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Editorial

With workers in every sector of the community pressing for wage increases each one supposedly more justified than the last, perhaps it is an appropriate time time to consider the grants given to students, particularly the Clinical Medical student.

For all his Preclinical years, a student on a full University Grant gets £395 per annum, which works out at £13 for each of the 30 weeks he actually attends College. For the additional 16 weeks attendance required from the Clinical student, however, he gets less than £7 per week. Putting it another way, if the total Grant is divided by the number of weeks in the Clinical year it means £11 throughout the working year. The paradoxical situation therefore arises whereby after obtaining a degree or its 2nd. MB equivalent, the student actually suffers a drop in his "salary". Furthermore, unlike other students he is unable to supplement his Grant by building Motorways or collecting deck chairs in Hyde Park during the vacation for the simple reason that he no longer gets long holiday. It is also true that most of the London Hospitals are situated in or near Central London which means that living expenses are higher than in any other part of the country.

Many students being maintained by their parents get even less than this, for in spite of what County Councils may think not many parents can afford to lavish £11 a week on a Medical training which lasts for at least five and possibly six or seven years, as compared with the normal three year degree course.

The chances of a general increase in Grants are, unfortunately, bleak. With the image of the typical student as a scruffily dressed, drug taking stone throwing demonstrator lounging around at the taxpayers expense, grants are hardly likely to be top of the list in a Ministry of Education pledged to economy. At each fresh wave of student violence the body of people supporting Loans for students grows, but there seems little danger of this happening in Britain. Nothing would send a newly qualified doctor across the Atlantic faster than the thought of having to pay even part of the cost of seven years training out of his precious Houseman's pay. Provided conditions of work allow them to stay in this country any doctor trained should be looked upon as an investment, and when the cost of a National Health Service is so high it is false economy to give Clinical students less than adequate Grants.

Letters to the Editor

THE STUDENT IMAGE

P.O. Box 482, Morwell, 3840,
Victoria, Australia.

Dear Editor,

I was interested to read the comments about the current Bart's breed in your April issue "Bart's in the News". The lady author painted a glowing picture of the healthy doctors and nurses at present to be found at Bart's and, although the students were not mentioned specifically, it is presumed they were included also. From what one reads in the press and other media, present day students and post graduates (especially in U.S.A. and Europe) are a pretty wild bunch with questionable habits and morals, and I was therefore pleasantly surprised to hear that there are no "shaking, incoherent eye-rolling dropouts" on the Wards.

I had had, it must be admitted, a suspicion that the present renaissance of Bart's rugby was probably due to the fact that training included such stimulants as pot, speed and L.S.D. and not just beer and cigarettes, as in previous generations.

My mind has been put at rest, Sir, that all is as it should be.

Yours faithfully,

R. BONNER-MORGAN.

CAMBRIDGE GRADUATES' CLUB OF ST. BARTHOLOMEW'S HOSPITAL 80th ANNUAL DINNER

Department of Anaesthesia,
St. Bartholomew's Hospital,
London, E.C.1.

Dear Editor,

The 80th Annual Dinner of the Cambridge Graduates' Club of St. Bartholomew's Hospital will be held in the Great Hall of the Hospital on Friday, October 16th, 1970 at 7 for 7.30 p.m. O. S. Tubbs, Esq., F.R.C.S., Gonville and Caius, will be in the Chair. Dress—dinner jackets. Dinner (including wines and gratuities) £3 15s. or £2 2s. for those not yet medically qualified.

All male Cambridge Graduates who have attended or served St. Bartholomew's Hospital in any capacity are eligible and entitled to attend.

Individual notices should have reached members by September 1st. If any member has not received a notice I would be grateful if he would write to me at the above address whether or not he intends to attend the Dinner this year. An important Referendum is being held to determine whether it is the wish of members that lady members and lady guests should attend subsequent dinners.

Yours faithfully,

T. B. BOULTON,
Honorary Secretary,
Cambridge Graduates' Club of
St. Bartholomew's Hospital.

STUDENTS' UNION

Students' Union,
St. Bartholomew's Hospital.

Dear Editor,

During my spell as Chairman of the Students' Union, I intend (at this early stage!) to write a letter to the *Journal* every month, even though, due to publishing dates, the letter will be a month out of date. The letter will contain any Students' Union occurrences which might not otherwise be published, and which I think may be of interest to both present and past members.

The last Union Council meeting was held on Tuesday, June 30th, when we were glad to accept Professor Castle, from the United States, as a perpetual student.

The most important aspect of this meeting was to discuss a possible agenda for a meeting in early September, at which different aspects of Clinical Teaching will be discussed. This meeting will be open to all students. Two members of the Teaching Committee will put forward proposals from the agenda, which will be answered by six consultants; discussion will then be open to the floor. Many students have some extremely constructive ideas to put forward (examples can be seen at the end of the Minutes displayed in the Cloakrooms). Personally, I feel that this meeting may blow away several cobwebs from both the student and the "Staff" point of view. I hope that a large number of people will be present, especially students, to render a wide range of constructive opinion.

There has been some dissension concerning the increase in the price of hiring College Hall for Hops. Briefly, the reason is that money must be obtained from the Student Body to pay for the damage incurred during the Cup Match Festivities—the bill cannot be paid by the Students' Union, whose limited finances come from the taxpayers' pockets. At the Union Council meeting after the Cup, we decided that in future, people known to have caused wanton damage will be sent the bill—flour-bags and water are 'in', but cement and paint are definitely 'out'. The Wine Committee have also adopted the same policy, and any bill is to be sent to the person concerned.

The Sub-dean has, in addition to Mrs. Prix, a new and very approachable Secretary by the name of Miss M. Turner, who will be glad to help with any appointment problems, etc.

The obituary notice for Mr. A. Hunt expresses the regret which everyone at Bart's must feel; the Students' Union sent "In Sympathy" flowers to Mrs. Hunt as a token of respect from all Bart's students.

PAUL MILLARD

Note;—

The meeting Mr. Millard refers to will take place in the Clinical Lecture Theatre at 11.15 on Friday September 18th. All students are invited to attend.

—EDITOR

EMIGRATION OF DOCTORS

Department of Pathology,
St. Bartholomew's Hospital,
London, E.C.1.

Dear Editor,

The figures produced by Andrew Orr for the emigration of British doctors are alarming but, if anything is to be done to prevent this enormous financial loss, it is necessary to try to discover the reasons for it.

Some doctors undoubtedly go because they think that they can earn more money, although they usually deny this stoutly when challenged. However, in relation to the earnings of the rest of the community the general practitioner in this country, particularly the young one, is well off. Not many other jobs provide an income of £5,000 a year before the age of 30.

Most doctors say they go because they think the practice of medicine overseas is more interesting. They do not like the life that the general practitioner leads in this country, and they cannot cope with the rat race that is hospital medicine. The training of medical students in this country, particularly in London, is geared to the type of medicine which is practised in teaching hospitals. The number of students who can possibly hope to do this sort of work for life is less than 10%. The rest must go into other fields which are less interesting, or emigrate.

There are therefore two approaches to the problem. One must either alter radically the standard curriculum for medical students away from academic medicine, or make the life of the family doctor more interesting.

One way in which the proportion of organic medicine which the general practitioner sees and treats can be increased, is to use computers and non-medical personnel to do the preliminary sorting. This is expensive, but so is the wastage of doctors. The computer can do the history taking, look at the routine investigations and order any other special ones. The doctor only sees and examines the patient when all the information is available. He is thus acting as a physician, not a sorting clerk cum father confessor, and he should be able to cope with most situations himself.

The computer will make a few mistakes which should be rectified at the final consultation. Doctors also make mistakes particularly if they are bored and overworked. One of the most important functions of the computer is to separate the "well", the "worried" and the "sick". A great deal of expensive medical time both in outpatients and in general practice is spent in dispensing sympathy. This is very valuable to the patients who consider it their right, but is it sensible in a health service on the verge of bankruptcy to employ such highly trained personnel in this task. The doctors cannot afford the time and many resent it. Society should provide a cheaper shoulder to weep on.

It is no use training medical students as if they were all going to be consultant physicians and expect them to go into practice in Stepney. They won't go.

Yours sincerely,

BARBARA SMITH, F.R.C.S., M.C.Path.

DISEASES AND DEATHS FROM AVOIDABLE CAUSES

Ivy House,
35 High Street, Bushey Herts.

Dear Editor,

May I, as one engaged in preventive medicine (one of the few Bart's men so engaged), say how refreshing it was to read Mr. Burkitt's article. Volumes are written on pathology, diagnosis and treatment of disease, but usually only token mention is made of aetiology. Even this is dismissed too often under some such phrase as "idiopathic" which satisfies students and their examiners but in fact merely begs the question. The probable reason for this, as is clear from Mr. Burkitt's article, is that causation is so complex, remote, and difficult to extricate from the patient's history that we close our eyes to it. Even where we have a pretty good idea, it its difficult or impossible to apply. A very large portion of our ills are in fact due to our own "self abuse", inflicted on ourselves personally or by the kind of social environment in which we live. Tobacco and refined carbohydrate, as Mr. Burkett mentions, are two examples. Surely it is as much our duty to point this out as it is to reach a correct diagnosis. Sick persons and their relatives are in fact very receptive to health education. How often do they ask, "What has caused this, doctor?" It is true that we can rarely give an absolutely accurate direct answer, but we should, nevertheless, take the opportunity of saying that, even if not applicable in their case, such things as smoking, sugar, lack of exercise, saturated fats, lead paint—or whatever seems appropriate or even indirectly related—might have contributed to the condition. Only in this way shall we gradually make the public aware that much of the disease from which they suffer should be preventable.

Yours faithfully,

W. NORMAN TAYLOR,
(Medical Officer of Health,
S.W. Herts Combined Districts).

MISCELLANEOUS

The Editor's post last week included a letter from Mr. BAISS from Rugby, whose father had died recently at the age of 94. Searching through his old papers he had found a faded receipt belonging to his father, dated 1909, referring to his becoming a Life subscriber to the Bart's *Journal* for the princely sum of three guineas. Even the poorest mathematician will appreciate that 61 years of the *Journal* for this sum is good value, especially considering that today's annual sub. is two guineas.

Mr. Baiss adds that his father qualified at Bart's in 1899, and retired from the Navy in 1911 after serving in gunboats up the Yangtse River, in the course of which he became one of the few (or only?) Bart's men to be awarded the Boxer medal.

Erratum

In the Review of the Wine Committee Barbecue Ball contained in the August *Journal*, "the SETTLERS" were mistakenly referred to as "The Spinners." The Editor would like to apologise for any inconvenience caused.

Announcements

Births

BONNER-MORGAN—On February 12, to Drs. Barbara (neé Barnard) and Robin Bonner-Morgan, a daughter (Emma), sister for Sarah, Charlotte and Rebecca, at Melbourne, Australia.

SCOTT-BROWN—On June 25, to Margaret and Graham Scott-Brown, a daughter.

Engagements

DRYNAN—CULLEN—The engagement is announced between Dr. Jim Drynan and Miss Olive Cullen.

MCNIE—CAIGER-SMITH—The engagement is announced between Dr. Dhuie John McGregor McNie and Miss Susan Ruth Caiger-Smith.

O'FARRELL—SMITH—The engagement is announced between Mr. Brendan David O'Farrell and Miss Sarah Caroline Smith.

Marriage

REDDINGTON—TREACY—The marriage took place on June 6 between Mr. J. L. Reddington and Miss M. M. Treacy.

Deaths

BAISS—On May 25, Dr. Llewelyn Arnold Baiss, O.B.E. Qualified 1899.

DALTON—On June 23, Dr. Charles Henry Chesshyre Dalton, M.D., D.M.R.E. Qualified 1924.

HUNT—On July 4, Mr. Alan Henderson Hunt, M.D., F.R.C.S. Qualified 1934.

Appointments

Royal College of Surgeons of England

Mr. R. S. Murley has been elected a member of the council.

Fellows of the Royal College of Surgeons of England

Beryl Julian Britton.
Thomas Michael Bucknill.
Harvey White.

M.D. Cambridge

Richard William Shand.
Nicholas Henry Dyer.
William Stewart Shand.

Fellow of the Royal College of Physicians and Surgeons of Canada

Dr. John R. Brown, M.D., Ph.D., Professor of Physiological Hygiene at the University of Toronto.

St. Baratholomew's Hospital

Dr. R. H. Ellis, M.B.Lond., F.F.A.R.C.S., D.Obst., consultant anaesthetist.

Change of Address

Mr. William Shand, F.R.C.S., is now at the Royal Berkshire Hospital, Reading, Berks.

Dr. and Mrs. P. Wyne-Jones are now at "Ty'n-Y-Coed", Balcombe, Sussex.

OBITUARIES

FREDERICK CECIL WRAY CAPPS, F.R.C.S.

Mr. F. C. W. Capps, consulting surgeon to the Ear, Nose and Throat Department of St. Bartholomew's Hospital, died on June 12th at the age of 72.

Coming from a naval family, he was destined for a career in the Royal Navy, and went to the Royal Naval College at Osborne, but his eyesight was not good enough for the standards of that time and he left to enter Epsom College from whence he came to St. Bartholomew's as a medical student in 1916. Before the First World War was over, he was back again with his first love, the Royal Navy, serving as a surgeon probationer, and after the war returned to Bart's to complete his medical studies.

As a student he won several prizes including the surgical Brackenbury, and was soon afterwards appointed house surgeon to Sir Holbert Waring. After a period of demonstrating in anatomy and in pathology, he became chief assistant in the Ear Department to Mr. Sydney Scott and Mr. Douglas Harmer, and was eventually appointed assistant surgeon to the Throat Department in 1930.

As a student he took a leading part in many athletic activities. He played rugger for the 1st XV, and was a great skier, rarely missing his annual visit to the snow slopes, which he continued until quite late in life.

He had been president of the Students' Union, and of the Drama Society, and later of the Rugby Football Club. He rarely missed a cup-tie, and was a critical and vociferous supporter sparing neither the referee nor the players. He attended the annual dinner of the rugger club in the Great Hall this year when they celebrated winning the Cup for the second year in succession. He loved teaching, he loved his students, and his students loved him, but he did not suffer fools gladly. His teaching round on Friday evenings in Henry Butlin ward was great fun and his scathing criticism was never resented, for it was never unkind.

During the 1939-45 war he assisted Sir William Girling Ball in organising the Bart's sector of the E.M.S. based on Mill Hill School. After the war, on the retirement of Mr. Bedford Russell, he became head of the Ear, Nose and Throat Department now merged into one department. Owing to the ravages of war the inpatients had to remain at Hill End Hospital until 1961, but he played a major part in the planning, equipping, and organisation of the Q.E.II block which was to house the E.N.T. ward, and he named the ward Henry Butlin ward.

He was a great college man, and served as vice-president and treasurer of the Medical College during the phase of rebuilding of the Charterhouse site where so much had been destroyed. He served for many years on the Board of Governors of the Hospital, and was a member of its executive committee.

Many honours came his way. In 1949 he was the general secretary of the 4th International Congress of Otolaryngology held in London, a triumph of organisation in view of the difficulties existing at that time. He served as president of the Section of Laryngology of the Royal Society of Medicine and in 1957 gave the Semon lecture, the foremost honour in Otolaryngology. His subject was the innervation of the laryngeal musculature and for months he patiently dissected post mortem specimens in the E.N.T. Department to the considerable discomfort of every one working in the department, but the work deservedly won the award of the Semon medal which was presented after the lecture.

For many years he served as consultant laryngologist to the Royal Navy, and in the last year of his life was president of the United Services Section of the Royal Society of Medicine.

As a clinician, he had a natural shrewdness. He was outspoken, and decisive, and had a radical approach to surgical problems. He had a tremendous experience of the surgery of cancer of the head and neck and wrote many important papers, and spoke often at meetings, on the subject. He had a clear mind, and a facility for writing.

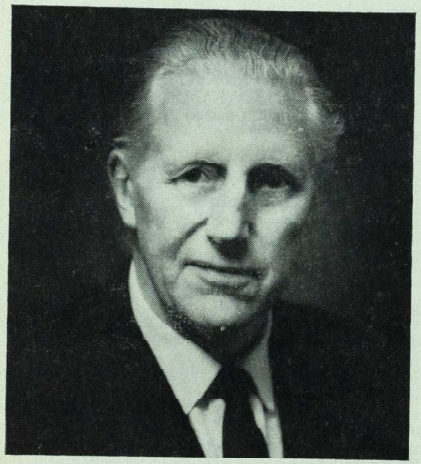
He built up a close liaison between his department and the Department of Radiotherapy and many patients who attended the joint clinic had good cause to be grateful for his cheerful encouragement during their treatment and follow-up. Over the years he held appointments at many hospitals—the Metropolitan, the Willesden General, the Victoria Hospital, Barnet, the Hackney Hospital, the Luton and Dunstable Hospital, and the West Suffolk Hospital, Bury St. Edmunds. He retired from the active staff of Bart's in 1963, and was "seen off" by a large gathering of his former house surgeons who had worked for him during his 33 years on the staff.

He was a great lover of parties, and was himself a generous host. Before the war, he used every year to take all his helpers—chief assistants, clinical assistants, house surgeons—to dine at Simpsons, on to a theatre, finishing a magnificent evening with supper at Rules in Maiden Lane.

One of his great delights was to attend the meetings of the Fountain Club, of which he had been clerk and twice master. Freddie Capps will be sadly missed by otolaryngologists in Great Britain and in many countries overseas, for he was widely travelled, and a well-known and popular figure at international meetings, but especially he will be missed by the present staff of his old department, where he was always a welcome visitor, and who endeavour to carry on his tradition and maintain the high standards he set.

J.W.C.

MR. ALAN HUNT, D.M., M.Ch., F.R.C.S.



Alan Hunt's career as an outstanding surgeon has been well written in *The Times*, *B.M.J.* and the *Lancet*. In the opinion of the writer this *Journal* should stress his services to Bart's and the talents which he so well husbanded.

From early days at school Alan exhibited the great talent of hard work and thoroughness in all he undertook—whether in his studies of the classics and history in his early forms or, more especially in his study of biology, physics and chemistry when he became a specialist. This enabled him to enter Balliol College with an exhibition in natural sciences.

While at Oxford he enjoyed life as always, worked hard and won the Theodore Williams Scholarship in Anatomy. He also played cricket and soccer for his college and various clubs. As a cricketer he made up for lack of skill by real enthusiasm and enjoyment—so that either as a wicketkeeper or a batsman he was most useful to his side. His nimble fingers could make models from cardboard to assist his studies, dissect the cadaver and later perform delicate and intricate surgery. At the same time their strength enabled him to manipulate tissues with great firmness and precision.

As a house surgeon to Mr. (later Sir) William Girling Ball and Mr. Basil Hume he was outstanding for his skill, his hard work and his endurance. And at all times his cheerful disposition would add to everyone's enjoyment of his company.

He was ill on one or two occasions in his life, and had a small operation to remove a toe but he chose to ignore his illnesses and strove to return to work—usually too soon. But undoubtedly these illnesses gave him an insight into the feelings of his patients enabling him to help them through their fears and suffering.

He enjoyed the surgery of trauma and indeed at one time thought he would take it up as a speciality—his ingenuity and strength made bone manipulation easy for him. His first job as a "cutting surgeon" was soon after he got his F.R.C.S. in 1937, when he was appointed second assistant on the Surgical Unit under Professor Paterson Ross, Mr. Naunton Morgan and Mr. Michael Boyd. Here he developed his surgical technique and showed his powers as a teacher both to students and the housemen. He also began his work on wound healing with special reference to Ascorbic acid which ultimately formed his thesis for the degree of D.M. Oxford in 1940. This was the work he did for the Luther Holden Research Scholarship.

