine and Anatomy.

The Society will welcome with satisfaction the appointment of Professor K. H. Digby to the new Chair of Surgery. In Hong Kong there is a peculiar tendency to over-work an understaffed department. The University is not free from this pecularity. For the past few years, Mr. Digby has been Professor of Clinical Surgery and Professor of Human Anatomy and recently he again took over from Professor Earle the duties of Dean.

He has taken great pains to improve the Surgical Clinic and if the ever increasing number of out-patients is any criterion, the Clinic has certainly gained great popularity.

We anticipate greater improvements now that he has anatomy off his hands.

We also hear that the University is advertising in England for a whole time Professor of Medicine. We eagerly await news of an early appointment.

We are glad to welcome Dr. J. L. Shellshear, as Professor of Anatomy. He comes to us after a record of good work in Australia and University College, London, where, owing to the assistance of the Rockefeller Foundation, a modern school of anatomy is in course of erection.

Anatomy is perhaps the oldest of the medical sciences but its purpose and method of study are just now undergoing a revolution, and more attention is being given by anatomists to those aspects of the subject such as Histology, Embryology and Anthropology which modern methods of research have made pssible. China offers an exceptional field to the Anthropologist and we feel sure that Professor Shellshear will not be slow to take full advantage of the opportunities presented. We understand that Histology will now be taught as a branch of Anatomy and that the Professor of Physiology hopes under these circumstances to devote more time to the teaching of applied Human Physiology.

The recent revised curriculum issued by the General Medical Council states that the student should attend courses in applied human Anatomy and Physiology during his hospital course and that demonstrations should be given on the living human subject.

While, however, noting these undoubted improvements, we are glad that we have completed the 2nd. M. B. Examination and we view with some consternation the prospect opened by the new regulations.

THE NEW OUTPATIENT BUILDING.

It is most gratifying to note that the Government has at last realized the importance of a well-equipped outpatient department as a necessary adjunct to the Civil Hospital. When the question of the building was discussed, mention was made that it was erected on the full recognition of its being a necessary factor in the future improvement of the University Medical and Surgical Clinics. The equipment has been left in the able hands of the P.C.M.O. and we hear that the department will be ready by the end of the year. We are grateful to the Government for this evidence of their interest in medical education.

OUR LATE EDITOR.

We must not forget to mention our predecessor. That Dr. Ng has done yeoman service to the Society is common knowledge. He was Hon. Secretary for session 1920-1921, and first editor of this journal. We hear that he is practising in Ipoh. We wish him every success.

SCHOOL OF PHYSIOLOGY.

During the long vacation Professor Earle conducted a series of observations on the "rate of of living", or "basal metabolic rate" of students. His purpose is to determine the normal standard for Chinese, this being necessary before any significance can be attributed to clinical findings. We would urge all students to submit themselves to this instructive and interesting investigation.

CONGREGATION.

A fair-sized congregation took place on June 5th, at 5 p.m. when amidst the customary solemnity, the following gentlemen received their M.B., B.S. degrees:—

Messrs:—C. Y. Ng, K. C. Cheam, I. D. Zia, W. H. Shih, A. K. Oon, D. K. Samy, S. F. Phoon, K. S. Cheah.

We offer them our hearty congratulations, and hope that they will continue to be active members of the Society with which they have been associated for so may pleasant years.

SCHOLARSHIPS AND APPOINTMENTS.

The following is a list of appointments:—

(*a*). Post-graduate (July–December).

House Surgeon.....Dr. D. K. Samy.
House Physician .....Dr. S. F. Phoon.

(*a*). Undergraduate (October–December).

Surgical Ward Clerks .....H. M. Soo.
T. Y. Li.
S. K. Lam.

Surgical Dressers.....S. A. M. Sepher.
S. C. Cheah.
C. C. Cheah.

Senior Medical Ward Clerks ...Y. C. Teh.
S. H. To.
C. H. Yeoh.

Obstetric Clerks.....M. B. Osman.
S. N. Chau.
M. K. Yue.

Pathological Clerks.....T. L. Cheah.
T. T. Mok.

Anaesthetic Clerk..... T. L. Cheah.