By the outbreak of the war in 1939 Hunt was Chief Assistant to Sir Girling Ball on the yellow firm. He was appointed surgeon in the E.M.S. and stayed at Bart's to take care of the surgical practice of the hospital with Mr. Harold Wilson, Mr. Naunton Morgan and three others. Some of us lived in the Anatomy Department at Charterhouse Square, and turned the body store into an air-raid shelter.

During his excellent service in the "blitz years" he found time to marry and to gain the degree of M.Ch. Oxford, while taking on more and more of the general surgery at Bart's.

He joined the Army in 1942 and there his career was distinguished as a surgical specialist but cut short by a disability causing lameness. He returned to civilian life in about 1944 and was appointed Temporary Assistant Surgeon at Bart's. He also worked at the Cancer Hospital (now the Royal Marsden) and Barnet General Hospital. In 1946 he was one of the first appointments to the staff of Bart's after the war. He joined Mr. Hume on the yellow firm—which firm he remained with for the rest of his life.

His international reputation in the treatment of cancer of the jaws was developed at the Royal Marsden, but his even greater reputation in the treatment of Hepatic Cirrhosis was developed at Bart's and brought us much vicarious renown. "Hunt's shunt" was an operation he made peculiarly his own. He studied the disease, the anatomy and the technique of porto-caval anastomosis in his usual very thorough manner. He kept very accurate and meticulous notes on all his cases and supervised the follow-up himself. Thus it was that he won the Jacksonian Prize in 1956 and published an excellent monograph on the subject. During the last fifteen year Alan Hunt had been ni great demand as a teacher of his techniques at home, as a lecturer and operator abroad and had done about 900 porto-caval anastomoses at the time of his death. An acknowledged master of the operation throughout the world.

He was chairman of the Medical Council and other Committees and always found time to carry out his work in the Hunt manner. Among other things his tidy mind was turned with good effect to the problem of records and their storage. Many registrars and housemen will recall with pleasure their terms on the yellow firm; the positions they now fill are manifest evidence of Hunt's skill as a teacher, and the aftercare he gave his young men.

Bart's has much for which we must be grateful in Alan Hunt's career. Not the least for the great courage and determination he showed in the last months. He came back to some work and took the chair at the Standing Committee of Surgeons as recently as April.

We extend our most sincere sympathy to his widow and family and say "thank you Alan for your personality and your work".

E.G.T.

Nurses Report

Although there has been an absence of the nurses' report for the past three months, there have been certain changes in the nursing world during that time.

Now that we are allowed to move out into flats after 18 months of training, there has been a steady queue of vans, wheel-barrows and char-a-bancs outside Charterhouse, Maybury and Bryanston, transporting boxes, cases and teddy bears to areas within a large radius of Bart's; from Clapham Common to Hampstead Heath and Stoke Newington to Shepherds Bush. Judging from my set alone, the general opinion is that having the choice to live out is the answer to so much of the discontent that previously existed. We now feel that we come to the hospital to work and when finished we go "home" and therefore out of the rather unnatural make-up of hospital life. The only problem that arises is when one is on early duty on Sunday and the tubes do not run until 7.30 a.m.

There are now quite a few of the house-staff, students and lay-staff eating in the nurses' dining-room/self-service canteen. It is noticeably much cheaper to eat there than for example, College Hall, and it has been reckoned that ten shillings per week could be saved on suppers alone. We do hope that this new arrangement will lead to a greater rapport between nursing and medical staff; although I followed two students down the surgical block stairs recently and one said "Come-on R . . . , let's have tea in the nurses' dining-room." Said R . . . "Not likely, what if ***** came rushing up to our table? No, I think I'd rather go to the lay-staff dining-room." It reminded me of a scene from a book by Richard Gordon, the portrayer of beefy nurses.

On a more serious note, there seems to be a lot of first year nurses who know very few people when they first come up to London. We have a social secretary, Mrs. Illiffe who has an office near to the nurses' post office. If anyone has any constructive suggestions I am sure that they would be most welcome.

Miss Hector, who had been the principal nursing officer of the Teaching Division and head of the department since 1946, retired at the end of July. There was a party in her honour on July 29th in the Great Hall. We send her our sincerest thanks and best wishes for her retirement.

ROS ASPDIN.

A Rude Unhinging of the Machinery of Life

M. H. IRVING M.D., ChM., F.R.C.S., F.R.C.S.E.,

I have seen a patient admitted into Guy's Hospital who had a laden wagon pass over his knee; the bones were crushed but there was no wound or haemorrhage yet the person died a few hours after his admission. I have seen also a man who fell into a vat of hot beer, by which both of his lower extremities were scalded but the body escaped any direct injury. This man's pulse was very small and feeble; his skin was cold, his teeth chattered, reaction took place and he died in eight hours notwithstanding stimulants were freely given.

I have known a limb amputated for compound fracture, above knee, and the patient die in four hours after, without any reaction, the body was covered with a cold perspiration and the pulse was scarcely perceptible.

SIR ASTLEY COOPER, 1839.

It is almost certain that nowadays Sir Astley's patients with their limb fractures and scalds would have been saved by the timely infusion of blood or plasma substitutes. Even so, the clinical state he describes is still encountered and on occasions today's clinicians stand by the bed and watch almost as helplessly as patients such as those with fulminating pancreatitis or after the resection of a ruptured aortic aneurysm succumb in an almost identical manner.

These patients die in what is usually termed "shock." Innumerable attempts have been made to define what is meant by this term and there is a wide divergence of opinion amongst those who have so attempted. Despite all the investigations that have been carried out, many would say that the best definition ever was that proposed by GROSS (1850) which has been used as the title for this article. The use of the term "shock" in clinical situations has consequently been criticized on the grounds that it lacks definition and means different things to physician, surgeon and obstetrician. Because of this confusion some workers have called for a total abandonment of the use of the word.

There is no doubt that if "shock" is used as a definitive diagnosis implying the existence of a condition for which there is one standard treatment, then criticism of its use is justified. The merit of the word lies in its impact, for, when it is used to describe the clinical state of a patient it indicates that, irrespective of the cause, that patient has entered upon a final common pathway which, if not urgently treated, will end in death. Once the desperate nature of the patient's condition has been communicated then use of the word ceases to have any value, for thereafter treatment demands that the cause and deficit must be individually evaluated in each patient in order that the specific corrective measures may be applied.

HYPOVOLAEMIA
INFECTION
MYOCARDIAL FAILURE
EMBOLISM
NEUROGENIC
DRUG INDUCED
ENDOCRINE FAILURE

Fig. 1. Shock inducing factors

The commonest type of shock syndrome consisting of a pale sweating oliguric hypotensive patient with a weak rapid pulse and mental confusion may result from any of the factors listed in Fig. 1 above, acting alone or in combination. In surgical practice, the commonest cause of such a shock state is hypovolaemia resulting from loss of whole blood, plasma or water and electrolytes. Infection, usually though by no means invariably, with gram negative organisms, also accounts for a significant proportion of the shock states encountered in surgical wards. Because in this latter type of shock there is often no obvious external fluid loss, and isotopic measurements of red cell mass and plasma volume do not show a reduction in the total blood volume, the condition has been termed "normovolaemic shock." This term has been, as will be subsequently explained, a considerable source of confusion in the management of shock due to infection.

Recognition of the shock state

Hypovolaemic shock, providing its existence is recognised, is the easiest type of shock to treat responding readily to the adequate and rapid replacement of the lost fluid. Difficulty in managing this type of shock arises because its presence may go unrecognised for long periods, mainly because the compensatory reaction of the body to fluid loss is such as to mask the presence of hypovolaemia. Thus fluid loss sufficient to cause a drop in cardiac output and arterial pressure initiates, via the vasomotor centre, an increase in sympathetic activity which is reflected by a rapid rise in plasma adrenaline and noradrenaline levels. The immediate effect of this activity is to cause a rise in heart rate and a constriction of both the resistance and capacitance vessels thereby redistributing blood flow away from non-essential structures in order that perfusion of vital viscera may be maintained.

This increased sympathetic activity is the principal factor producing the pallor, cutaneous vasoconstriction, sweating and tachycardia which constitute the accepted physical signs of shock. So effective may be this compensatory activity, especially in the young, that the pulse may return to a normal rate and the arterial blood pressure may rise to normal or even mildly hypertensive levels. Herein lies the first source of confusion for if the state of constriction of the cutaneous veins is ignored and attention paid only to the pulse rate and arterial blood pressure, the hypovolaemic patient may be left in the dangerous state of "compensated shock." As such he is at considerable risk for an episode of rough handling or the induction of anaesthesia may radically disturb the compensatory mechanisms and throw the patient into a state of profound hypotension.

Associated with the primary cardiovascular reactions to hypovolaemia are the secondary phenomena which may in themselves be a source of confusion. Thus the oliguria which results from changes within the renal circulation acting in combination with catecholamine induced rises in antidiuretic hormone, may, especially in cases where the presence of hypovolaemia is not apparent, be interpreted as evidence of renal failure and treated by fluid restriction. Alternatively, the glycosuria that occurs secondary to the hyperglycaemia stimulated by the increased circulating adrenaline levels may be regarded as evidence of diabetes and treated as such, thereby diverting attention away from the underlying causative hypovolaemia. Similarly, electrocardiographic changes induced by acute fluid loss may be misinterpreted as indicating a primary myocardial cause for the hypotensive state, and thereby set in train a radically different mode of treatment.

Perhaps the most misleading sign of all is the mental confusion that accompanies the shock state and which at times may be the most predominant feature. As such it may be easily diagnosed in the recently traumatised patient as resulting from head injury, and in the post-operative patient as "toxic psychosis." In these cases rapid resolution of the abnormal mental state occurs upon correction of the hypovolaemia.

Failure to recognise the existence of a hypovolaemic shock state occurs because the presence of fluid loss has not been appreciated. It was studies carried out principally at Birmingham Accident Hospital that demonstrated to the British medical profession the considerable blood and fluid loss that could occur into the tissues around an injury with only minimal change in limb girth. This was especially apparent in fractures of the femur and pelvis where it was estimated that losses of 1 to 3 litres could be accompanied with little external evidence. (CLARKE and FISHER, 1956.) Even more difficult to assess is the considerable fluid loss that occurs into the peritoneal cavity and retroperitoneal tissues in acute inflammatory conditions such as haemorrhagic pancreatitis.

CLOSED FRACTURE ULNA AND RADIUS	:	0.5 litre
CLOSED FRACTURE FEMUR	:	1-2 litres
OPEN FRACTURE TIBIA AND FIBULA	:	1 litre
OPEN FRACTURE FEMUR	:	2-2.5 litres
FRACTURED PELVIS	:	2 litres

Fig. 2.

Blood loss associated with some common fractures

With appreciation of the extent of the fluid loss that could occur in both trauma and acute inflammatory disorders, and the necessity of adequately correcting the loss, treatment of shock became at once both more rational and more successful. In its turn, however, this led to the realisation that it was possible for a shock state to persist even after all the estimated blood and fluid loss had been replaced, thus introducing the concept of normovolaemic shock.

Initially, therapy for normovolaemic shock revolved around the administration of vasopressor drugs, steroids and cardiac stimulants for it was felt to be both illogical and dangerous to administer further fluid to a patient in whom isotope dilution studies had shown the presence of a "normal" blood volume. Therapy along these principles, however, met with little success, and no significant progress was made in the management of normovolaemic shock states until it was appreciated that the blood volume required by a shocked patient frequently bore no relation to that needed when he was healthy. Thus in the normal patient only one third of the capillary bed is open at any one time (Fig. 3—1) but in certain shock states, such as gram negative septicaemia, virtually all the capillary bed may be open in which case a so-called normal blood volume would represent a severe degree of hypovolaemia, large amounts of additional fluid being required to fill the dilated vascular beds (Fig. 3—3).

In these circumstances, the only appropriate way of estimating the required blood volume is by measuring the central venous pressure. In so doing it must be borne in mind that this too may be misleading if absolute values, rather than changes of pressure in response to fluid infusion, are taken as the guiding factors.

Treatment of either absolute or relative hypovolaemia thus commences with the infusion of electrolyte solutions, plasma substitutes such as dextran 70, or blood; whichever is considered necessary. The use of blood, with all its attendant dangers, should be restricted to those cases where the loss is too great to be effectively compensated by blood substitutes. The necessity for restoring haemoglobin levels back to 100 per cent after trauma or surgery is now being questioned and it has already been shown that the use of dextran 70 as the initial replacement for blood loss gives as good volume replacement and better post-operative circulatory dynamics and perfusion than does the use of whole blood. (VICKERS, HEATH and DUNLAP, 1969.)

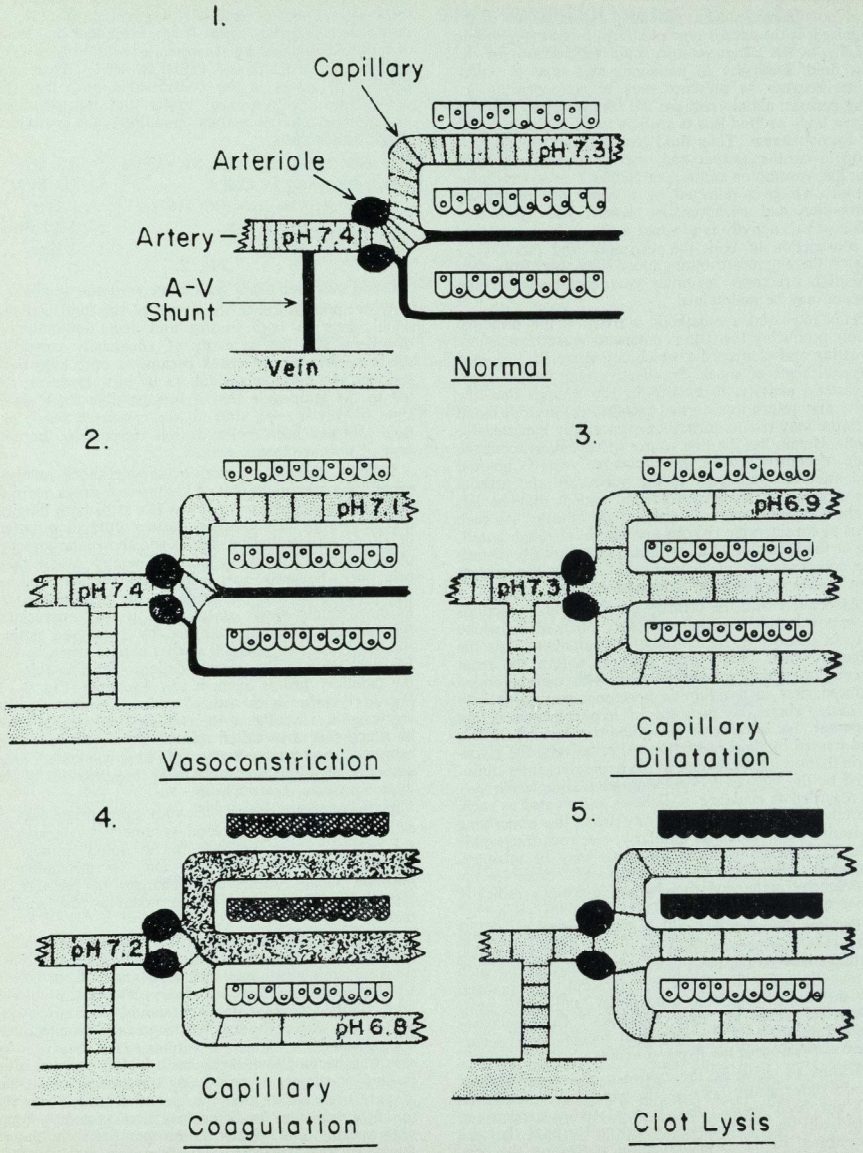


Fig. 3

Replacement is continued until the shock state is reversed or the venous pressure indicates that the myocardium can no longer accommodate a further fluid load. In such circumstances, pharmacological support with isoprenaline, phenoxybenzamine, digoxin and steroids may be of value. Because of undoubted damage to the reticuloendothelial system in shock states, antibiotic cover is usually regarded as a useful adjunct to treatment.

Were this treatment effective in all cases there would be little interest in the problem of shock but, as has already been stated, there are those whose shock state cannot be reversed and who in spite of all treatment pass into a state of "irreversible shock." It is attempts to understand what has happened to these patients that stimulates the production of some 2,000 papers a year on the subject of shock.

Any "explanation" of shock must of necessity be an oversimplification for as HOWARD (1953) observed, "shock affects every tissue, organ and system throughout the body." It has been the failure to appreciate this that has led to the unitary theories of shock that have incriminated single organ failure or the activity of one toxic substance released during the period of hypotension.

EXPERIMENTAL STUDIES

Irreversible shock is elegantly, though artificially, reproduced by the investigator in animal experiments involving blood loss. If a dog or sheep is bled into a state of hypotension and maintained at an arterial blood pressure of 40mm Hg systolic for 1-2 hours, subsequently being reinfused with the shed blood, it will appear to be none the worse for its period of hypotension. If, however, the period of hypotension is lengthened, the chances of it being unaffected diminish until eventually there comes a time when, in spite of retransfusion of all the shed blood and restoration of a normal blood pressure, the animals rapidly become hypotensive and, in spite of all accepted lines of treatment, dies.

What then is the cause of this deterioration which though most easily experimentally reproduced by haemorrhage is probably common to all forms of shock. As the decades have passed so have theories been advanced and withdrawn. Even the most widely accepted of the current theories implicating vasoconstriction, tissue underperfusion and tissue hypoxia is under heavy challenge.

It is of value to look at some of the theories that have been advanced.

The cardiac theory: Guyton and Crowell (1961) considered that the primary cause of shock states, irrespective of their aetiology, is a low cardiac output secondary to progressive myocardial failure. They based their views on analysis of intracardiac pressures, electrocardiograms and other indices of myocardial function carried out during shock experiments.

Although undoubtedly of significance in shock resulting from myocardial infarction, their theory has not gained wide acceptance as an explanation of the onset of irreversibility in other types. In haemorrhagic shock, the myocardium functions efficiently well into the stage where irreversibility is inevitable. A rising right atrial pressure is only seen in the terminal stages, and is then evidence of involvement of the heart in the generalised organ failure that is occurring throughout the body.

The endotoxin theory: FINE (1965) claimed that the E. Coli population normally resident in the gut is continually producing endotoxin which gains access to the portal circulation. In the normal course of events, this is detoxified in the reticuloendothelial system of the liver and spleen. Basing their theory on experimental work carried out in dogs they claim that as a result of profound compensatory vasoconstriction in the splanchnic area occurring in response to blood loss, the reticuloendothelial system in the liver and spleen is damaged. As a result of this, the absorbed endotoxin is no longer inactivated and the animal dies from its effects. On this basis, Fine reasoned that local anaesthetic blockade of the coeliac ganglion would be a useful therapeutic measure by which to prevent or reverse the compensatory vasoconstriction in the splanchnic bed.

The theory is, however, difficult to apply to man for in the latter the intense vasoconstriction of the splanchnic vasculature to the point of causing gangrene of the intestinal mucosa so characteristic of the dog is not seen. Further evidence against the mechanism being contributory in man stems from failure to isolate endotoxin from the blood of shocked patients. Perhaps the most formidable argument against Fine's reasoning stems from the work of EINHEBER (1961) who showed that it was possible to produce classical irreversible shock states in germ free animals.

Disseminated intravascular coagulation theory (Fig. 3) propounded by Hardaway (1968) this theory rests upon the findings of intravascular fibrin plugs throughout the viscera of victims of shock states. It has long been recognised that acute haemorrhage is associated with increased coagulability of the blood . . . in haemorrhage, that blood which is shed last clots first, observed Stephen Hales in 1733. Hardaway's contention is that in prolonged shock these fibrin plugs in the capillaries, which would normally be broken down by fibrinolysis and washed away if normovolaemia was restored, prevent normal perfusion of the capillary beds thus causing permanent and extensive cellular damage. As a secondary effect, because all the clotting factors have been used up, the blood becomes hypocoagulable and thus leads to a haemorrhagic state.