The following scholarships were awarded:—

Ng Li Hing ..... S. C. Cheah.
Chan Kai Ming.....T. Y. Li.
Blake .....Dr. C. Y. Ng.
Ho Fook.....Dr. S. W. Phoon.

M. B. O.

GRADUATE NEWS

Letters have been received from Drs. C. E. Lim, C. Y. Wu and A. K. Oon.

Dr. Lim has returned to China and is working at bacteriology under Professor Carl Ten Broeck at the School of Hygiene and Public Health of the Peking Union Medical College.

He calls attention to the post graduate facilities at Peking, and the reward of fellowships that awaits graduates showing exceptional ability.

He also states that at P. U. M. C. "There is no justification for one's existence if one fails to turn out something interesting in a year or so."

One cannot help reflecting however that research that is turned out to order is apt to suffer in the process. In spite of this, we expect great things from Dr. Lim.

Dr. Wu has some interesting reflections on general practice and hospitals.

He calls attention to the dislike of the poorest patients to go into hospitals and their preference for a private practitioner. He also says there is a very good opening for eye specialists. We think perhaps in the near future that the University will have to give more time to ophthalmology.

Dr. Wu propounds some problems for "aseptic Cranks." A midwifery case, 30—40 miles from Ipoh, only well-water procurable, no hot water and several midwives with a "hand" in the affair.

Woman in extremis. Recovery.

"These cases never get septic."

Dr. Oon is making arrangements to go to Edinburgh for pediatrics and later to Cambridge and London.

All this evidence of a desire to do post graduate work in large medical centres is very encouraging—it is much better than going away for undergraduate work, when usually students are not in a position to know exactly what they need and much time and money are wasted.

We are very glad to hear from our graduates and to know that they are making such good progress.

REVIEWS

AN INDEX OF DIFFERENTIAL DIAGNOSIS OF MAIN SYMPTOMS. BY VARIOUS WRITERS. EDITED BY HERBERT FRENCH, C.B.E., M.A., M.D., F.R.C.P., LONDON. THIRD EDITION WITH THIRTY-NINE COLOURED PLATES AND OVER THREE HUNDRED ILLUSTRATIONS IN THE TEXT. BRISTOL, JOHN WRIGHT & SONS, LIMITED.

Of the three volumes issued in this series by Messrs. Wright of Bristol (viz., on Diagnosis, Prognosis and Treatment), this is the fundamental one; sound prognosis and successful treatment are alike impossible without accurate diagnosis. Although this is not a *new* book, few changes have been made since the thorough revision it underwent in 1917 when the second edition was issued, yet it will assuredly prove invaluable to any one who studies it.

In the space at our disposal, it is impossible to deal adequately with its 900 odd pages, but a glance at the well-known names of the contributors gives one confidence as to the status of the book. Each author deals with subjects of which he is an acknowledged master. For instance, Sir Malcolm Morris writes of conditions of the skin and Farquhar Buzzard covers in a most masterly way the symptons of nervous diseases, Cammidge describes the reaction called by his name,

Hurst deals with constipation, Carey Coombs with pulse irregularity and Hutchison with indigestion and kindred disorders.

Dealing with more general subjects are men with names famous wherever English medical books are read: Eyre, Garrod, Hale-White, Frederick Taylor and the redoubtable editor himself—Herbert French.

The book will be found useful both by the student preparing for examination and the physician faced with a puzzling case. Whether one wants to discover the cause of a peculiar colour in the urine, of a slowly advancing paralysis or of a slight degree of dyspnoea, "French" will help to solve the problem.

One cannot emphasize sufficiently that this volume should be used as a handbook to clinical work. It is not so much a book to be read "from A to Z", as one to be tested against one's daily bedside experience: few books, if any, will yield a larger return for labour expended in this way. Is the patient's liver enlarged? a study of Hale-White's article will secure that all the possible causes of this condition are duly considered. Does he complain of paraesthesia or some other abnormality of sensation? then look up Farquhar Buzzard; and so with each individual symptom they are all dealt with in this one volume.

Special attention should be directed to the index (covering more than 500 columns) the value of which may be illustrated by two examples taken at random. First a symptom, "Abdominal Distension" there are thirty references, each with page number, to different conditions that may cause this, while heavier type draws attention to an article on the subject and to the two most common causes of distension, viz., meteorism and intestinal obstruction. For the other instance, take a disease, "Myxoedema"; forty five symptoms that may be met with in this condition are carefully tabulated, and there are also references to conditions from which it must be differentiated. The publishers might almost find it worth while to issue the index separately as a *precis* of medical diagnosis.

This review will not have been written in vain if it leads men to *study* this magnificent book (no one who has seen the coloured plates will question the suitability of the adjective); it is a mine of useful information and a model of logical exposition.

G. D. W.

VITAMINS AND THE CHOICE OF FOOD

By Violet G. Plimmer & R. H. A. Plimmer. D. Sc.
Longmans Green & Co. Price 7/6

The term vitamins soon got into the lay press and owing to the importance of the food factor in war, many had their attention drawn to the scientific choice of food who would otherwise have trusted entirely to their instinct.

As with every new addition to our knowledge of dietetics, the faddists and patent food manufacturers have got going and the public have acquired the impression that some new addition to their diet is necessary if health is to be preserved. Further, the real scientific literature on the subject is scattered in various journals and not accessible to the general reader.

We therefore welcome this present volume by a distinguished biochemist and his wife which gives in very convenient form and at an extremely moderate price (7/6) considering present conditions, a complete summary of our present knowledge, the way in which it has been acquired and what is most important, its practical application.

The book is definitely addressed to the general reader but we have some doubt whether the general reader will digest the more scientific data without some further explanations.

It is the fashion among vitamin enthusiasts to discount the value of instinct in the choice of food. It is true that people acquire perverted instincts in the choice of food as in other matters but most would agree that fresh meat, milk, butter, eggs, fresh fruit and vegetables constitute a good diet and take it in large quantities whenever they get the chance.

Modern scientific research in Physiology began in an atmosphere of Physics and Chemistry—the body was simply a machine, and food was naturally investigated from the point of view of fuel and calorie value. Scientific diet sheets gave the quantities of protein, carbohydrate and fat necessary and neglected an analysis of natural food choice. The pendulum is now swinging in the opposite direction and there is a danger that some would have us neglect the calories and live on Marmite and such like preparations.

I have however no desire to belittle the value of the work which has been and is being done on this subject, it has proved invaluable, (as a perusal of this book will show) in the treatment of outbreaks of deficiency diseases among large bodies of men, women and children—but I would urge that it is not necessary for the layman to have a scientific

knowledge of vitamins before he can choose the right kind of food and that, there is a danger that as much damage may be done by the neglect of the instinct as by the cultivation of the intellect.

The book opens with a general introduction on the subject of food and metabolism followed by chapters on the relation of diet to Beriberi and Scurvy—this is followed in historical order by chapters on the discovery of vitamins by Professor Hopkins and others, their distribution, physical and chemical properties. Two chapters then follow on Rickets, and the less well known conditions of Keratomalacia and Hunger-osteomalacia which appear to be associated with an absence of fat soluble vitamin. The nature of Pellagra and its relation to protein deficiency especially in regard to protein quality is then discussed and many new facts are here collected in a form that can be easily understood. The final chapters are devoted to the effect of partial deficiencies in the food and common errors made in its selection. These last chapters are particularly valuable in making it clear that a good deal of ill health short of actual disease is due to vitamin deficiency in the diet. The book closes with useful appendices in the form of tables showing the more exact distribution of vitamins together with notes on the value of the common foodstuffs.

The question of diet of the Chinese is an important one for scientific investigation, and a book such as this should stimulate all interested in the subject to carry out researches into its vitamin content and its relation to the aetiology and cure of disease. It will probably be found that much of the malnutrition now prevalent in China can be prevented and cured by a careful attention to this problem.

The book can be confidently recommended to all interested in the scientific choice of food especially, as the authors themselves suggest, to those responsible for the feeding of large numbers.

H. G. E.

SYNOPSIS OF MIDWIFERY.

By Aleck W. Bourne, B.A., B.Ch. (Camb.), F.R.C.S. (Eng.)