There is no doubt that what Hardaway described does occur in both the experimental and the clinical shock state. It is, however, likely that the phenomenon is but a manifestation of a more generalised process which is itself the lethal factor. As evidence of this must be cited the fact that even animals heavily anticoagulated before the induction of blood loss readily develop a state of irreversible shock.

Sympathetic overactivity theory: This theory forms the basis of current therapeutic reasoning on the management of the difficult shock problem. The assumed mechanism by which hypovolaemia leads to irreversible shock is summarised in Fig. 4.

Hypovolaemia
Arterial hypotension — reduced cardiac output
compensatory sympathoadrenal activity
arteriolar vasoconstriction
tissue underperfusion
tissue hypoxia
metabolic acidosis
irreversible cellular damage

Fig. 4

The origin of this theory stems from two different experimental observations. The first showed that a state of irreversible shock remarkably similar to that seen after prolonged haemorrhage could be induced by the infusion for periods of 2-3 hours into healthy animals of adrenaline or noradrenaline. Such animals develop a metabolic acidosis, hyperventilation paralytic ileus, intestinal ischaemia and rising haematocrit during the infusion, and a progressive irreversible hypotension after the infusion.

The second significant observation was that prevention of sympathetic activity either by surgical ablation of the sympathetic nervous system or by pharmacological means such as premedication with ergot, ganglion blockers and dibenamine improved the animal's tolerance to the shock inducing process.

With the advent of more specific sympatholytic agents such as phenoxybenzamine, the experimental studies were extended to the clinical field. The promise of the vasodilator approach was, however, apart from a few exceptions, not maintained. Probably the most significant benefit to have been obtained from these experiments was the clear demonstration of the illogicity and danger of treating shock states with sympathomimetics in circumstances where the bodies' own sympathetic activity was so excessive as to raise adrenaline and noradrenaline levels up to 100 times their normal values.

Although it was realised that there were other aspects of catecholamine activity besides the alpha or vasoconstrictor property, it was not until effective beta blocking agents, such as DCI and propranolol became available that attention was paid to the whole spectrum of adrenergic activity.

Several workers had already shown that blockade of but one aspect of adrenergic activity, i.e. the alpha activity, was by no means always effective in preventing the metabolic acidosis and the onset of irreversibility in adrenaline infusion and post-haemorrhagic shock.

Attention was thus directed to the total blockade of adrenergic activity using alpha and beta blocking drugs in combination. The reduction in the degree of metabolic acidosis together with the markedly improved tolerance to sustained haemorrhage, i.e. hypotension, contrasted with the greater degree of vasoconstrictor activity that was apparent compared with those animals in whom alpha blockade alone was used. These findings along with others cast doubt upon the so-called "vasoconstriction-tissue underperfusion" explanation of metabolic acidoses and irreversibility IRVING (1968).

Current theory now suggests that both the damaging effects of prolonged catecholamine activity and the protective effects of the blocking agents are exercised through a much more fundamental process than reduced capillary flow and tissue hypoxia.

This complex question has yet to be unravelled but already KOVACH (1970) in some remarkable work has shown that the protective effect of phenoxybenzamine may be the result of a direct effect upon the oxygen demands of the mitochondria.

The stimulating aspect of all this work is not so much in the field of shock itself, but in the general problem of the response of the body to stress. It is becoming increasingly clear that catecholamines, released in large quantities in times of stress, have widespread activity through both their alpha and beta effects, and that when sustained this activity may be deleterious. It is already recognised that there are close inter-relationships between the catecholamines and other hormones such as ADH, thyroxine and the adrenocorticosteroids. Yet to be explored are the relationships with fibrinolysis and the clotting mechanisms.

It may well be that in the future a better understanding of and ability to manipulate the adrenergic response will lead to means whereby it is possible to improve the tolerance of the patient to the operative trauma of major surgery.

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Fig. 3. Micro-circulation in shock. From HARDAWAY, R. M. "The Management of Shock". 1968. Courtesy of Charles C. Thomas. Publishers. Springfield. Illinois.

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JOURNAL CHRISTMAS CARD 1970

The Illustration is a coloured print of a 14th century manuscript from the Hospital Archieves.

The Journal is again producing a new Christmas card this year which will be available throughout the Hospital.

The card will cost 1/-. Overprinting of names and addresses can be arranged at a cost of approximately 50/- per order. This can only be done if the orders are received before the end of September.

All enquiries and orders should be addressed to the Art Editor, St. Bartholomew's Hospital Journal, St. Bartholomew's Hospital, West Smithfield, London, E.C.1. and clearly marked "Christmas card".

All orders must be accompanied by a remittance before they can be dealt with.

Salmon Wheel

By David Reith

" . . . They shall judge; so shall it be easier . . ."

—Exodus.

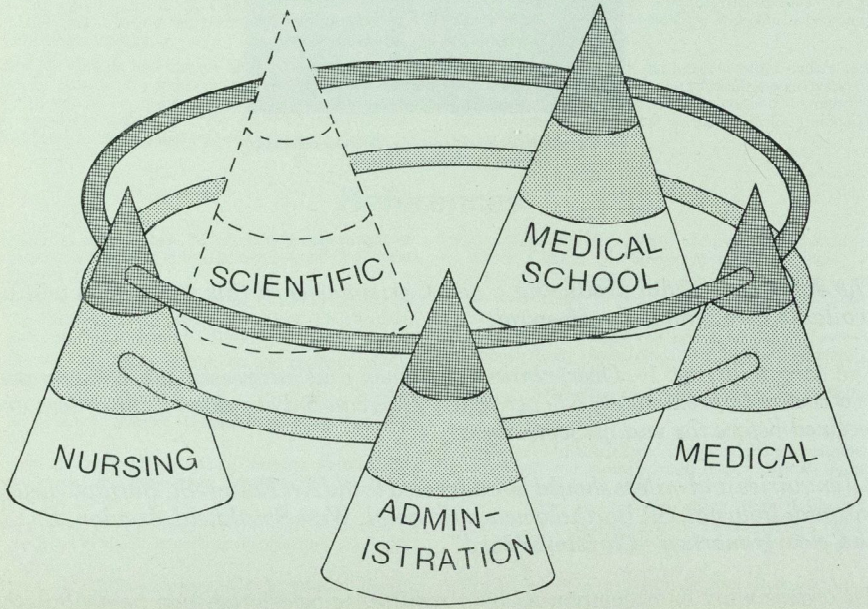
A first glance at some reports which have been thrust at the Hospital Service seems less reassuring, for at local management level the existing patterns of administrative and clinical organisation screen some of the merits of both Salmon and Cogwheel.

These are firstly to create a management structure in the nursing and medical services which is more effective than at present: and secondly to use these structures to advantage by allowing decisions to be taken at the right level through a more logical understanding of who should be considering what.

Clearly these are not unfamiliar ideas: but what is less obvious is the rate of change in hospital management. Until quite recently the pyramids of nursing and administrative services—together with the "non-hierarchy" of consultants—coped adequately with the management adjustments which arose from the traditional roles of both teaching and non-teaching hospitals. This is no longer really possible, and with area services and a White Paper in the air these traditional roles are shifting rapidly, albeit towards something often more easily felt than identified. At the same time it is widely accepted that no major development in a hospital's activity should take place in isolation either in terms of resources or without consideration of its effect on other disciplines.

How then can a hospital evolve to be in a better position to manage these changes? Before looking more closely at this, consider a key to the management of change: communication. Decisive management is encouraged either where a hospital's total situation itself creates over-riding priorities for the organisation as a whole: or when the mechanics of internal communication and decision-taking are clearly effective in controlling the marginally competing priorities that are constantly being generated. If neither applies, and this may happen in hospitals with new roles, then a state of less conclusive management becomes a risk despite much good will and effort

Where then do Salmon and Cogwheel come into this picture? While Salmon concerns the nurses, and Cogwheel the doctors, there has yet to be a practical blueprint to show how both should integrate with existing internal hospital administration. Salmon, Cogwheel and the administration can be regarded in the form of pyramids which are still used by allowing demands and decisions to move up and down their axis' before passing these on from the apex of one pyramid to another. This can slow down decision making and, moreover, ensures that pressure of business blocks each apex so that policy cannot be given proper consideration. It is therefore becoming essential to consider decision making



in horizontal as well as vertical terms. Clearly this is an established practice at unit, ward and departmental level, but it does have a habit of breaking down where committees are concerned.

Some hospitals, however, are trying to tackle this problem in the belief that in company with other complex organisations they must concentrate on the functional relationships of their component management activities in order to achieve generally well recognised aims. That such a multi-disciplinary approach to management is as appropriate in hospitals as to the newer forms of technology such as the Apollo programme has now been well accepted by the "pundits" of management education.

Thus, there is a growing realisation that in both large and small modern management systems the inflexible organisation tree cannot adequately reflect what is actually happening, and that a laterally linked structure must be devised. In the hospital context more emphasis was recently given to this approach at a conference on multi-disciplinary management at the Department of Health and Social Security earlier this year, when several teaching hospitals made a notable contribution to the way in which Salmon and Cogwheel could effectively be linked in the administration of a hospital. Further, the Department has now expressed the need to develop a Cogwheel-like structure for hospital scientific and technical services as outlined in the Zuckerman Report.

What, then, is the next step? This is to create the terms of reference for a hospital management team, possibly consisting of the chief administrative officer, the chairman of the medical committee, the chief nursing officer, the finance officer and representatives from the medical school and scientific and technical divisions of the hospital.

The key role of this management team would be to ensure that the Board's policy is carried out more quickly and effectively by studying proposals in depth both before and after consideration by the Board.

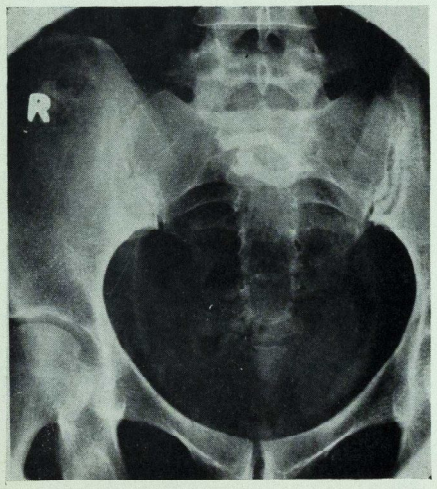
Such a management team is in fact built up by cutting across the pyramids as shown; and indeed a secondary management team could be developed later to work within closely defined areas—such as patient services. This would help to bridge the gaps between the major component activities of the hospital and provide a valuable introduction to management for junior hospital doctors.

At present one cannot predict exactly how a hospital will be managed at local level under any future area administration. Guidance about this from the Department is conspicuous by its absence. But the question whether hospitals are run by something very similar to the present formal structure of Boards and their committees, or by a more remote authority can only, in my view, emphasise the value of multidisciplinary management, carefully developed to meet local circumstances

D. R. Keith is deputy Clerk to the Governors of St. Bartholomew's Hospital.

Spot the Lesion

By Charles Hinds



Questions: *For Answers, see page316*

(a) What is the condition shown?

(b) What is its embryological derivation?

(c) In what organ does it most commonly occur?

Chloroform Anaesthesia First Used at Barts

L. H. Hawkins, Dept. of Anaesthesia Research Laboratory

Sir James Young Simpson introduced chloroform as an anaesthetic agent at a meeting of the Medico-Chirurigal Society of Edinburgh on the 10th November, 1847.[1] Sykes, however, has pointed out that a Surgeon at St. Bartholomew's Hospital, Mr. Holmes Coote, probably used it some five to six months before Simpson.[2]

Evidence of this is contained in two letters to the Lancet dated 1871 (presumably prompted by the death of Simpson in 1870), and 1877.[3, 4] Both are written by a surgeon Major in H.M.S. Indian Army, Michael Cudmore Furnell. In the Spring of 1847 Furnell was a pupil in the Pharmacy Laboratory of Mr. Jacob Bell, and according to the information contained in his letters he was experimenting with "Sulphuric ether" by self administration ("Sulphuric ether" is in fact diethyl ether). He found a bottle of "chloric ether" in the Pharmacy and as he says "with the audacity of seventeen (his age at the time) put some into the instrument and commenced its inhalation". He discovered that it was agreeable, and that it did not produce the irrative cough which made the inhalation of sulphuric ether so unpleasant.

With the encouragement of Mr. Bell, Furnell approached Mr. Holmes Coote at St. Bartholomew's who apparently used it several times on patients in Mr. William Lawrence's private practice. (Holmes Coote was at that time Demonstrator in Anatomy at Bart's and an Assistant Surgeon to William Lawrence). Furnell's recollection was that this was in the month of May, 1847, but it must be remembered that he was reporting this thirty years later.

On returning from India on leave in 1869 Furnell recollects the following encounter with Holmes Coote.

"I one Sunday went down to All Saints, Margaret Street the famous ritualistic church, to escort home a lady, a relative of mine. There, bound, I subsequently discovered, on a similar errand, I saw Mr. Holmes Coote. I had not seen him for sixteen or seventeen years, but his was a face not easily forgotten. I addressed him: 'How do you do, Mr. Coote? You have no doubt forgotten me, but I remember you very well. I am an old Bartholomew's man.' He looked at me for a moment, and then said, 'I remember you; your name is Nell—nell something; you are the man who gave me chloroform many years ago; do you remember?' 'Oh, yes, I remember very well, chloric ether; my name is Furnell.' 'Ah Furnell, that's it; do you remember? Confound it, what simpletons we were not to have proclaimed our discovery, why we had chloroform some months before Sir James Simpson'."

Several questions immediately come to mind to support the credibility of Furnell's account of his discovery of the anaesthetic effects of the contents of his bottle marked "chloric ether". Firstly was "chloric ether" really chloroform? Secondly did Holmes Coote report his use of chloric ether at the time of his using it, and finally are there any independent accounts of this story?

Chloric ether did not appear in the Pharmacopoeias of the time but Gray's Supplement to the Pharmacopoeia and Beasley's Pocket Formulary both list it as an alcoholic solution of Chloroform. It was normally made up to be one part chloroform in six to eight of alcohol. The history of Chloric ether can be traced back to 1832 when a Mr. Samual Guthrie of Sacket's Harbour, New York, first obtained chloroform by distilling chloride of lime and alcohol. He called it Chloride of Olefiant Gas or Chloric ether. Guthrie apparently discovered the intoxicating effects by drinking his product but cannot claim to have discovered it's anaesthetic properties. However, it is mentioned in the literature from time to time and there is no doubt that it was prescribed to be taken orally as an anodyne. The Pharmacy of Bell and Co. in Oxford Street was one place in which it was prepared so there seems to be no doubt that Furnell had access to an alcoholic solution of chloroform in the Spring of 1847.

Furnell himself answers the question as to whether the dilute solution, Chloric ether, was capable of producing anaesthesia by inhalation. In his article to the Lancet in 1877 he remarks that to establish this fact, he wrote to Mr. Callender, another Bart's Surgeon to see if chloric ether could produce anaesthesia. According to Furnell this fact was established by a "Mr. Joseph Miles" but in searching the archives it would appear that he meant "Mills" who was appointed in 1875 as Administrator of Chloroform. Mills prepared a 1 in 6 dilution of Chloroform in alcohol and succeeded in producing satisfactory anaesthesia in three patients.

Holmes Coote in fact did report his use of Chloroform late in 1847 but after the initial reports of Simpson.[5] In his article he credits Simpson with "directing the attention of the profession to this new anaesthetic agent" but he does point out that Mr. Lawrence had for "some considerable time" used in private practice the chloric ether which he knew at that time to be Chloroform in spirit and water. Coote remarks that Chloroform had been used by Mr. Taylor and himself in experiments upon animals and that they reacted less violently and with less respiratory distress than to the vapour of sulphuric ether.

As for independent accounts the only one which can be found is a mention by the editor of the Pharmaceutical Journal in February 1847 (before Furnell's claim of its use in May 1847). The Editor in a note to a communication "On the Inhalation of the Vapour of (Sulphuric) Ether" says:—

"Chloric ether has been tried in some cases with success: It is more pleasant to the taste, but appears to be rather less powerful in its effects than sulphuric ether."

This comment does not identify the users of Chloric ether but it appears from subsequent comments in the Medical Gazette that the experimentalist was Mr. Jacob Bell.

There seems little doubt to the authenticity of Furnell's claim that he, whilst working in Jacob Bell's laboratory, discovered the anaesthetic properties of Chloric ether. It would appear to be true also that Holmes Coote and William Lawrence had made use of this discovery some six months before Simpson, on patients at Bart's. The only difference appears to be that Simpson had used pure chloroform whilst Coote and Lawrence had used a dilute solution, but nevertheless one which was shown subsequently to be capable of inducing anaesthesia. It is possible that had Coote and Lawrence popularised the use of an alcoholic solution of Chloroform the number of deaths which were later associated with the use of the pure substance might have been reduced.

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Cancer Education of the Public

By Malcolm Donaldson

The American Cancer Society started such education in 1913 and the author introduced it into this country in 1936. At first there was great oppositon from the Medical Profession who said it would produce a country of neurotics and overcrowd the surgeries, all of which has since been proved to be untrue. It is true that the Americans at first made a mistake in thinking that the late diagnosis of this disease was due to apathy and started by trying to startle people by stating in their pamphlets "One person in three die of Cancer". This did no harm, but they soon realised that people did not seek advice due to "Fear". This mistake was avoided in this country. Between 1936 and 1939 800 lectures were given in the South of England, then the war stopped everything.

After the war there was still opposition by the Profession and the Minister of Health said he would not countenance any "Diarect approach to the Public on Cancer". After the war it took seven years for the Ministry to realise its mistake, during which time the lectures continued. At the end of that time they wrote to all Local Authorities urging them to start "Cancer Education". Alas few of them have done so except around Manchester and Liverpool but now the majority of the profession realise its importance. Nurses are more difficult to convince because they remember the terminal cases they nursed and do not see the cured patients.

The author carried out an experimental campaign in Yorkshire 1952-1956 and I visited many countries including New Zealand, Australia, South Africa, Canada, Russia and Japan and many European countries giving lectures. Most of these countries are carrying out a campaign with zeal. In England the author was working on his own at his home with a committee in Oxford, but in 1962 he obtained a grant from "Tenovus" a Cardiff charity which enabled him to set up an office with a secretary.

The secretary, Mrs. Marter, is now the executive officer and runs the whole Cancer Information Association. She is grossly overworked giving 90-100 lectures a year to Women's Institutes, Towns Women's Guilds, Women's Church Organisations and lectures to schools to try to prevent smoking among the young. In addition she collects money and acts as accountant. The Association publishes leaflets and pamphlets.

It is very important that anybody giving lectures to the lay public should be trained as even doctors and nurses do not know how to put across the facts in lay language and can do much harm.

Many people visit the office to discuss their fears, and go away mentally relieved. Others write about their friends or relatives who are suffering from Cancer and complain that the patient cannot get any information about their condition from the doctors concerned. Such letters require great tact in answering.

Malcolm Donaldson, B.A., F.R.C.S., F.R.C.O.G., M.R.C.S., L.R.C.P., is the director of the Cancer Information Centre.

Familial Polyposis Coli

An exercise in preventive surgery

A. J. B. MISSEN M.B., B.Ch., F.R.C.S.,

This rare condition is of outstanding interest as it is a classic example of inherited neoplasia. It has also been described by Goligher (1961) as the most clearly defined pre-cancerous lesion in medicine, for untreated patients invariably develop carcinoma of the colon or rectum. To the clinician the management of an affected family is a satisfactory exercise, for the epidemiology of the disease is clear cut and a precise scheme of investigation and treatment can be devised. Although the treatment is radical, and sometimes mutilating, this is offset by the knowledge that every operation successfully concluded is a cancer prevented. So far as is known affected patients treated before the onset of malignancy enjoy a normal expectation of life, apart from the hazards of post operative adhesions.