Obstetric Surgeon to In-patients, Queen Charlotte's Hospital; Obstetric Surgeon to Out-patients, St. Mary's Hospital, London; Surgeon to Out-patients, Samaritan Hospital for Women; Examiner to Central

Midwives Board, etc., etc., Second Edition, (1921), 15/- net, John Wright and Sons, Ltd., Bristol.

The first edition of this book was published in 1913, but, to students in this part of the world, it does not seem to have been well known, at least, not to the same extent as its senior companion, Hey Groves's Synopsis of Surgery, or its latest companion, Tidy's Synopsis of Medicine. A second and fully revised edition has now appeared, and we hope that the excellent qualities which characterise this work, in common with its sister Synopses, will not escape the attention of the Eastern medical student.

The object of the book is to set the principal points of obstetrics before students preparing for qualifying midwifery examinations in a simple and concise manner. It is intended that the book should serve as a useful supplement to, and not as a substitute for, the ordinary text-boooks, in order that the subject may be quickly revised. It is based upon leading English text-books; consequently its teaching may be considered sound and safe; and the oriental student who has imbibed and digested its contents should be able to face his British examiner with a firm knee and unquavering eye. The subject matter is admirably arranged, and if students could only write their answers in this clear and orderly way, instead of in a pot-pourri manner, less marks would be lost in the written examinations.

We should like to see greater emphasis being laid on starvation in the treatment of severe cases of eclampsia. Among the Chinese people there seems to be a morbid dread that such patients are not taking sufficient nourishment. Under pernicious vomiting, if the recent views of the hysterical nature of the condition be found to be correct, then the treatment of the neurotic and toxaemic types will require modification. In the management of labour we note that vaginal examination alone is mentioned. We think that, for the conditions out in the East, rectal examination should be more frequently employed. Native women hardly permit their pudenda to be so thoroughly cleaned and disinfected; consequently, however sterile the gloved finger of the student may be, there is always the danger of conveying infection from the external parts higher up the birth canal. We should like to see a paragraph on the qualifications of a wet nurse. A good description is given of artificial feeding by milk mixtures, but hardly one native mother in five hundred will feed her infant with scientific milk mixtures. If unable to suckle the infant, sweetened condensed milk is invariably used by the poorer classes, whilst proprietary foods or the wet nurse is resorted to by the better classes. It would be helpful to the Eastern students if a description were given of the application of forceps in the dorsal position. Out here, delivery in the dorsal position seems to be favoured by the native mother.

We should advise all students to get a copy of this most useful book to supplement their reading of larger textbooks. It is of a convenient size, and the type, paper, and binding, are all that can be desired. The price is reasonable for this obstetric *multum in parvo.*

G. H. T.

SYNOPSIS OF SURGERY.

This book needs little introduction to our readers. Wherever one looks, in ward or theatre, the familar red cover is to be seen. It is frankly a cram book but a good type of cram book and is undoubtedly of use to a senior man doing revision work. It is hardly fair to criticise too strictly what is admittedly little more than a collection of headlines. Much that is debateable is taught dogmatically. The degree of compression seems to have been excessive in some places. Thus under "In Growing Toe Nails.....Treatment" we read one line only—"Removal of nail and thorough scraping (sic) of matrix".

Synopsis of Surgery, Fifth edition 1920. By Ernest W. Hey Groves, Publisher, John Wright and Sons, Bristol. pp. 620.

K. H. D.

THE SPLEEN AND SOME OF ITS DISEASES.

To medical men living in this part of the East where enlargement of the spleen, and where cirrhosis of the liver with ascites are so common such a book as this, is of special interest.

The pathology of pernicious anaemia, leukaemia, Hodgkin's disease, splenic anaemia, haemolytic jaundice, Gaucher's disease, Von Jaksch's disease and polycythaemia is considered in some detail, and the value or otherwise of splenectomy on each of these conditions is carefully considered. Details of operative technique are not discussed.

Very interesting is the account given on pp. 30–33 on the relation of the spleen to immunity. The relation of liver to spleen is dealt in chapter XIII.

The diagrams are good. A bibliography is appended but there is no index.

The Spleen and Some of its Diseases. 1921. By Sir Berkeley Moynihan. Publisher, John Wright and Sons, Bristol

K. H. D.

PYE'S SURGICAL HANDICRAFT.

The title of this book is perhaps a little misleading. It does not describe the manual technique of major surgery—a subject which most text books avoid—but has reference to those aspects of minor or emergency surgery with which is it the business of the house surgeon to deal on his own responsibility. The sub-title "surgical manipulations, minor surgery and other matters connected with the work of house surgeons and surgical dressers" fairly describes the contents. The section on complications during the after treatment of operations strikes one as being most inadequate, but on the whole the book is up-to-date and will prove useful to those for whom it is written.

Pye's Surgical Handicraft. Eighth edition 1919. By W. H. Clayton-Greene. Publisher, John Wright and Sons, Bristol

K. H. D.

INDEX OF TREATMENT BY VARIOUS WRITERS.

Edited by Robert Hutchison, and James Sherren; Eighth Edition; Johnn Wright, and Sons, Bristol, Publishers.

SYNOPSIS OF MEDICINE BY H. LETHETY TIDY.

SECOND EDITION. PUBLISHERS: JOHN WRIGHT AND SONS.

It may almost appear a truism that any book—but especially a technical one—owes its ultimate value not only to its intrinsic worth but also to its readers being suitable for it. The Iliad is a work of supreme futility till the Greek language is reasonably well understood and Bradshaw's authoritative work on the vicissitudes of railway travel carries but small value to one seeking deep knowledge of London's intricacies.

Both volumes which are at present under consideration require a fair initial knowledge of the subjects treated in them and in neither will the student find exhaustive information. Both books have their definite value for the qualified and experienced practitioner but may well prove a hindrance rather than a help to those still digesting the elementary facts of medicine.

INDEX OF TREATMENT.

Excellent printing, careful arrangement of subject matter and clearness of style in the majority of the articles account for the fact that no less than eight editions of this book have been required since 1907. Little comment can be made as to the actual contents as the treatment is in almost all cases based on generally accepted and non-controversial lines, but one observes the following points :—

It would perhaps be wise to emphasize that salvarsan should be given in minute doses when employed in the treatment of extra-cranial syphilis (p. 73.)

The article on appendicitis is possibly one of the most excellent in the volume but many surgeons would hesitate before omitting drainage when free turbid fluid was discovered (p. 75.)

One notes with surprise that no mention of Benedict's solution or the estimation of alveolar CO_2 is made when dealing with Diabetes (p. 207.)

The omission of Antimony salts in the treatment of Filariasis is to be regretted.

Few chemical discoveries gave rise to greater hope of therapeutic advance than that of radium but one rarely sees such unqualified praise of it as is given by Dr. G. L. Gulland in the treatment of Leukaemia (p. 539.)

The brief remarks on Tuberculin treatment are excellently well done and prevent that vagueness which is often found when discussing this form of therapy.

The surgical side of this work shows a curious inequality. The note on hernia is so brief that its value becomes doubtful whereas that on derangement of the semilunar cartilage occupies an equal space in the text, but in practical importance this allocation of value would be absurd.

The same objection might be made to the excellent articles on blood transfusion, were it not that the "busy practitioner" probably knows little if anything about the modern methods employed and in consequence the position is not quite comparable with hernia and semilunar cartilage.

SYNOPSIS OF MEDICINE.

Provided that it is fully realised that this book must not be used as a "cram" book on the fateful eve of a final examination it can be recommended with no unstinted praise.

If one visualizes the perfect student with superb exactitude condensing his ward and theatre notes, one visualizes the genesis of the work and one realizes that for this student, because of his, if one may use the word, cement and mortar knowledge, these bricks will become a strong fortress; but to one, not so endowed, this shelter can only offer doubtful protection against examinational storm and none against the typhoons of practice.

As a handy reference book the work is so constructed that a few moments' search will awaken all one's past knowledge of any given disease.

The amount of information condensed into the 900 small pages is very remarkable and although this work is by no means the only book of its type it can safely be said to represent the high water mark of success.

Few comments can be made but the application of watery solutions to the rash of small-pox as the best method of treatment is incorrect.

So great a value is generally attached to X ray diagnosis in gastric ulcer that one is surprised at its omission.

The notes on the cardio-vascular system are particularly clear and instructive but one would expect more reference to graphic and electro-graphic methods in view of the recent advance in this mode of examination.

C. W. M.