Polypi usually start to appear about the age of puberty though they have been recorded earlier than this and quite often appear for the first time up to the end of the third decade. Polyposis developing after the age of forty is exceptional. Symptoms are usually noted in the patients' early twenties, and malignant change tends to occur within fifteen years of the onset of symptoms. In the large series collected by St. Marks Hospital polyposis was diagnosed on average at twenty-nine years of age and carcinoma at thirty-four. The average age on death from carcinoma secondary to familial polyposis was 41.6 years—i.e. twenty-six years younger than the national average for patients dying of carcinoma of the colon and rectum. The first symptom is usually diarrhoea which is unlikely to start until numerous polypi are present—even then it may be slight and may go unreported until in time the passage of mucus or blood is evident. Thompson (1958) records that no case seen at St. Marks had been free of rectal involvement—a point which he considers to be important in differential diagnosis. Looking at resected specimens (which may contain up to 2,000 polyps) it appears that the number per unit area increases steadily from the caecum to the rectum, perhaps suggesting that the rectal polyps are among the first to appear in this condition—a fortunate circumstance resulting in the earlier development of symptoms and the possibility of sigmoidoscopic diagnosis. There is no simple answer to the question of how many polyps are needed to establish the diagnosis which requires careful assessment of the patient's age, history, family history and the number and distribution of the polyps. In a patient from an affected family who is being examined at regular intervals the development of a single rectal polyp virtually makes the diagnosis, the development of others will soon confirm it.

Familial polyposis coli is a hereditary disease transmitted from generation to generation, probably by a single Mendelian dominant gene. The disease affects males and females alike and can be transmitted by both sexes but *only* by affected individuals.

Statistically half the children of an affected parent should have the disease, but it may die out in small families praticularly if some members remain unmarried or are subfertile. New cases (without a family history) are thought to arise by mutation and thus the disease is perpetuated. About 30% of all cases seen appear to be new mutants.

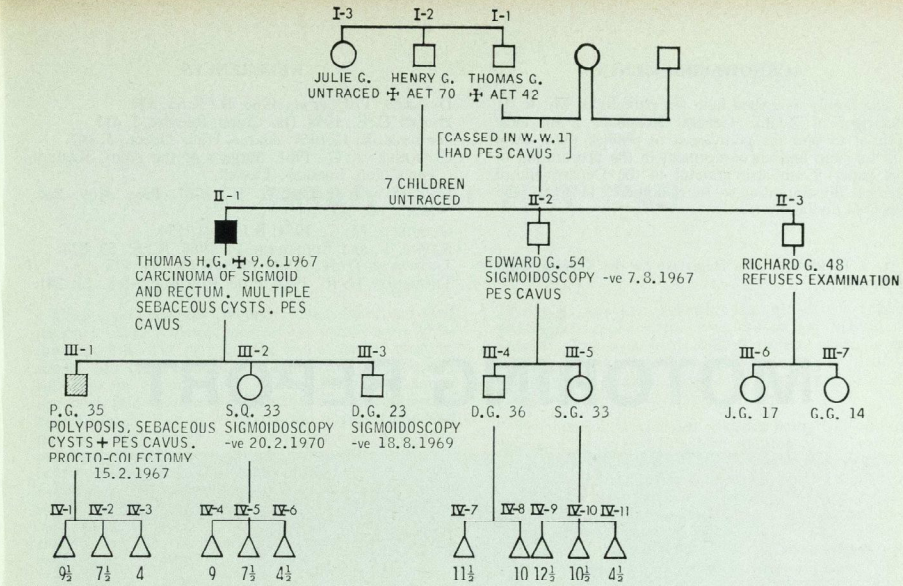
Gardner (1951) described cases of polyposis coli associated with other abnormalities such as multiple osteomata of the skull and facial bones, epidermal inclusion cysts and dermal fibromata. Excellent examples are to be found in the case reports of Rayne and Bullough (1966) and Delaney *et al* (1966) Oldfield (1954) reported multiple sebaceous cysts in patients with familial polyposis. These associated conditions are helpful clues to diagnosis. In the first case described below the finding of multiple sebaceous cysts and a carcinoma in the rectum resulted in a correct preoperative diagnosis. It is of interest that in this particular family another minor congenital abnormality was noted: both the affected members and one of the unaffected members of the family have marked pes cavus.

At present there is only one effective treatment for familial polyposis, namely surgical removal of the whole large bowel. It is important, as Thompson (1958) has pointed out, that the treatment of the first case shall be as free from complication and worry as possible for this helps to ensure the co-operation of the rest of the family in subsequent investigations and any further operations which may be necessary. Treatment should not be unduly delayed once the diagnosis is established as malignant change can occur at any stage and carcinoma in situ has been recorded in children under sixteen. (Thompson *et al* 1966). As the sole object of surgery is prophylaxis delay can only be justified in the very young. The two principle methods of treatment are:

1. protocolectomy with permanent ileostomy;
2. total colectomy with ileo-rectal anastomosis.

The advantage of the first method is that all risk of malignancy is removed and follow-up can be more relaxed as regular examination is not required. Against this must be set the disadvantage of ileostomy life, with its possible complications, and the risk of producing impotence in the male patient as a result of the rectal excision. It is easy to understand young patients, particularly girls, rejecting permanent ileostomy but in recent years it has been shown repeatedly that an ileostomy is no bar to social or athletic success.

The advantages of restoring continuity by ileo-rectal anastomosis are obvious enough and many surgeons regard this as the method of choice in young patients despite the fact that the risk of developing a carcinoma in the rectal stump necessitates a strict follow-up with regular sigmoidoscopic examination. Even if the rectum is kept clear of polyps by fulguration there is no guarantee that carcinoma will not develop *de novo* in the rectal mucosa between examinations and it is all too easy for either the patient or the surgeon to default on the regular six monthly follow-up. Although residual polyps in the rectum have been observed to regress following colectomy (Dukes 1958) this does not allow any lessening of vigilance by the surgeon as they may reappear later. Thompson (1958) quotes a figure of 5-8% for the occurrence of carcinoma in the rectal stump



When malignancy already exists in the colon or rectum at the time of operation procto-colectomy and ileostomy is mandatory.

Case 1 T.H.G. Age 53

Presented in September 1966 with a three month history of loose motions and the passage of blood per rectum. Examination revealed multiple sebaceous cysts of the scalp and pes cavus. A malignant ulcer was palpable in the rectum. At operation carcinoma was found in the sigmoid colon as well as in the lower third of the rectum. Metastatic deposits were present in the liver. In view of these findings an abdomin-perineal excision of the rectum and sigmoid was carried out and a left iliac fossa colostomy raised. The mucosa of this colostomy showed the typical changes of polyposis coli until his death nine months later.

Case 2 P.G. Age 32 (elder son of T.H.G.)

This patient was sigmoidoscoped as a precautionary measure and the rectum was found to contain numerous small polyps. A barium enema confirmed that the whole colon was affected. At this stage the patient admitted a two year history of passing blood and mucus per rectum. The nature of the disease was explained to him and the merits of the different treatments discussed. Being an active man with business commitments and a family of three children he elected to undergo procto-colectomy with permanent ileostomy —an operation from which he made a rapid and uncomplicated recovery. There was no evidence of malignancy in the resected specimen. This patient also had sebaceous cysts of the scalp and pes cavus.

Reference to the family tree (Fig. 1) illustrates the way in which affected families are managed. Having identified the presenting case enquiries must be made about the age and causes of death in members of the previous generation. This is of more than academic interest as it is important to establish a lead on any collateral branches of the family which may be affected. In this instance little of value emerged. T.G. (I-1) was said to have died of respiratory disease but his age and the presence of pes cavus are suspicious circumstances. H.G. (I-2) having attained the age of seventy, can be assumed to have been free of disease and it is not important to try to trace his seven children. In the second generation both E.G. (II-2) and R.G. (II-3) appear likely to escape as one is polyp free and the other symptom free at fifty-four and forty-eight respectively. However a new case developing after the age of forty-two and producing carcinoma at fifty-three in a patient who lapsed from surveillance has been reported (Lockhart-Mummery 1967) and so follow-up cannot be relaxed yet. All the members of the third generation other than P.G. require regular sigmoidoscopy. This should probably be done annually though some allow longer intervals. The children of the presentings case, i.e., III-2 and III-3 are clearly most at risk but the others cannot be ignored for if there was some factor delaying the appearance of polyposis in II-2 and II-3 there is no certainty that it would also cause delay in the subsequent generation. In the fourth generation all the children of III-1 require regular examination from the age of say fifteen though some people, arguing from particular case histories, might advocate starting as early as ten. The children of S.Q. (III-2) and D.G. (III-3), if he has any, must also be examined in case their parents are "late starters". The remaining children in the fourth generation do not require examination unless disease appears in a parent or grandparent but they must not be lost to follow-up as only by collecting the fullest possible family data can familial polyposis coli be properly managed.

ACKNOWLEDGEMENTS

The family described here are patients of Mr. R. B. McGrigor of Redhill General Hospital: I am most grateful to him for permission to publish these cases and for help and encouragement in the preparation of this paper. I am also grateful to the Department of Medical Illustration at St. Bartholomew's Hospital who prepared the family tree.

A. J. B. MISSEN is a Registrar on the Surgical Unit at Bart's.

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MOTORING REPORT

The Fiat 124S

ROAD TEST FIAT 124S

Cars made in any country must take on their national characteristics because no matter how great the export market may be, the home market must be strong and large enough to support and if necessary subsidise the export market. Fiat is Italian and someone once said that Italy is Fiat. Of all the continental manufacturers Fiat have by far the largest range and now own both Ferrari and Lancia and part of Citroen and in the middle of this range is the 124S. The 124 is the car the Russians have chosen to give to the People and Fiat are building a factory to build them in the U.S.S.R. in large numbers. The 124S falls in the cleft between the 124 and 125 without upsetting either sister. It has the 124 body with a larger more powerful engine and improved trim.

The engine is 1,438 c.c. and produces 70 b.h.p. and 75 lbs. ft. of torque compared to 1,197 c.c. 60 b.h.p. and 60 lbs. ft. of the standard 124. It uses a bored out 124 block and has the standard aluminium cylinder head with a raised compression. The extra power enables a higher axle ratio to be used without any loss of acceleration but gains in cruising ability. The car is in fact slightly faster than the 124 which is surprisingly fast for its size. I found the maximum speed to be 94 m.p.h. on a private road, at which speed the speedometer registered 102 m.p.h. Given time the car would probably go faster. The speedometer was always optimistic reading 70 when only doing a true 64 m.p.h. which is annoying on our limited roads.

The acceleration is good, 0-60 m.p.h. in under 13 seconds, but particularly the 40-70 third gear performance which is ideal for overtaking. The gearbox is a joy to use with a sturdy gear lever falling readily to hand. The brakes are 8.9 inch discs all round with servo assistance. They had a peculiar spongy feeling and the pedal seemed to travel a long way, but once one had accommodated for this they felt safe and sure, in all conditions, especially on wet roads.

The 124 and S are completely conventional in layout, front engine rear drive, but the lightweight rear axle is located by rods and sprung on coil springs, the ultimate in conventional setups. The results are very good, the car has a soft suspension while riding as well as some of the more sophisticated rivals with less bouncing. Road holding and handling are good but in the wet the car will oversteer quite suddenly if provoked. It is easily correctable on the dullish feeling, typically Italian steering, but the car requires more skill to be driven fast than, say, a Morris 1300. Above all this is a car which puts youth back into the driver, making motoring on our crowded roads a pleasure. I achieved only 25 m.p.g., however, but with less use of the engines prodigious appetite for revs 30 m.p.g. should be possible. The tank holds only 8 gallons which is not enough and there is a two-gallon low level light. A slowly rising crescendo above 70 m.p.h. made this the ideal cruising speed.

The interior is pleasant without being too opulent. The floor is covered in rubber matting, which seems a good idea as so many people put rubber mats over their carpets. The comfortable seats recline and there is plenty of room for four and their luggage. All the passengers have grab handles and ash trays! I wonder why? Obviously no Italian would be seen dead in a safety belt as with these done up some of the switches were rather remote. The dip switch, indicators and windscreen wipers, which also have an intermittent wiping action, are on the column and thus at the drivers finger tips. The heater was very efficient, the vents in the fascia being revolvable to blow air into the face. The two-speed booster fan was noisy, but guaranteed to spoil any recent hair-do on its maximum setting if aimed at the face. The heated rear window is a standard fitting. The instruments were neatly laid out in a cowled binacle, sadly no rev counter, the fascia is amply padded and the switches recessed. Pedal layout is good and there is a special foot rest for the clutch foot.

The driving position is again typically Italian, but surely they cannot all have long arms, long bodies, and shortish legs, unless the car manufacturers have influenced evolution already. On a two hundred mile run nobody had any aches. The 124 has four doors, these have recessed handles, courtesy light switches on all of them, and they close with an expensive noise. The overall standard of finish was very high. The twin headlight system, one of the few obvious differences of the 124S externally, was not good on the dipped beam. Current is supplied by an alternator, and the electrical system has ten fuses. The interior mirror dips for night driving and is designed to dislocate in a crash, I discovered this when adjusting it, getting that "came off in my hand, Sir" feeling.

This little European best seller is not cheap at £1,024 10s. 10d. but should provide an owner with much enjoyment and last a considerable time. Later on in the year I shall be testing the very latest of the Fiat range the Car of the Year, the front wheel drive 128.

RALPH SMALLHORN

Reviews

TEXTBOOK

Human Blood and Serum Groups. (O. Prokop and G. Uhlenbruck). First English translation by J. L. Raven. *Maclaren, London.* 1969 (Price £15.15.0d.).

This is the first English edition of the massive German text (891 pp) on human blood and serum groups by Professor Prokop (Berlin) and Uhlenbruck (Cologne), which had its first German edition in 1963. The English translation by Dr. John Raven of the Haematology Department at Guy's is very clear, although it retains a heavy Germanic style in places. However, this should not be held against the book or the translator who has tried to retain the style of the authors as far as possible.

The authors have produced an encyclopedic and up-to-date synopsis of the extensive information concerning red cell, leucocyte and platelet groups and the various genetic markers in serum. The scope of this book can be appreciated by consulting the table of contents which covers six pages. However, the book will lose some of its impact in this country because it coincides with the recent publication of two excellent books which between them cover much of the same ground—the new 5th edition of "Blood Groups in Man" by Race and Sanger and Eloise Giblett's outstanding book on "Genetic markers in human blood". The present book gives more space to the chemistry of blood group substances, but suffers by comparison with Giblett's coverage of genetic markers in serum. Probably its greatest advantage to English readers is the comprehensive bibliography (over 4,000 references—142 pages—with full titles), which includes recent literature published in East and West Germany and eastern Europe. A useful innovation is the extensive list of workers in this field together with their addresses—unfortunately some entries are out of date!

This is hardly a text-book for undergraduate students, but will prove a valuable book of reference for workers in this field. Its high price (£15.15.0d.) will almost certainly restrict its sale to reference laboratories and libraries.

NON-MEDICAL BOOKS

The Early Churchills, A. L. Rowse. (Penguins 10s.).

A. L. Rouse has been a prolific writer on a wide range of mainly biographical subjects. The Early Churchills and the sequel The Later Churchills have I believe both been adapted for the B.B.C.'s current serial on this family. The book begins with John Churchill, the Elizabethan lawyer and his son, the original Sir Winston Churchill and ends with the Duke of Marlborough. If you expect this book to be a mere list of chronological events in a family history you will be pleasantly surprised by its readibility and should be fascinated by its contents.

Hand Reared Boy, Brian W. Aldiss. (Weidenfeld 30s.).

This title is apt for this book describes the adolescent progression with masturbation and primitive sex. It starts well enough but within a few pages seems to fade away completely, revealing the barren unimaginative and insensitive framework that remains. None of the characterisation is convincing as is little else. Portnoy's Complaint by Philip Roth is a much funnier book in a similar vein well worth rading in preference.

Ho-Chi-Minh, Jean Lacouture. (Pelican 7s.).

The recent death of this renowned world leader makes this Pelican issue of a special topical interest. Although the style is occasionally verbose and melodramatic, it is essential reading to understand the present complexities of Vietnam; how Ho-Chi-Minh formulated his own theories of socialism, and to find out in which London hotel yet another great Communist leader worked as a young man.

M. WHITE

Down Where the Moon is Small. Richard Llewellyn. Penguin. 10s.

This is the story of a group of Welsh pioneers who settle in Patagonia and try to found a "New Cambria" in the Andes. Their simple Welsh morals and customs contrast strongly with those of the indigenous Indians and the Spanish South Americans and the colony becomes disrupted by border quarrels between Chile and Argentina.

This book is the third centred around the life of Huw Morgan, a miner's son, the first being the best seller "How Green Was My Valley" published in 1939. It is an entertaining and informative book with some vivid descriptions of the simple but idealistic life of the Indians. Frequent references to characters in former novels tend to be somewhat annoying and the extensive use of Welsh dialect may be trying to some. A vivid and entertaining book but somewhat lacking in the depth of characters which made his former work such a success.

F. E. ROGERSON.

RECORDS

Hits '70. MFP Stereo 1383. Price 15s.

This L.P. record is another in the *Music For Pleasure* series that contains a collection of the hit records that made the charts; in this case the hits of the first few months of this year. It is performed by unknown musicians and singers, and like others in this type of series it is not attempting to ponder to any particular taste but aims at a wide section of the public who must have liked the hits but not enough to buy them as singles.

Most of us must have been deafened by these as well as every other chart buster, and if you like reminiscing then this L.P. certainly contains a widespread selection of numbers. The standard of reproduction is unusually high especially on stereo and on only three of the tracks do I think the original recordings decidedly preferable, probably because the performers are actually good musicians. Certainly the unknown female that sings "United We Stand" and "Temma Harbour" gives a much fuller rendering of two rather shallow tunes than the original artists.

I think the real advantage of buying this record is its convenience for parties where the overall content should keep most people dancing rather than lolling about bored by long-winded and complicated L.P. tracks that were only intended for listening to. Very reasonably priced—especially in comparison to the Tamla-Motown series of his records. Other tracks include: Wanderin' Star, Bridge over Troubled Waters, Love Grows, My Baby Loves Lovin', Two Little Boys, Raindrops Keep Fallin' on my Head, You're Such a Good Looking Woman, Years May Come Years May Go, and a fairly good rendering of Let It Be.

M. C. WHITE.

Salute to Kaempfert. The Swinging Safari. M.F.P. 1354 (mono only) 14/6.

This record, played by an orchestra calling themselves the Swinging Safari, consists of twelve tracks, all arranged in the inimatable style of Bert Kaempfert. Some of the tracks Kaempfert has himself recorded with great success, for instance, "A Swinging Safari", "Africaan Beat", and "Wiedersehn". Other tracks include such well-known numbers as "A Nightingale Sang in Berkeley Square", "Red Roses For a Blue Lady", and "Down By the Old Mill Stream". The orchestra sounds very much like that of Bert Kaempfert himself, but with a lusher and smoother sound.

This music is definitely late-night listening, very easy on the ear, and good as background music.

The recording quality is excellent, with very good stereo separation.

One or two of the lesser known tracks could have been left out, and substituted by such favourites as "That Happy Feeling", but all-in-all this record is a worthwhile addition to the catalogue.

For those who like the sound of Bert Kaempfert, and there must be many, this record represents very good value at 14/6.

RICHARD WILLS.

Recent Papers by Bart's Men

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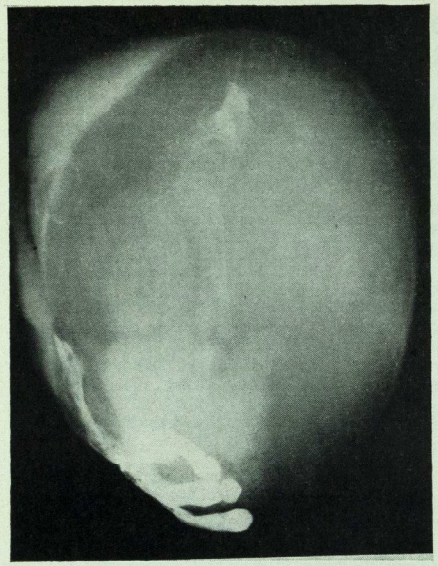
*Reprints received and herewith gratefully acknowledged. Please address this material to the Librarian.



Answers to "Spot the Lesion" (page 305)

(a) Teratomatous dermoid cyst.

(b) They are composed of the cells of one individual within the tissues of a second individual, and they contain representative cells from all three embryonic layers. In this example one can see some primitive teeth and some areas of ossification.

(c) The ovaries.

PRE-REGISTRATION HOUSE APPOINTMENTS

APPLICATIONS ARE INVITED for three appointments set out below:

1 post	:	six months	House Physician to Professor Scowen
1 post	:	six months	House Surgeon to Mr. Robinson
1 post	:	six months	House Surgeon Prince of Wales's Hospital

Applicants should state for which post they wish to apply and give a second choice.

The posts are tenable from 1st October 1970.

Applications should reach the Sub-Dean's Office by Monday, 7th September 1970. (Application forms are available from the Sub-Dean's Office) where further information may be obtained.

IN FUTURE six months House posts will be available on all the general firms at three monthly intervals starting 1st October, 1st January, 1st April and 1st July.

I. M. Hill, M.S., F.R.C.S.
Sub-Dean of the
Medical College.

JOURNAL CHRISTMAS CARD 1970

The Illustration is a coloured print of a 14th century manuscript from the Hospital Archives.

The Christmas card is now on display throughout the Hospital and Medical College.

The card costs only 1/-. Overprinting of names and addresses can be arranged at a cost of 50/- per order.

All enquiries and orders should be addressed to the St. Bartholomew's Hospital Journal, St. Bartholomew's Hospital, West Smithfield, London, E.C.1. and clearly marked "Christmas card".

SAINT BARTHOLOMEW'S HOSPITAL JOURNAL

Founded 1893. Vol. LXXIV No. 10

Editorial

"Once again we are glad to welcome a large number of Freshmen to the Hospital. In coming to St. Bartholomew's they join the most ancient of the London Medical Schools, and yet we believe that the Hospital has never given such opportunities to its students as it does today, nor has it ever been so progressive. We are proud of the great traditions of hard play and hard work which lie behind us. The names of those who have been students here fill no unimportant place in medical history; but traditions must be maintained and new records made, or the tradition loses its inspiration and becomes mere history.

"We hope that our Freshmen will bring the 'esprit de corps' which they learnt at school and college into their life at Bart's. It is safe to say that there is not one who will not find some club through which he can help materially to extend the social life of the Hospital.

"It has been said by Mr. Stephen Paget, a son of Sir James Paget, whose bust in our Pathological Museum is a perpetual reminder of the interest which he took in that institution: 'The pleasant old-fashioned quadrangle, blessed with sunshine and silence and an excellent view of the sky, is the centre of the Hospital life; and a visitor, loitering here, will see that we are a brotherhood and that the patients are our guests. Every hospital is a charity; but there is a difference between charity and hospitality. They who give money to hospitals are charitable; we, who have the spending of it, are hospitable; and of course it is we who get the fun out of the money. And we spend it well, entertaining in good style our innumerable guests.'

"It is to this pleasant life, in which the study of the diseases of mankind is so closely and happily related to the study of men themselves, that we welcome our Freshmen."

This Editorial originally appeared in the Bart's Journal exactly 50 years ago in the issue dated 1st October 1920. The sentiments are equally applicable to the Freshers of 1970 who will be arriving during the next few days, to whom we wish every success for their future careers. In spite of what they may think, the Hospital has changed in the last 50 years, and, who knows, the 1970 intake may provide a worthy successor to Sir James Paget.

Letter

STUDENTS UNION LETTER

Students' Union,
St. Bartholomew's Hospital.

Dear Sirs,

On 11th August there was a meeting of the London Medical School Presidents' Council at the Royal Free. Discussion centred on the Enquiry into the Governance of the University of London, and a report was drafted which calls basically for more student representation at all levels of decision-making in all Medical Schools; membership on the Boards of Study and on the Academic Advisory Board for Medicine. This need for representation was felt to be needed not only as a basic principle but also as a means of "keeping an eye" on the implementation of the Todd Report.

The Enquiry is concerned with the need for changes in the structure of the Governance of the University of London, and Staff and Students at all levels are asked to submit evidence. Any student may compile his own report if he so wishes; at present I am attempting to represent Bart's students' opinion, so if anyone has strong views please let me have them in writing.

Other topics discussed at the Presidents' Council included the possibility of London Medical School affiliation to the N.U.S. and the possible affiliation of student nurses to their Medical School Students' Union. Both these subjects, should any definite proposition be put forward, would be discussed at our A.G.M. prior to any action being taken, as far as Bart's is concerned.

Miss Turner is to publicise vacant Barts Locums as they arise on notice boards in the Abernethian Room and cloakrooms with instructions as to how to apply for the job; I hope this will clear up some of the confusion which seems to exist at present.

Yours faithfully,
PAUL MILLARD.

Announcements

Births

HILLS—To Ann-Mary (née Macdonald) and Peter Hills, a daughter Catherine, a sister for Andrew.

Engagements

COURTENAY-EVANS BURTON—The engagement is announced between Dr. Rupert James Courtenay-Evans and Dr. Patricia Anne Burton.

Marriages

DRYNAN - CULLEN—The Marriage took place on July 31 between Dr. Jim Drynan and Miss Olive Cullen.

PIHLENS - STEBBINGS—The Marriage took place on 22nd August between Mr. Hugh Pihlens and Miss Lois Stebbings.

Deaths

ANDERSON—On August 13, Mr. Roy Shirras Anderson, M.R.C.S., L.R.C.P. Qualified 1923.

JOHN—On July 21, Lieutenant Colonel Jordan Constantine John, O.B.E., B.A., B.Ch., I.M.S. (Retd.) Qualified 1910.

MARGERISON—On August 4, Dr. James Harkness Margerison, M.B., Ch.B. Qualified 1952.

HORNIBROOK—On August 24, Dr. Henry Nevill Hornibrook, M.B., B.S., M.R.C.S., L.R.C.P. Qualified 1918.

TROWER—On August 13, Mr. Geoffrey Say Trower, M.B., B.Chir. Qualified 1914.

Appointments

SAINT BARTHOLOMEW'S HOSPITAL

Dr. M. L. Clark, M.B., M.R.C.P., has been appointed consultant in general medicine to St. Bartholomew's Hospital and the North East Metropolitan R.H.B.

REDHILL AND NETHERNE HOSPITAL GROUP

Mr. J. A. C. Neely, M.B., F.R.C.S., has been appointed consultant surgeon to Redhill and Netherne hospital group.

CHANGE OF ADDRESS

The new address of Dr. and Mrs. Neville Whitehurst is Waterland Cottage, Knowle Lane, Cranleigh, Surrey.

The new address of Mr. F. G. Ward, F.R.C.S., is Horns Hill, Nether Compton, Sherborne, Dorset.

The new address of Dr. Michael Hall-Smith is The Limes Farm House, Elm, nr. Wisbech, Cambs.

The new address of Dr. Cedric Hall-Smith is Goosebec, Burnham Market, Norfolk.

The new address of Mr. and Mrs. P. Hills is 33 Yardley Pk. Road, Tonbridge, Kent.

The address of Dr. and Mrs. V. C. Medvei has been altered from, 168 Lupus St., S.W.1, to 38 Westmoreland Terrace, S.W.1.

Erratum

In the September Journal the Students Union letter referred to Miss Turner as the new Sub-Deans Secretary, whereas in fact, Miss Foreman holds that post.

Retirement

Dr. Alfred White Franklin, F.R.C.P.

Dr. Alfred White Franklin, who retired recently after 34 years of Consultant service to this Hospital, has enjoyed a professional life of more than usual variety and distinction.

The younger son of Philip Franklin, F.R.C.S., he was educated at Epsom, proceeding as a Scholar to Clare College, Cambridge, before qualifying at Bart's in 1929. His student days here were memorable. The award of the Wix Prize in 1928 for his essay on "The life and times of Claude Bernard"; the presidency of the Abernethian Society; the editorship of the St. Bartholomew's Hospital Journal for three years, and the foundation, with W. R. Bett, of the Osler Club of London, presaged the eminence to come. Yet of greater interest to the Chronicler is the fact that the young Franklin, just down from Cambridge, ate his dinners in the Middle Temple: clear evidence at that stage of the pull of two careers. However, once appointed House Physician to Dr. (now Sir) Charles Harris in the newly-formed Childrens' Department (he was in fact, only the second Childrens' H.P. here), he was convinced of his vocation and the care of children became his consuming interest. Nonetheless, the duality remains, for he combines in rare degree the compassion of the physician with the critical judgment of the lawyer. The Chief Assistantship and the M.R.C.P. in 1932)the Fellowship followed four years later), the Lawrence Scholarship and Gold Medal in 1933 and 1934; and a Temple Cross Research Fellowship at the John Hopkins Hospital from 1934-35 were the predictable steps leading to his appointment as Assistant Physician to the Childrens' Department here in 1936, and in the following year as Assistant to Dr. (later Sir) Alan Moncrieff at Queen Charlotte's Maternity Hospital, where he remains as Paediatrician to the present day. But in pre-war days, such appointments were Honorary, conferring status but not security. Work for the L.C.C. in the School Medical Service and in Maternity and Child Welfare clinics eked out a livelihood, but he planned to jettison these as soon as his finances allowed. The advent of the war altered everything. As Paediatrician to Sector 3 of the Emergency Medical Service, he was transferred to Hertfordshire, with beds at Hill End and St. Alban's Hospitals, but with leisure to ponder on the medical needs of children in towns distant from an established medical centre. Maternity units in stately homes; an evacuated school for physically handicapped children; a tuberculosis sanatorium for children; and a happy relationship with the local child-guidance clinics comprised his widening horizons. The evolution of the physician for diseases of children into the Paediatrician, pioneering and practising the new subject of Child Health, was imperceptibly taking place.

His experiences in wartime came to fruition in the ensuing years as papers of astonishing versatility poured from his cultured mind and ready pen. As a medical writer, whether factual, philosophical or visionary, he is always compelling, and the two bound volumes of his collected reprints up to 1961, available in the Library, repay a careful study.

In co-founding the Osler Club of London as a student in London in 1928, Franklin's objects were two fold: to encourage among medical students the study of medical history, and to keep green the memory of Sir William Osler. As he conceived it "the study of medical history was to take a place among the forming, moulding influences of the learning years. Not an antiquarian, a bibliographical, a biographical, and certainly not an anecdotal pastime, it was to be more than a sum of all these, an introduction to modern medicine. Medical history was seen as a stimulus to the growing minds of the young, rather than a a relaxation to the ageing and the old."

The courtesy title of Physician to the Childrens' Department, granted to him in 1945, was made substantive in 1948 with the establishment of the N.H.S., and in 1951 came the Chairmanship of the Invalid Children's Aid Association. An excellent Chairman, Franklin soon caused the Association to come to grips with fresh problems; the dilemma of the disturbed, or the care of the chronically handicapped; or the isolation of the non-communicating child, arising from his special interest in dyslexia and his Medical Directorship of the word-blind centre for dyslexic children. Meanwhile, his private practise was burgeoning; small wonder, therefore that—whether as Consultant or writer, Editor or Chairman—his reputation as a Paediatrician rode high, reaching far beyond the confines of this Hospital.

1965 saw his assumption of the role of Physician-in-charge, and the change of title from the Children's Department to the Department of Child Health; an indication of his own wide conception and concern for the total child. His juniors in the department will long remember him as a benign, jovial, even avuncular figure; but he had a strength of purpose, touched with steel, which may have surprised those who knew him only superficially. Shrewd as a diagnostician, and erudite as a teacher, as a counseller he was superb. His empathy and choice of words when dealing with a mother faced with a chronically-handicapped child was medical practice at its finest. It was his tragedy, as well as ours, that he took charge of the department only in his sixtieth year, for his plans for its future were deeply thought and imaginative. Unhappily, his five years were bedevilled by medical politics and economic crises, both at national level, so that few of his purposes could fructify. As consolation, however, professional honours crowded upon him, such as his election to the Council of the Royal College of Physicians of London from 1966-69, and the Presidency of the British Paediatric Association 1968-69.

But, what of the future, for with his pellucid mind and flowing pen, this may yet outstrip the past. His retirement is unlikely to be idle, for already he has been made Director of a project, jointly organised by the British Paediatric Association and the Royal College of General Practitioners, to consider the health needs of children in England and Wales, in relation to basic education in Paediatrics. This is a subject dear to his heart, as all who heard his brilliant and provocative Presidential address to the Section of Paediatrics of the Royal Society of Medicine six years ago, entitled "Paediatrics 1984", have good cause to remember. But, whether leisured or not, his retirement is certain to be happy, for he rightly regards as the crowning adornments of his career his wife and four children, in whom he delights. The Spanish have a toast: "¡Salud y pesetas, y tiempo para gustarlos!" Roughly translated, this means: "Health and wealth, and time to enjoy them!" If to health and wealth, we might add "and your family", there is nothing better we could wish him !

G. S. U.

BARTS SOCIAL SCENE

Tim Fenton, Mansell Heslip and Mark Britton admiring the Thameside scenery

BOAT TRIPS ON THE RIVER THAMES

There have been two outings on the river during the past summer, the first, at the beginning of July, being organised by Brian Galton-Fenzi and arranged to coincide with the finishing of the 2nd M.B. examinations. Travelling up river as far as Brentford, we returned rather more slowly due to some unidentified object getting entangled with the screws at the turn. This did not lessen the enjoyment of the trip and gave the river-side a longer session of the lively ravers and discotheque. On this trip we had as our guests a young French couple from Paris who were visiting London for the first time and having heard of half hour trips from Tower Pier to Westminster boarded our boat in error. They had a good time on this extended and somewhat unexpected cruise and drank much good English beer which eventually flowed in abundance after initial problems with the dispensing equipment.

The Wine Committee river trip, taking place for the third year running was held at the end of July and was, as usual, a formal dress occasion. As a pleasant change we travelled down river due to reasons connected with the moon; I was assured by the helmsman that had we gone up river we would have run aground somewhere near Wandsworth Bridge. A warm and sunny evening afforded fine views of the dockland skyline, riverside pubs and a guided missile cruiser of the Italian Navy which was moored at Greenwich Pier. The tide turned at 21.00 hrs. when opposite the Ford Motor Works at Dagenham and we returned up river as far as the Royal Festival Hall. The music was provided by the always popular steel band, who incidentally only just caught the boat! The refreshments included a punch which almost outlasted the trip whilst the passengers just outlasted the punch.

WATERMANS ARMS

While on the subject of the river, those who have been at Barts for some time and more travelled persons, probably know of this pub. For those that don't this is for your information: here can be had a very enjoyable evening over a beer with the olde tyme music hall resident troop—The Levity Lancers. Every night except Monday this band gives a varied and amusing show using a vast number of different instruments and noise makers while playing old favourites like "Henry the Eighth I am", "Any Old Iron" and "Tiptoe through the Tulips" to captive throngs. The whole show goes with a bang and plenty of them at that, and I think you will agree that it's worth a visit down to the Isle of Dogs just fifteen minutes from Barts or a 277 'bus from the meat market.

ROGER LAMBERT

ELECTRICAL PACING OF THE HEART

Douglas Chamberlain, M.D., M.R.C.P

INTRODUCTION

The development of electrical pacing of the heart has been one of the major advances in Cardiology in recent years. Temporary pacing is used frequently after cardiac surgery, and occasionally in patients with myocardial infarction. Increasing numbers of patients with chronic heart block are being treated by the implantation of permanent units. This trend will continue, encouraged not only by the dramatic symptomatic relief which the treatment provides but also by the accumulating evidence of coincident improvement in prognosis. It must be unusual now not to have at least one patient within the Hospital on an artificial pacemaker. The reliability of pacemaker systems has improved greatly in recent years, but unhappily problems still arise and a Cardiologist is not always immediately available to offer advice. It is therefore increasingly important that all who aspire to a knowledge of general medicine should have some understanding of the types of systems in use, of how they are designed to operate, of what might go wrong, and not least, of how failures should be dealt with. This article provides an elementary introduction to electrical pacing to help fulfil these needs.

A CLASSIFICATION OF PACEMAKER SYSTEMS

Pacemaker systems can be classified in two major respects, first depending upon the site of the pacemaker (pulse generator) and electrodes, and secondly upon their mode of operation.

Variation in Site of Pacemaker and Electrodes

1. External pacemaker with external electrodes. This was the first system to be used in man (Zoll, Linenthal, and Norman, 1954). The active electrode is applied to the praecordium; the indifferent electrode is positioned on the side or back of the chest to ensure that the heart is in an appropriate field of current density. High energy levels must be used, with stimuli of up to 200 volts. Such stimuli cause painful muscular contractions and, if continued for more than a brief period, also cause troublesome skin burns. The method is therefore unsuitable for conscious patients. Furthermore it often fails to stimulate the heart especially if the myocardium has been extensively damaged. External pacing is only rarely successful as an emergency procedure, and attempts to institute it may waste valuable time. Asystole should be treated by external cardiac massage; if it persists the prognosis is grave, but in suitable cases efforts should be made to introduce an endocardial electrode (see ii).

ii. **External pacemaker with ventricular electrodes.** This system is used when pacing is required as an emergency procedure. The ventricular electrode stimulates the myocardium at a site remote from the main conducting pathway. The QRS complex is therefore wide and often bizarre (fig. 1). The electrode is usually introduced through a vein and passed to the apex of the right ventricle. Several venous routes have been recommended, but none is totally satisfactory. The easiest route, and that most suitable for inexperienced operators, is from a medial antecubital vein, but arm movements may subsequently dislodge the tip of the electrode. Binding the arm to the chest wall overcomes this problem but is uncomfortable for the patient. The external jugular route provides a stable electrode position, though entry into the vein and manipulation are more difficult. The techniques for the insertion of electrodes and also some of the pitfalls have been well described by Harris (1969).

In some circumstances the electrodes are not positioned pervenously. After major cardiac surgery, pacing wires are usually sewn to the epicardium and brought out through the chest wall to provide post-operative pacing should the need arise. In grave emergencies when the venous route cannot be used, a fine electrode can be passed through a needle directly into the right ventricular myocardium but this is obviously a hazardous and desperate procedure.

Occasionally external pacemakers are used with internal electrodes for long term pacing. The usual arrangement is to place a coil subcutaneously with electrodes sutured on to the epicardium, and to have an external unit strapped to the praecordium which will provide the stimulus by inductance or by a radio-frequency signal. A thoracotomy is necessary in the first instance, but the power pack is external and can be changed without inconvenience. Furthermore, heart rate can be varied by adjusting an external control. Occasionally electrodes passed via the external jugular vein as an emergency procedure have been left in place attached to a small external box worn by the patient. This is not a satisfactory method and carries some risk of infection but in many patients it has been used successfully for periods of several years.

iii. **Implanted pacemakers with ventricular electrodes** are used most commonly for long-term pacing. Once the system has been successfully implanted, no risk of infection exists and the patient does not have obtrusive external gadgetry as a constant reminder of his dependence upon the pacemaker. Two principle techniques are used for implantation. First, electrodes can be sutured to

Fig. 1
Showing pacing stimuli at 83 impulses per minute, each followed by a QRS complex which is wide and bizarre. The T waves are also of unusual configuration. The eighth complex results from "fusion" between a paced and a conducted depolarization.

Fig. 2
Showing atrial pacing starting at arrow. Each pacing artefact is followed by a small P wave, and a QRS complex of normal configuration.

the epicardium and attached to a pacemaker which is usually buried in the rectus sheath. A thoracotomy is necessary for the first implant, but the pacemaker unit, which has a limited life of no more than two or three years, can subsequently be replaced through a superficial abdominal incision. Secondly, a right ventricular endocardial electrode can be introduced pervenously, often through the external jugular vein or the cephalic vein between the deltoid and pectoralis major, and attached to a pacemaker implanted under the subcutaneous tissue of the chest wall or in the axilla. This technique involves no thoracotomy and can be carried out under local anaesthesia. This is a great advantage for old and debilitated patients but the method requires the combined skills of cardiologist and surgeon.

iv. **External or implanted pacemaker with atrial electrodes.** Atrial pacing can be used to control heart rate only if atrio-ventricular conduction is intact. The system has the advantage of retaining the normal relationship between atrial and ventricular contraction, but atrial pacing at rapid rates is often associated with a long PR interval. The activation of the ventricle is by the natural conduction pathway, and the QRS complex is therefore narrow and of normal configuration (fig. 2). Atrial pacing is used commonly after cardiac surgery, utilising wires sutured to an atrium and brought out through the chest wall. Long-term atrial pacing has been attempted for patients with sinus node disease, but ventricular pacing carries fewer technical problems and is usually preferable. Reliable atrial pacing is very difficult to achieve with the pervenous route because the atrium has no trabeculae in which to impact the electrode tip, but electrodes are now being developed which will lodge in the right atrial appendage. Preliminary investigation suggests these will be suitable for both short-term and permanent pacing.

2. Variation in the mode of operation of Pacemaker and Electrodes

i. **Fixed rate pacemakers** are the simplest and consequently the cheapest. They are widely used both externally and in a miniaturised form for implantation. The term "fixed-rate" is misleading, for the rate can often be adjusted by simple controls on an external unit or by a magnetic switch in implantable units. The name implies only that the pacemaker will deliver stimuli at a set rate irrespective of the spontaneous heart rate. This arrangement is suitable for patients with chronic heart block who have a persistently slow ventricular rate, for the faster artificial pacemaker stimuli will "capture" and suppress the spontaneous (usually idioventricular) pacemaking tissue. On the other hand, patients with intermittent or temporary block should not be paced with a fixed rate unit. When conduction returns, competition may occur between the natural and artificial pacemakers for control of the heart. Some spontaneous heart beats will be followed by pacing stimuli falling on the so-called vulnerable period (approximately the mid-point) of the T wave, and may then induce ventricular tachycardia or fibrillation (fig. 3). To overcome this serious problem, pacemakers have been developed with sensing circuits which permit the units to deliver effective stimuli only if spontaneous depolarisation fails to occur for a pre-set period. In other words, they pace only "on demand".

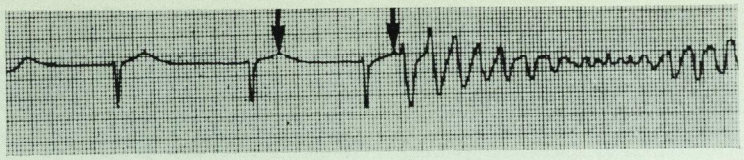


Fig. 3
An example of the effect of pacing stimuli (arrowed) falling on the vulnerable period of T waves. The stimulus at the second arrow induced a ventricular extrasystole which was followed by ventricular fibrillation. Reproduced from "Cardiac Pacing and Cardioversion" (The Charles Press Publishers, Inc., Philadelphia, Pa 19103) by courtesy of Dr. Xavier Dalle and the Publishers.

ii. **Demand inhibited pacemakers.** The pacing electrodes, which may of course be epicardial or endocardial, serve also to transmit a signal to the pacemaker when a spontaneous depolarization (QRS) occurs. This signal inhibits the output circuit for a time depending upon the setting of the pacemaker rate. For example, if a demand inhibited pacemaker is set at 60 impulses per minute, it will be inhibited for one second following a naturally occurring QRS complex. At the end of this period a pacemaker stimulus will be delivered if no further spontaneous depolarization occurs in the meantime. In this way heart rate cannot fall below 60 per minute; if the rate is higher the pacemaker will remain inactive. With an irregular spontaneous heart action some but not all beats may be triggered by the pacemaker (fig. 4). Provided the sensing circuit is functioning correctly no pacemaker impulse can fall on the T wave of a spontaneous beat; normal latency ensures that the likelihood of a spontaneous QRS occurring on the T wave of a paced beat is small. Inappropriate inhibition has sometimes been a problem with this type of unit. Extraneous electrical activity, often from faulty equipment, may provide a signal strong enough to be "mistaken" for ventricular depolarization by the pacemaker. The result is asystole. Electrical diathermy used during surgery is particularly liable to inhibit demand pacemakers and is completely contra-indicated in patients who rely on this type of unit.

iii. **Demand triggered pacemakers.** The principle is similar, but a spontaneous QRS triggers an immediate stimulus instead of inhibiting the pacemaker. The stimulus is therefore seen in an electrocardiogram (E.C.G.) superimposed upon the QRS complex and deforming it (fig. 5).

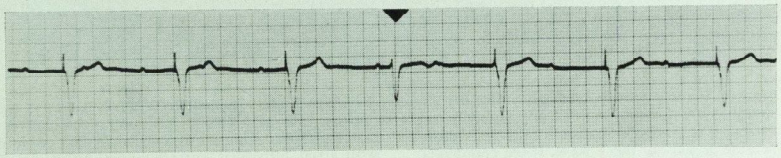


Fig. 4
A demand (inhibited) pacemaker is set at 53 impulses per minute. The fourth QRS complex (arrowed) is transmitted from the atrium and occurs 40 msec. before the pacing stimulus is due. No pacing artefact is seen because the pacemaker is inhibited. In this case the paced complexes are only slightly different from the transmitted ones.

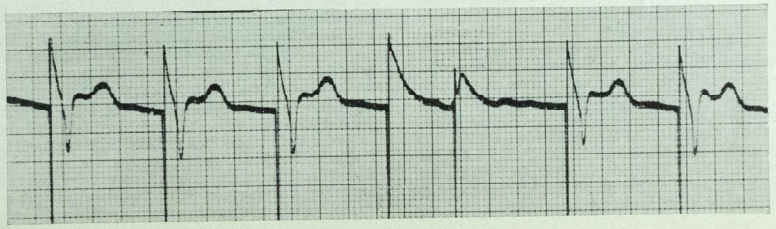


Fig. 5
Demand (triggered) pacemaker. The fifth pacemaker stimulus occurs early because it has been triggered by a spontaneous QRS complex. (The fourth stimulus was ineffective, and the slurred return to the baseline is part of the pacemaker artefact).

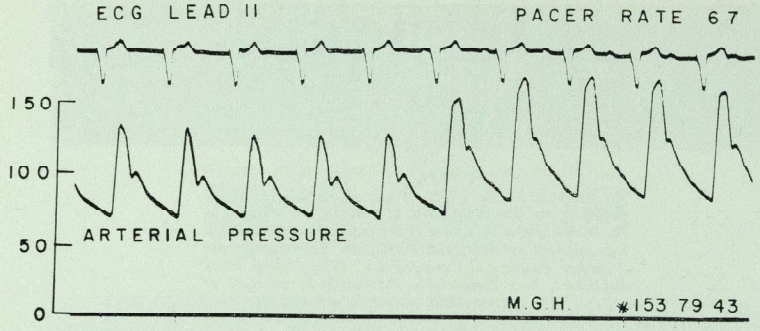


Fig. 6
Phasic stroke-by-stroke variation in arterial pressure due to changing relationships between atrial and ventricular contraction. Reproduced with permission of the editors of the American Heart Journal (Vol. 78, p. 502) and the New England Journal of Medicine (Vol. 282, p. 577)

Fig. 7
Synchronous pacing. Each P wave is followed after a constant interval by a pacing artefact which triggers the QRS complex. Reproduced by courtesy of Dr. Edgar Sowton.

In this position the stimulus is ineffective because the heart is totally refractory so soon during spontaneous depolarization; it is also safe because it falls well before the "vulnerable period" of the T wave. If the pacemaker rate is set at 60 per minute the unit will deliver a stimulus "spontaneously" only when a full second has elapsed after it was last triggered by a QRS complex. Extraneous electrical activity clearly cannot cause asystole with this type of unit. On the other hand, rapid triggering might occur and cause a pacemaker-induced ventricular tachycardia. To avoid this possibility, demand triggered units have a latency usually of 400 msec: during this period following each stimulus they can neither sense a signal nor deliver an impulse. This arrangement limits the number of stimuli which can be delivered to a safe maximum of 150 per minute. One hazard remains in the following sequence of events: a spontaneous beat triggers a pacemaker stimulus which is of course ineffective; this is followed by a ventricular ectopic beat, not sensed because it falls during the period of pacemaker latency; the demand pacemaker may then deliver a "spontaneous" impulse at the correct interval after the last sensed beat but which falls on the vulnerable period of the ectopic beat. Shorter periods of latency reduce the risks of this hazard but increase the maximum heart rate which can follow from extraneous accidental triggering.

iv. **Synchronous pacemakers.** When pacing is used for patients with atrio-ventricular (A-V) block, conventional systems deliver impulses to a ventricle, and coordination with atrial activity is not attempted. Most pacemaker-induced beats will therefore lack the atrial "boost" which can be important in the presence of heart disease. Because atrial rate and ventricular rate are each constant, a cyclic variation occurs in A-V relationships. This is reflected in stroke-by-stroke variations in cardiac output and in arterial pressure (fig. 6). Synchronous pacemakers are designed to maintain physiological atrio-ventricular activity. Sensing electrodes are sutured to an atrium and pacing electrodes sutured to a ventricle. The P wave is sensed by the pacemaker and used to trigger, after a suitable delay, a ventricular stimulus (fig. 7). In addition to the advantage of sustained atrio-ventricular co-ordination, physiological increases in atrial rate, as during exercise and excitement, cause a corresponding increase in ventricular rate. The pacemaker is therefore acting as an external A-V node. The patient must be protected against the possibility of too rapid a ventricular rate caused by false triggering by extraneous electrical activity through the atrial sensing circuit. The units therefore have a limit to the rate at which ventricular stimuli can be delivered, and this is usually a little over 160 per minute. A sensing input at a rate greater than this will cause a 2:1

output block. An atrial rate of 170 per minute will therefore cause a ventricular response of 85 per minute. Abrupt halving of heart rate during strenuous exercise can be a handicap to patients with this type of system.

v. **Unipolar and bipolar electrodes.** Clearly no stimulus can be delivered to the heart unless a current flows through myocardium between two poles of the pacemaker. In this sense all pacing is bipolar. However, with so-called unipolar pacing the active electrode (cathode) is in contact with myocardium and the indifferent electrode (anode) is remote from the heart, usually in the form of a wire buried in the subcutaneous tissue or an ECG plate on the skin. For bipolar pacing both electrodes are on or in the heart, often about 1 cm. apart. Bipolar pacing usually requires less power than unipolar pacing, and the external ECG always shows a much smaller pacemaker "blip" (figs. 1, 2 and 5 show unipolar "blips" and fig. 4 a bipolar "blip"). Sometimes the surface indifferent electrode of a unipolar system causes a small muscular twitch with each stimulus, and this may be uncomfortable for the patient. Generally, however, either electrode system is satisfactory. Many implanted units have a unipolar electrode on the heart, and in some instances a metal plate on the side of the pacemaker serves as an indifferent electrode. Malfunction of temporary bipolar pacing (external pacemaker unit) can often be corrected by reversing the polarity of the connections or by using one pole of the bipolar electrode with an ECG plate on the skin serving as an indifferent electrode.

The temporary insertion of an electrode is sometimes indicated as a prophylactic measure when patients with serious conduction defects are at special risk of developing asystole (for instance when undergoing general anaesthesia). Heart failure alone is a poor indication for pacing a patient with complete block because the response to a faster heart rate is usually disappointing.

Atrio-ventricular block as a complication of myocardial infarction requires special consideration because of the variations in clinical and electrocardiographic features which depend upon the site of the infarct which caused the block. In most instances the infarction is inferior and block results from inflammation and oedema in the region of the A-V node situated posteriorly near the crest of the interventricular septum. Complete A-V block occurring at this level is usually preceded by prolongation of the PR interval, and later by second degree block of the Wenckebach type. When complete block supervenes, control of the heart is taken over by subsidiary pacemaker tissue close to the atrioventricular node and the QRS complexes usually retain a configuration similar to that of the previously conducted beats. The ventricular rate is usually in the range 40 to 80 beats per minute (fig. 8), and adequate acceleration can be obtained by infusions of isoprenaline or injections of atropine if the rate is too slow to maintain an adequate cardiac output. Asystole is unlikely to occur, and the mortality is only slightly higher than that of inferior infarction not complicated by block. The indications for pacing are *only*

Fig. 8
Showing an accelerated junctional rhythm with heart block in inferior myocardial infarction.

INDICATIONS FOR PACING

i. **Atrio-ventricular block.** In most cases of A-V block the aetiology is unknown and the course of the disease is chronic or relapsing. Active treatment is necessary when complete or partial block is associated with periods of asystole or with bradycardia of a degree sufficient to cause symptoms. In some instances, particularly when the site of the block is near the A-V node and the escape focus has a near-normal QRS complex, bradycardia may respond satisfactorily to treatment with long-acting isoprenaline or ephedrine. If medical treatment is ineffective or if the patient is known with reasonable certainty to have had even one Stokes-Adams attack then long-term pacing should be considered. Usually a temporary electrode is positioned pervenously and connected to an external box as an interim procedure. A permanent pacemaker is implanted at a later date. Demand units should be used unless good evidence is available that complete block is permanent.

relative and include such factors as an unusually slow rate, congestive heart failure, critically low cardiac output, or serious ventricular dysrhythmias not responding readily to drug therapy. Most patients with inferior infarction and block do not require pacing. The situation is quite different with anterior infarction. Block occurs peripherally as a result of involvement of the bundle branches and for this to happen the area of muscle damage must be extensive. Many patients have evidence of previous infarction. Prolongation of the PR interval and Wenckebach periods are not usually seen, but complete block may be heralded by the onset of right or left bundle-branch block. The development of right bundle-branch block plus left axis deviation (which indicates a conduction defect in the superior division of the left bundle) is a particularly important sign. Asystole occurs abruptly (fig. 9) but is sometimes intermittent. Any escape rhythm must be idioventricular with wide QRS complexes; it will usually be slow, is sometimes irregular, and is always unreliable. Pacing is an urgent

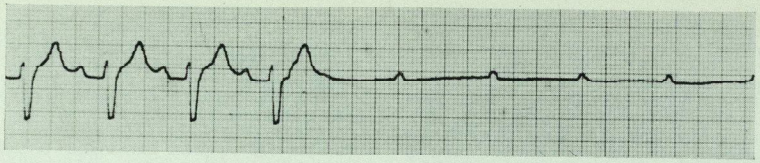


Fig. 9
Showing the abrupt onset of complete heart block in a patient with anterior myocardial infarction. The patient had developed right bundle branch block and left axis deviation the previous day. (This case is slightly unusual in that prolongation of the PR interval occurred before the development of complete block).

necessity, but the mortality remains high, partly because of the extensive muscle necrosis which is present. The pacing unit used for a patient with myocardial infarction should always be of the demand type to reduce the risk of ventricular fibrillation as a result of competition between paced beats and spontaneous beats. This is important even in cases of complete block, for in survivors A-V conduction almost always recovers, and the threshold for electrical induction of ventricular fibrillation is reduced.

ii. **Sino-atrial block.** Disease of the sinus node occasionally causes syncope resulting from brief periods of asystole. Commonly patients with a tendency to sino-atrial block suffer also from supraventricular tachycardia or atrial fibrillation, and drug treatment aimed at controlling the dysrhythmias may make the block more troublesome. This situation has in the recent past been treated by insertion of a ventricular demand pacemaker, but long-term demand atrial pacing will be preferable when technical problems can be overcome. The use of a pacemaker permits more effective drug treatment of any complicating dysrhythmia.

iii. **Dysrhythmias.** Ectopic rhythms are more likely to arise in the presence of a slow heart rate than in the presence of a fast one. Tachycardia tends to suppress any ectopic focus, and recurrent dysrhythmias which are refractory to drug treatment are sometimes abolished by pacing the heart above a critical rate which has to be individually determined for each patient. This technique has been used not only during temporary pacing after myocardial infarction or cardiac surgery but also for long-term suppression of dysrhythmias using implanted units.

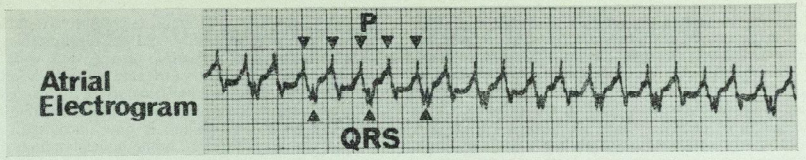
iv. **After cardiac surgery.** Pacing wires, often both atrial and ventricular, are sutured to the myocardium of patients undergoing major cardiac surgery. Ability to control heart rate can be very useful when bradycardia or heart block develop post-operatively. Furthermore, recurrent dysrhythmias may be suppressed by rapid pacing, and occasionally supraventricular tachycardia may be "captured" by rapid pacing with restoration of sinus rhythm when the pacemaker is switched off.

v. **Haemodynamic studies.** Variables such as heart rate must be controlled during many physiological studies if meaningful data are to be obtained. Atrial pacing provides an ideal method of achieving a fixed heart rate. In addition atrial pacing can be useful in the diagnosis and assessment of angina. Increasing heart rate in patients with symptomatic coronary artery disease will eventually cause cardiac pain associated with characteristic ischaemic ECG changes. The use of this technique provides a reproducible increase in myocardial oxygen requirements for the objective assessment of the disease and of its response to treatment.

vi. **Electrograms.** Pacing electrodes are useful not only for delivering stimuli to the heart but also for transmitting electrical activity *from* the heart. An electrogram recorded by connecting an atrial electrode to the V lead of an electrocardiograph may be invaluable in determining the nature of a dysrhythmia by showing very clearly atrial activity which was not apparent on an external ECG (fig. 10). When the electrodes of a demand pacemaker, particularly a permanent unit, are implanted, a ventricular electrogram should be obtained to confirm that a signal of at least 2 mV is obtained. Smaller signals may not reliably inhibit (or trigger) the demand unit. It is important, however, that the electrical characteristics of the electrocardiograph used for intra-cavity electrograms should conform at least to the recommendations of the Department of Health (Hospital Technical Memorandum No. 8, 1963). Competent advice should also be taken to ensure that the electrical safety of the power supply is satisfactory. These precautions are *essential* when ventricular electrograms are recorded.

PROBLEMS ASSOCIATED WITH ELECTRICAL PACING

1. **With malfunction of the pacemaker system.** Faulty electrodes are a very common cause of pacemaker failure. When an external box and a pervenous electrode are in use, all connections should be checked, particularly if no stimulus "blip" can be seen on the ECG monitor. Sometimes pacing wires or electrodes touch one another and "short circuit" the stimulus. Connections should always be left uncovered so that they can readily be examined.



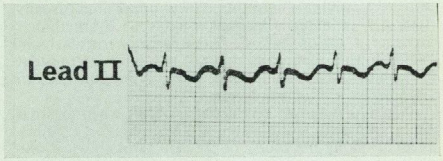


Fig. 10
The atrial electrogram shows P waves larger than the QRS complex, although they could not be identified on an external E.C.G. The rhythm is atrial flutter with 2 : 1 *A-V block.*

Absence of pacing and of a "blip" on the ECG may also be due to false suppression of a demand inhibited unit. Many units have an indicator to show when a stimulus is put out from the box; if no stimuli are registered when inhibition is clearly inappropriate, pacing may be restored by changing to a fixed rate system.

Failure of pacing from a temporary external unit when a "blip" is still visible on the ECG is likely to be due to an increase in "threshold" at the electrode-myocardial junction. The threshold tends to increase slightly for a few days after electrode placement, but may do so abruptly if the electrode becomes displaced from the myocardium or perforates through it. It is prudent to have a penetrated X-ray taken immediately after any electrode has been positioned so that subsequent displacement can be recognised. Problems with slowly rising threshold in temporary systems should not occur if it is checked daily and the pacemaker output kept about twice that required for effective stimulation. A sudden change due to displacement may respond to an increase in the strength of the pacemaker stimuli, or occasionally (if a bipolar system is in use) to reversing the polarity of the electrodes.

The large deflection of a unipolar pacemaker stimulus often has a slurred return to the baseline which is mistaken for a QRS complex. This is a very important hazard to patients who are being monitored on an oscilloscope; if an arrest or serious bradycardia results from pacing failure the problem may not be apparent to a casual observer, and the "slow alarm" signals of most monitors are not triggered when large-deflection stimuli continue to occur at a normal rate (fig. 11).

Late failure of an implanted unit with ineffective "blips" is usually due to battery exhaustion which commonly occurs two to three years after implantation. Units are designed to show rate changes before the strength of the stimulus falls markedly. Regular careful checks of heart rate using ECGs are therefore mandatory in pacemaker follow-up clinics and should prevent failures of this type. Stimuli may also be made ineffective by a break in the insulation of an electrode, and this change is usually invisible on an X-ray.

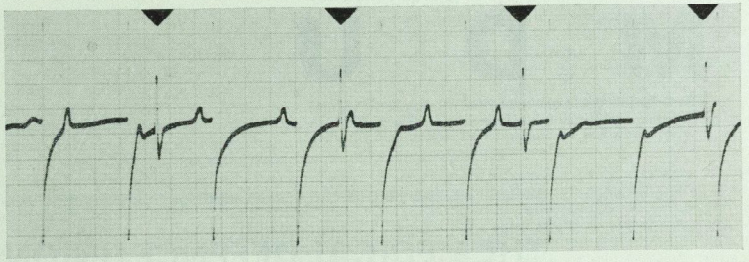


Fig. 11
Pacing failure due to high threshold with a unipolar system. Only four heart beats occurred during the recording of this strip (arrowed), giving a heart rate of 40 *per minute. The ineffective pacemaker stimuli are occurring at* 91 *impulses per minute.*

2. **Without malfunction of the pacemaker system.** When large amplitude signals are required to pace the heart (particularly the right atrium), the phrenic nerve may be stimulated so that the diaphragm contracts in time with the heart beat. This causes discomfort to the patient and the electrode should be repositioned. Complete failure of pacing without pacemaker malfunction can occur when extraneous signals cause false inhibition of demand units. Less dramatic is the abrupt halving of ventricular rate during synchronous A-V pacing when the atrial rate exceeds a critical upper limit (usually 160 per minute). Pacemaker-induced dysrhythmias remains a major hazard. These arise particularly in patients with fixed rate systems and only intermittent heart block, but, as discussed above, dysrhythmias can occur even with demand units.

Infection poses an occasional problem when external units are used with pervenous electrodes. Thrombophlebitis along the course of the vein through which the catheter was introduced should always cause concern. In many instances slight inflammation is due to mechanical or chemical irritation and may subside spontaneously. If it is progressive or if the patient becomes febrile the electrode should be replaced using a vein from a different site. A pacemaker introduced in an emergency without full sterile precautions should always be replaced as soon as possible.

CONCLUSION

Electrical pacing of the heart can be very rewarding because it can tide patients over serious crises following cardiac surgery or myocardial infarction and it can restore patients incapacitated by chronic heart block to full and near-normal activity. The techniques, however, are very demanding. Pacemakers presently available have a high degree of reliability, and the results achieved are now principally a reflection of the skill with which pacing is established and of the care with which follow-up is organised. Elective replacements of implanted units will continue to be necessary in the foreseeable future, but late unexpected failure is now uncommon in the more experienced centres. Some understanding of pacemaker function and knowledge of the warning signs of impending pacemaker failure is essential for all who share in the care of patients requiring this type of treatment.

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ACKNOWLEDGMENT

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Acute Leukaemia - Past and Present

by J. M. A. Whitehouse, M.A., M.B., M.R.C.P.

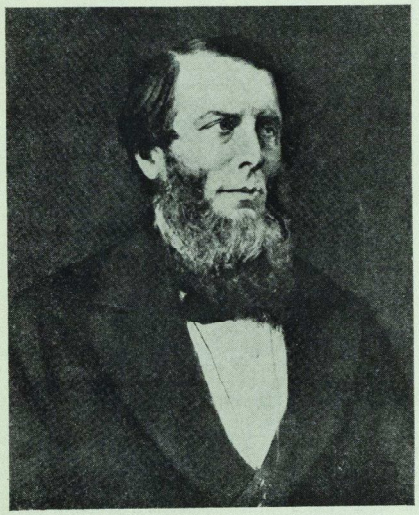


Fig. 1. John Hughes Bennett, M.D., F.R.S.E.

Introduction

John Hughes Bennett, M.D., F.R.S.E., Lecturer on the Practice of Physic, and on Clinical Medicine (Fig. 1), writing in the Edinburgh Medical and Surgical Journal of 1845, records in detail the case history, post-mortem findings and microscopical changes in the blood and other organs in a "Case of Hypertrophy of the Spleen and Liver, in which death took place from suppuration of the blood". This is the earliest recognised description in this country of what we now know, and what was indeed named only a very short while afterwards by Virchow, as leukaemia. Bennett identified the presence of an excess of "pus cells" in the blood of this particular patient, and questioned this excess in the absence of any obvious form of inflammation. He propounded a theory that the profound increase in "pus cells" was similar to the process which resulted in fever; a process likened to fermentation, and called "zymosis". By this means a small quantity of matter could alter the body state, and in this instance, he believed, had caused an increase in production of the "pus cells". The case history is recorded as follows:

"John Menteith, aged 28, a slater, married, admitted into the clinical ward of the Royal Infirmary, February 27, 1845. He is of dark complexion, usually healthy and temperate, states that twenty months ago he was affected with great listlessness on exertion, which has continued to this time. In June last he noticed a tumour in the left side of the abdomen, which has gradually increased in size till four months since when it became stationary.

It was never painful till last week, after the application of three blisters to it; since then several other small tumours have appeared in his neck, axillae, and groins, at first attended with a sharp pain, which has now, however, disappeared from all of them. Before he noticed the tumour he had frequently vomited in the morning. The bowels are usually constipated, appetite good, is not subject to indigestion, has had no vomiting since he noticed the tumour. Has used chiefly purgative medicines, especially croton oil, has employed friction with a liniment, and had the tumour blistered.

At present there appears a large tumour, extending from the ribs to the groin, and from the spinal column to the umbilicus, lying on the left side. It is painful on pressure near its upper part only. Percussion is dull over the tumour; pulse 90; states that for three months past he has not lost in strength. There is slight oedema. To have two pills of iodide of iron morning and evening."

The description suggests a diagnosis of chronic myeloid leukaemia, and the terminal lymphadenopathy, which one must assume the small tumours of the neck, axillae and groins to be, is a recognised complication of this stage of the disease, occurring particularly in acute myeloblastic transformation. Within the space of two weeks he had died, having developed oedema, presumably as a result of cardiac failure secondary to severe anaemia; and later diarrhoea. He was treated by bandaging the legs and given a steak diet and opium tablets to control the diarrhoea.

Acute Leukaemias

The acute leukaemias are characterised by a proliferation of primitive leucocyte precursors in the bone marrow associated with a leucopenia, anaemia and thrombocytopenia. The course of the untreated disease is rapid and uniformly fatal; death usually occurring as a result of uncontrolled infection or multiple haemorrhages. Two main types are recognised—acute lymphoblastic and acute myeloblastic—the clinical presentation, prognosis and response to treatment of each being remarkably different. Acute lymphoblastic leukaemia is most common in the first five years of life, the incidence falling rapidly after this, and being rare after middle age. Acute myelo-

blastic, monoblastic and stem cell leukaemias are slightly more common in adult life than in childhood, but may occur at any age, the incidence being fairly evenly distributed throughout all age groups.

In the early part of this century, leukaemia was regarded as a predictably fatal disease in which there existed little hope that therapeutic intervention could induce even temporary relief. On occasions, complete remission occurred spontaneously following either blood transfusion or infection, but such remissions were rare. Furthermore, the major complications of the disease, namely, haemorrhage and infection were difficult to control before the introduction of antibiotics and blood for transfusion was not as readily available as it is today. Satisfactory platelet transfusions were not achieved until the early 1960's.

Following the discovery that irradiation could cause marrow depression, X-irradiation and isotopes were found to be effective in lowering the peripheral blast count temporarily in some instances. However, the effect of irradiation was neither predictable nor uniform. The first true indication that chemotherapeutic agents might have a role to play in the treatment of acute leukaemias came in 1948 (Farber) when the use of 4 aminopteroyl glutamic acid (Aminopterin) was described in this context. Treatment before this had been primarily supportive: occasional remissions occurring, as has been mentioned, following blood transfusion or infection. Over the ensuing years many varieties of treatment have been devised, some with theoretical potential which are impracticable for one reason or another and others which are under trial. In these groups may be included:—

(a) Whole body irradiation and marrow transplantation—the major disadvantages of which are that a large quantity of marrow aspirate is necessary for grafting, and that a graft versus host reaction may develop. Bone marrow grafting with allogeneic tissue has recently been reported to have been successful in a number of cases after conditioning with antilymphocytic serum, without prior whole body irradiation. The purpose being to reduce the incidence of graft versus host reactions.

(b) Extra corporeal irradiation—this has the disadvantage that only the cells in the peripheral blood are irradiated, those in the marrow escape. When used alone, this technique is tantamount to treating a proportion of a tumour only, leaving the remainder intact.

(c) Non specific immunotherapy—this appears likely to have a place in maintaining remission once it has been achieved and represents a change in approach to therapy. Previously the antigenic stimulus of the leukaemia cell, and any antibody response, has been disregarded as an entity. It now seems likely that in some circumstances an antigenic stimulus may exist and it is thus reasonable to stimulate the antibody response using a non-specific stimulus. This method is of no value in inducing remission, but it is believed to have a place in its maintenance. The stimulus is commonly effected using frequent inoculations of B.C.G. (Bacille Calmette Guerin) vaccine.

(d) Diet—diets deficient in certain amino acids thought to be essential to the leukaemic cell have been tried unsuccessfully as a mode of treatment in the past.

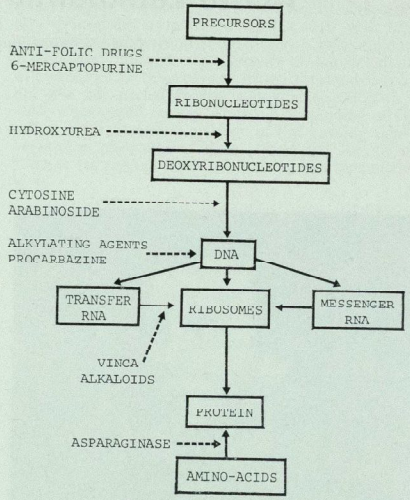


Fig. 2.
Sites of action of some chemotherapeutic agents used in the treatment of acute leukaemias.

Chemotherapeutic Agents (Fig. 2)

A veritable multitude of pharmacological preparations, the majority either excessively poisonous or worthless from a therapeutic standpoint, have been produced with the intention of extending useful life in the acute leukaemias. However, the ultimate promise of total cure has so far eluded man's scientific endeavour. The most useful preparations so far synthesised or isolated are listed below:

I **Antimetabolites**

(a) *Methotrexate* (Amethopterin)—Inhibits the enzyme folic acid reductase blocking the conversion of folic acid to the biologically active tetrahydrofolic acid necessary for nucleic acid synthesis. It is well-absorbed when given orally but C.S.F. levels following administration by this route are low, thus in leukaemic meningitis where it is a drug of choice it must be given intrathecally.

Methotrexate is predominantly active against cells in division, having little effect on those in the resting state. Its main toxic effect is therefore on rapidly dividing tissues, such as bone marrow and the gastro-intestinal tract. The more common side effects are bone marrow depression and oral ulceration.

(b) 6-*mercaptopurine* (6MP)—A synthetic analogue of adenine and hypoxanthine, this compound interferes with purine synthesis and its incorporation into purine nucleosides. Like methotrexate it acts mainly as an inhibitor of D.N.A. synthesis affecting principally those cells preparing for division. Its degradation to non-toxic derivatives is catalysed principally by xanthine oxidase—a fact of some importance when it is used in conjunction with Allopurinol, for if full doses of 6MP are used, and Allopurinol is given to prevent the rise in serum uric acid which is anticipated when rapid cell breakdown occurs, the resulting inhibition of xanthine oxidase causes accumulation of high levels of 6MP and hence increases toxicity.

(c) 3, *Thioguanine*—A purine analogue with a mode of action and side effects similar to those of 6 mercaptopurine.

(d) *Cytosine Arabinoside* (Cytarabine, AraC)—Is the only pyrimidine antimetabolite known to be effective in acute leukaemia. It is believed to inhibit D.N.A. synthesis as the (di) nucleotide by interfering with the conversion of Cytidine diphosphate to deoxycytidine diphosphate. It may be administerered by any parenteral route and is one of the drugs of choice given intrathecally in leukaemic meningitis. Its major side effect is one of bone marrow depression.

II **Cytotoxic Drugs**

(A) Alkylating Agents—Act by replacing a hydrogen atom with an alkyl radical reacting within the cell with many of its components including nucleoprotein. Some of the effects on the cell are similar to those produced by X-irradiation.

(1) *Mustine HCl*—now no longer used in the treatment of acute leukaemias.

(2) *Cyclophosphamide*—Is the only alkylating agent proved to be of use in acute leukaemias, Inactive in vitro, it is well absorbed from the gastro-intestinal tract, and is metabolised in the liver to the active compound. The main side effects being of nausea, vomiting, alopecia, and haemorrhagic cystitis.

(3) 1, 3-*bis* (2-*chloroethyl*)—1—*nitrosourea* (B.C.N.U.)—The role of this substance in the treatment of the acute leukaemias has yet to be fully assessed, but it does have the additional property of crossing the blood-brain barrier which may prove to be of value in the treatment of meningeal leukaemia. It is given immediately after preparation of the solution into a fast running intravenous infusion. The main side effects are similar to those of the Nitrogen Mustards.

(B) Miscellaneous

(1) *Adrenocortical steroids*—Were introduced into the treatment of acute leukaemias in 1949 having been shown to have a marked lympholytic effect. They act predominantly on mature and immature lymphoid cells.

(2) *Vincristine and Vinblastine*—Vincristine is a natural alkaloid of the periwinkle (Vinca rosea Linn.) and causes mitotic arrest at metaphase presumably by disruption or inhibition of mitotic spindle formation. It has proved itself particularly useful in the treatment of acute lymphoblastic leukaemia. Its sister compound Vinblastine is rather less toxic, but is a less effective agent in the therapy of acute leukaemias. Both may produce a polyneuropathy or adynamic ileus, which may be only partly reversible.

(3) *Methylglyoxal-bis-guanylhydrazone* (MeGag)—Is a synthetic compound, mode of action unknown, which exerts a profound effect on the bone marrow, mucosal surfaces and connective tissues. Its severe toxicity has precluded its extensive use.

(C) Antibiotics

(1) *Daunorubicin* (Rubidomycin)—Is an antibiotic derived from Streptomyces ceruleorubidus or S. peucetius. It is believed to act by inhibiting D.N.A. synthesis by complexing with preformed D.N.A. Acting on both leukaemia and normal marrow cells, its major side effect is severe bone marrow depression. However, cardiotoxicity has been noted, and when Daunorubicin is used in therapy, regular electrocardiograms are indicated.

(2) *Adriamycin*—Is a new antibiotic isolated from cultures of a mutant of Streptomyces peucetius. Given by rapid intravenous infusion its main side effects, apart from bone marrow depression, are gastro-intestinal disturbances, and alopecia. ECG changes have also been reported but appear to be less frequent than those resulting in patients treated with Daunorubicin.

(D) Enzymes

L-Asparaginase—Unlike the other compounds so far described the enzyme L-asparaginase acts by exploiting the different nutritional requirements of the tumour cell as opposed to those of the normal. Exogenous L-asparagine has been found to be necessary for optimal growth of human acute leukaemia cells as well as in experimentally-induced leukaemias in animals. Bacterial asparaginase (especially from E.Coli) inhibits replication of sensitive leukaemia cells in vitro and in vivo, apparently by catalysing the hydrolysis of L-asparagine in the blood and extra-cellular fluid. Unfortunately, despite the theoretical advantages of this enzyme, clinical useage so far has not proved it to be as valuable as preliminary studies suggested. It is effective in reducing the total blast count in the peripheral blood only, in acute myeloblastic leukaemia. However, used on its own in acute lymphoblastic leukaemia may produce complete remission in about 50%. Its use is associated with appreciable morbidity, commonly producing anorexia, nausea, and in large doses is hepatotoxic with depression of protein synthesis resulting in hypoalbuminaemia. Clotting factor deficiences have also been recorded following its administration.

Present Concepts of Chemotherapy

The approach to chemotherapy of the acute leukaemias has changed over the years, and this progress may be summarised in terms of the type of regime employed namely:—

(1) continuous administration,
(2) cyclical administration,
(3) intermittent administration, and finally
(4) 'combination chemotherapy'.

Continuous administration was used in the hope of achieving continuous suppression of the malignant process. Inevitably there was 'escape' of the tumour or leukaemic process from control by an individual drug and another was then substituted in its place. Cyclical administration was developed in the hope of forestalling this resistance. A series of preparations were used, each course of one being followed immediately by that of another drug, in set order. The intention being to limit the length of each course of a particular preparation to an empirical period, after which it was felt resistance would occur.

Certain drugs, for example, Methotrexate, have been found to be more effective in maintaining remission when given at intervals—namely as 'pulses' now given at weekly or twice weekly intervals—rather than continuously. It is assumed that normal cells recover more rapidly in the interval permitting larger doses of the agent than could otherwise be used.

This principle has been incorporated into the present chemotherapeutic regimes which employ several drugs given in combination at regular intervals until remission is achieved—a scheme which has come to be known as 'combination chemotherapy'.

The use of drugs in combination is analagous to the use of combinations of antibiotics in combating bacterial infection. There are two main reasons which justify this comparison—firstly, that by using two agents with different modes of action 'cross resistance' is theoretically less likely to occur, and secondly when two agents with different side effects are used their combined effectiveness may be enhanced by using the maximum tolerated dose of each without increasing toxicity.

Cell studies using tritiated thymidine, which is incorporated into newly synthesised D.N.A. during the S. phase of the cell cycle (the pre-mitotic stage in the cell cycle during which new D.N.A. is being formed) have shown that in the marrow of acute leukaemic subjects only a small percentage of cells are labelled. That is to say, the proportion of actively dividing cells in these marrows is small.

Therapy in the past has presupposed that all the leukaemic cells were proliferating actively—hence the use of antimetabolites and drugs active predominantly on cells in division. If one assumes that those cells in the resting state have lost their powers of proliferation then treatment need only be directed towards a small proportion of cells. However, it has been shown that this hypothesis is untrue and cells in the resting phase are capable of proliferation, and may indeed do so when chemotherapy has been discontinued. As yet, no effective method of stimulating the resting cells into the S. phase (and thus making them more susceptible to chemotherapy) has been devised.

Although combination chemotherapy makes use of the information so far available on the kinetics of the malignant and non-malignant cell, allowance is not made in many schemes for the unpredictability of administration via the oral route. Intravenous administration of a particular drug produces a relatively standard blood concentration, but when given orally, blood levels may vary from individual to individual, and even from dose to dose in the same subject. The intravenous route is thus to be preferred. This fact, plus intermittent administration, allowing for recovery of normal tissues such as the gastro-intestinal mucosal surfaces and the bone marrow;

SCHEME FOR THE TREATMENT OF
ACUTE LYMPHOBLASTIC LEUKAEMIA

INDUCTION OF REMISSION	CONSOLIDATION OR CYTO-REDUCTION	MAINTENANCE
1. VINCRISTINE + PREDNISONE	6-MERCAPTOPURINE	IMMUNOTHERAPY
FAILING THIS OTHER DRUGS	METHOTREXATE	METHOTREXATE
2. CYTOSINE ARABINOSIDE	CYCLOPHOSPHAMIDE + I.T.METHOTREXATE ± PREDNISONE	REPEATED COURSES OF COMBINATION CHEMOTHERAPY
3. DAUNORUBICIN		
4. ASPARAGINASE	AND OTHER DRUGS USED FOR INDUCTION	
5. BCNU		

Fig. 3.
Scheme for the treatment of Acute Lymphoblastic Leukaemia.

coupled with improved supportive measures for disease induced and iatrogenic complications allows the drugs to be used at a dose of maximal effectiveness.

Treatment following diagnosis is divided into three stages:—

1. Induction of remission—when, for example, the total leukaemic cell population is reduced from 1×10^{12} to approximately 1×10^{9} using intensive chemotherapy.
2. Cytoreduction—a period during which the total leukaemic cell population is further reduced using chemotherapeutic agents.
3. Maintenance—may be effected using non-specific immunotherapy with B.C.G. vaccine, Methotrexate alone in acute lymphoblastic leukaemia or Methotrexate and 6MP combined in acute myeloblastic leukaemia—by which means one hopes to ensure the continuance of complete remission.

From the above listed drugs it will be appreciated that an infinite variety of combinations is possible when remission induction is considered. Some of the better established courses originating from the U.S.A. used in the treatment of acute lymphoblastic leukaemia are known as VAMP, POMP and BIKE and involve different permutations of dosage of Vincristine, Prednisolone, Methotrexate and 6-mercaptopurine. That of BIKE also involves a course of Cyclophosphamide.

At this hospital, treatment schemes are summarised in Figs. 3 and 4.

Using the above scheme for the treatment of acute myeloblastic leukaemia, a 67% complete remission rate has been attained which is one of the highest so far recorded (Crowther *et al* 1970) (See Fig. 5). In the event of failure to produce remission after three to four courses of Daunorubilin and Cytosine Arabinoside,

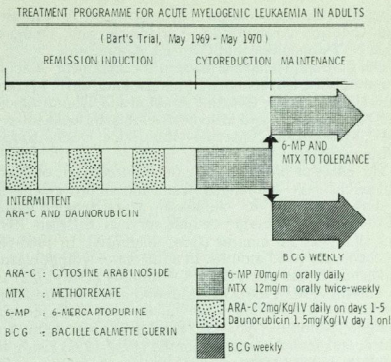
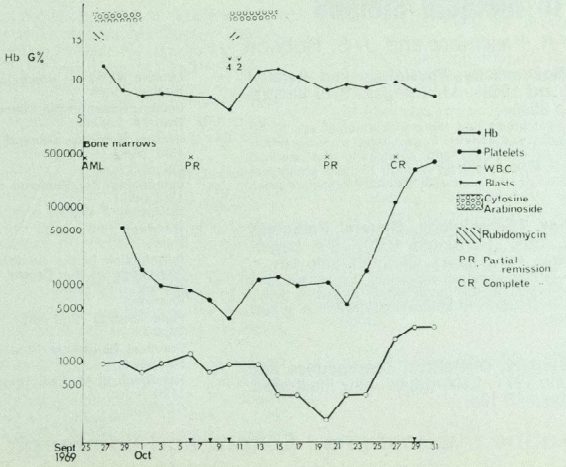


Fig. 4.
Scheme for the treatment of Acute Myeloblastic Leukaemia.

Fig. 5.
J.E.—A 25 year old woman with Acute myeloblastic leukaemia. Following the complete remission bone marrow she received a further course of Rubidomycin and Cytosine arabinoside to "consolidate" the position; was then "cyto-reduced" further with 6 MP and Methotrexate, and "maintained" on a reduced dosage of this combination.



other courses may be used as, for example, Adriamycin and Cytosine Arabinoside, Adriamycin and Thioguanine, or Thioguanine and Cytosine Arabinoside.

Drugs found to have a place in the treatment of acute lymphoblastic leukaemia are Prednisolone, 6MP, Methotrexate, Vincristine, Cytosine Arabinoside, Daunorubicin and Asparaginase; and in acute myeloblastic leukaemia—6MP, Methotrexate, Cytosine Arabinoside, Daunorubicin Adriamycin, and Thioguanine.

The effect of chemotherapy on the treatment of acute leukaemia may be judged from the improvement in median survivals. In childhood acute lymphoblastic leukaemia, the average median survival between 1937 and 1953 was 3.5 months (from diagnosis). In 1965-66, this had risen to 33 months. In adult acute lymphoblastic leukaemia it had risen from 1.4 months (1937-1952) to 11 months (1963-1966). In childhood acute myeloblastic leukaemia (1937-1953), the figure was 1.2 months rising to 13 months (1963-1968) and in adult acute myeloblastic leukaemia it was 2 months (1937-1953) rising to 6 months (1963-1966).

This improvement is not due solely to the introduction of chemotherapy but also to improved facilities for treating severe bone marrow depression and infection. It is of interest that, in this hospital, the practice is to nurse patients with acute leukaemias in the general wards, even when they suffer from the effects of severe bone marrow depression. Any pyrexia is immediately investigated by blood culture, nose and throat swabs, M.S.S.U. sputum examination and stool culture, if this is indicated.

Frequently, no organism is isolated, but evidence suggests that when infection supervenes, it is frequently from an endogenous organism.

In conclusion, it is perhaps worthwhile examining the changing purpose of treatment which has moved from supportive, palliative, through the spectrum of therapeutic intention, to a regime which strives for cure—for 'total kill' of the leukaemic cells—and in doing so, remember that our purpose is to sustain life with minimum of discomfort for the day when such a cure becomes available.

Dr J. M. A Whitehouse is a Registrar on a Medical firm at St. Barthomews Hospital.

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Sport at Barts

GOLF

Judging by the entries in the book at Chislehurst, more golf has been played by Bart's students this summer than in the preceding two years. Unfortunately, this factor was not reflected in our progress in the U.H. Cup, but it has enabled all of us to enjoy our extensive round of social fixtures.

Our busy month, as always, was May, and our first engagement was in the University Championships at Beaconsfield, where none of our three-man team (Davison, Dixon and Griffiths) featured prominently. However, as all three played at a steady, if undramatic, level, we managed to secure second place in the team event.

On the next day was the Staff Match at Denham. Sunshine, the excellent condition of the course, very good food, and a close game all combined to produce a memorable match, which the staff just won. The individual games were all very close, on account of the new method of playing on straight differences—a system which should continue. It was particularly pleasant to see Dr. Graham (who has done so much for this match) both at the course and, later in the summer, on the television.

The U.H. Cup 1st round came next, in which we rather carelessly lost to Tommies at Royal Mid Surrey. Davison was unexpectedly beaten by their No. 1, who was round in level par, while Dixon only managed a half by birdying the eighteenth. Packer was our only winner at No. 4, and Griffiths and McKinnon were both out of form. Excuses are unacceptable, but 3 of our star players (Rutherford, Laidlow and Rickards) were out of action at the time.

The same weekend we played our four matches at Colchester (lost) and Purdis Heath (won). The Purdis Heath match saw our best golf: Griffiths obtained an eagle two at the 330 yds. first hole, a couple of near hole-in-ones were talked of, while most of us shot low 70's.

Then there was a very enjoyable match at Tandridge, kindly arranged for us by Mr. Hankey. We just lost the match but the day will be remembered as the day that the fruit machine had three consecutive jackpots! Bart's tactfully did not get in on the act.

To round the season off came the two evening matches at Chislehurst. One against the home club we diplomatically halved and another against the Bart's G.P.'s, which we won. The latter was followed by an excellent fork supper at Dr. Kelsey Fry's, which was greatly enjoyed by all.

ADRIAN DIXON

BOAT CLUB—REVIEW OF THE SEASON

At the beginning of this season we were determined to raise the standard of Bart's rowing by (a) training a senior squad with the University crews, and (b) concentrating on a junior crew that would stay together in the summer. The results of this policy were mixed; one senior member was chosen for the University eight, and two others decided to row in a University/United Hospitals four, so that no regular senior crews materialised at all in the summer! However, the Junior eight nearly fulfilled all we had hoped for it, and with this extra experience lower down in the club we will have more power in depth to call on next year.

In the winter our main object was to build up a crew to win the Junior eights at the U.H. regatta. Under Barry Grimaldi's coaching a very keen fast crew materialised, but were unlucky to lose in the final by half a length. The following week there was handsome consolation when the crew, with one or two changes, won the Novice eights at the U.L. Winter regatta. This, together with the Rugger fours at the U.H. regatta, were our first winter successes since 1966.

The Junior eight rowed in three Head of the river races in the Easter term, and produced competent, if not outstanding performances.

In the summer a scratch first eight was assembled, and made a bump on Guys in the U.H. Bumps, to rise from 4th to 3rd. A four from this crew later gained our only Junior-Senior victory of the year, when they won J-S fours at the Medway towns regatta, with no practice outings, on the morning after the Barbecue Ball!

The second eight won back the 2nd eights pennant in the Bumps, a trophy we lost last year, and the following week won the Junior eights at the Allom cup regatta. These were the two trophies we had particularly wanted them to win, and this was most gratifying. Unfortunately it then proved impossible to keep an eight together, but a four reached several novice and junior finals at open regattas, and won the Novice event at Cambridge regatta. The following week they reached the final of junior fours at Brent, but thereafter their lack of fitness caught up with them, and although they won several heats, no more trophies came their way.

Our tally for the season was thus as follows:

1st VIII—3rd from 4th in Bumps; a four won J-S fours at Medway Towns Regatta.

2nd VIII—won 2nd VIII's pennant in Bumps; won Novice Div., U.L. Winter eights; won Junior VIII's, Allom cup regatta; a four won Novice Fours, Cambridge regatta.

This coming season we have several oarsmen with 1st VIII experience returning to the fold, and four of this year's Junior eight, so we can anticipate a successful year. All freshers who would like to row, irrespective of their present standard, please contact one of the officers of the club, and look out for the notices of our annual inaugural sherry party, at which you will be very welcome.

At the A.G.M. the following were elected:

Captain:	N. J. CREAGH SNELL
Vice-Capt.:	R. C. FOWLER
Secretary:	T. C. B. DEHN
Treasurer:	J. LAMBLEY
Preclinical Rep.:	T. R. HUNT

TENNIS CLUB REPORT

The Winning Bart's. team in the United Hospitals Tennis Cup Final:

J. Corbin, I. Ussher, A. Dixon, J. Wellingham, C. Higgins, (Captain) C. Hunt.

UH Tennis Cup Final

After a series of delays and postponements that made the task of keeping a team together a Herculean effort, we at last met the London Hospital on Wednesday, August 5th, in order to play the UH Cup Final. The cup itself which had been brought over from St. Thomas' Hospital and specially cleaned for the occasion, tried hard to sparkle under rather a dismal and overcast sky as it was displayed to all present.

The Bart's team was as follows:—

John Corbin Adrian Dixon	1st pair
John Ussher Chris Hunt	2nd pair
Chris Higgins John Wellingham	3rd pair

Five out of the nine rubbers had to be won in order to give us the match. With some apprehension as the UH Cup escaped us last year in the final, but with determination on both sides, the match was started.

In the first round our first pair disposed of the London's third pair fairly swiftly and, shortly afterwards, our second pair managed to beat their first pair (6—3, 6—3). At this stage our third pair was one set all against the London's second pair and the prospects, were obviously favourable. We went on to win this last match (6—3, 3—6, 6—2), and almost simultaneously our second pair did justice to the London's third pair in the 2nd round.

Only one more win was needed at this stage and our first pair were 6—4, 4—4 up against the opposition first pair. At this stage, however, the rain started to fall and it seemed as though our run of luck might have been of no avail. A replay would have been very definitely disadvantageous to us as several of the team were shortly off on their summer vacations.

However, with a superhuman effort of the type not uncommonly seen in Bart's sport in times of stress, we snatched the final two games to win the cup 5—0 as a torrent of rain descended on the courts and we adjourned to the bar to toast our success.

The last time we won the UH Cup was in 1920 and before that in 1919. Now at last it has returned to our possession and we plan to keep it for a while. With possibly the same or an even better side next year, I think that our chances will definitely be favourable.

C. D. D. Higgins

DIARY OF EVENTS FOR OCTOBER

Wednesday	*7th*	Preclinical Term Starts Freshers Rugby Trial at Chislehurst
Saturday	*10th*	Freshers Hop, College Hall
Thursday	*15th*	London Medical Group Lecture at Bart's: "Psychological Aspect of Mastectomy"
Tuesday	*20th*	Anaesthetics Meeting in Clinical Lecture Theatre at 6.15 p.m.: Symposium on Parenteral Nutrition. Chairman : Dr. T. B. Boulton Speakers : Mr. M. H. Irving Dr. G. Rushman Dr. P. C. Allen
Saturday	*24th*	Rugby Club Hop: College Hall

C-A-M

CHILDRENS ANTISPASMODIC MIXTURE

★

A PLEASANT FRUIT-FLAVOURED SYRUP READILY TAKEN BY CHILDREN FOR

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COMPOSITION
Ephedrine Hydrochloride 4 mg.
2-Diethylaminoethyl-*a*-phenylbutyrate 4 mg.
in each 5 ml.

REFERENCES
Artzliche Forschung 11.1/217-20 10/4 1957

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SAINT BARTHOLOMEW'S HOSPITAL JOURNAL
Founded 1893. Vol. LXXIV No. 11

Editorial

On Thursday, September 10th the Students Union Teaching Committee invited all Students to the Clinical Lecture Theatre to put forward points for a future 'Open Discussion' with Consultant Staff. Many important questions were raised, and an agenda prepared for the forthcoming meeting.

This was held a week later, and as can be seen from the Minutes appearing later in this *Journal* several of the Consultants were present together with Junior Staff and a large number of students. The first few points on the agenda were discussed very thoroughly, and while both sides of Consultant opinion were represented it seemed that some of them saw insurmountable problems surrounding nearly every proposal. Unfortunately there were several major topics still to be considered when the meeting had to be closed through lack of time, and these included such questions as the organization of the Elective period and Special Subjects, the Introduction of Teaching machines and the efficiency of the Ward Round as the basic Teaching Unit.

At the end of the meeting assurance was given that the various points raised would be given due consideration by the Hospital Authorities. It was noticed, however, that none of the Staff appeared to be taking any notes at all, and that some of them even gave the impression that they were listening without any serious intention of implementing the proposals suggested. To give an example from the past, the current system of grading Clinical students at the end of each firm is haphazard and almost totally meaningless, yet the alternative proposed by the Students has hardly been considered. Unless Consultants are prepared to bring in changes as a result of student suggestions then there is no point in having these confrontations at all, they are just a waste of everyone's time.

It is the *Journal's* opinion, however, that provided both sides approach them in the right frame of mind then they are of great value. Students feel strongly about teaching methods because to a certain extent their careers depend on them, and the Senior Staff should realise that being on the receiving end they can give a worthwhile criticism of the value of a particular feature of the course. For their part the students must not treat it merely as a forum for the expression of their general ill feeling for Authority.

Now that the proposals have been included in the *Journal* the Authorities can read them at their leisure, and it would be a great boost to the progress of Teaching at Bart's if it was acknowledged by the early adoption of some of their as yet modest proposals that students *are* capable of producing a worthwhile contribution towards their education.

LETTERS to the EDITOR

BARBECUE BALL 1970

Abernethian Room,
St. Bartholomew's Hospital,
London, E.C.1.

Dear Editor,

After having read the report on the Barbecue Ball in August's issue of the *Journal* I feel that I should give some credit to those who have it due to them. Lack of thanks and appreciation for services rendered seems a commonplace fault in Bart's.

This year, for the first time, the ball was run by a Barbecue Ball Committee with direct responsibility to the Wine Committee. This enabled the vast work-load involved to be shared amongst the Wine Committee and others.

It is these others, more especially, that I would like to thank for their consistent hard work which helped make such a successful occasion.

Thanks to the Medical College authorities and workers whose co-operation was exemplary; also to Richard Barrett and Peter Griffiths for their work on the "South Sea Island" room. For the decoration of the foyer many thanks must go to David Wilkinson, Richard North and Peter Bartlett.

Chris Hanning was the vastly overworked lighting man, almost a one man show in his own right. Those nurses that helped us on the night were indispensable and allowed us to take things a little more easily than we might otherwise have done. Peter Lane of J. Lane Ltd. (Smithfield) provided an excellent and personal service on the barbecues.

To those too numerous to mention, who helped us with odd jobs before and after the ball, our thanks.

My personal thanks must go to all those involved, and if there is anyone interested in assisting with next year's arrangements please contact myself or any member of the Wine Committee.

Yours faithfully,

COLIN BROOKBANKS,

(Chairman, Ball Committee).

APOLOGY

The *Journal* apologises to its readers for the late publication of the October issue. This was due to a combination of industrial and technical factors beyond our control.

Abernethian Room,
St. Bartholomew's Hospital,
London, E.C.1.

Dear Editor,

We should like to thank the psychiatric department for the care they have shown in making their course such an enjoyable and successful one.

There are several features of the course which we feel have contributed to this. The lectures are on the whole good. The clinical material, while by force of circumstances limited, is well used to cover the ground of the major psychiatric illnesses in ward rounds which are pleasantly free from the scourging of individual students which is so often a feature of ward rounds in other specialities. The system of tutorials is excellent, and has we think been found useful and workable.

Finally, it is refreshing as a student to feel that suggestions for improvement and criticisms of particular aspects of the course are taken seriously in the terminal meeting specifically designed for this purpose.

We feel that the principles of organisation and humanity shown in this course could be applied with benefit to the other courses.

Yours faithfully,

David Sloan,
Jeffrey Tobias,
Jolyon Oxley,
Nicholas J. D. Whyte,
Paul Swain,
Alan Whitely,
David Thompson,
S. J. Warrington,
George Lodge,
Ian Hamm,
John Durham,
Mrs. Gill Durham.

ANNOUNCEMENT

Births

BUBNA-KASTELIZ—To Gillian (née Darch) and Bruno Bubna-Kasteliz, a daughter.

Engagements

WOOD—HOUSER—The engagement is announced between Dr. Philip Wood, M.A., M.B., B.Chir., and Miss Nancy Houser.

STANLEY—HUSSEY—The engagement is announced between Dr. Philip Stanley, M.R.C.P., D.M.R.D., and Miss Barbara Hussey.

HILTON—POLUMIN—The engagement is announced between Dr. Andrew Hilton, M.R.C.S., and Miss C. Polumin.

Marriage

ANDREWES—SWAFFIELD—On August 1, Dr. John Frederick Andrewes, M.B., B.Chir., Camb., D.C.H., D.Obst., R.C.O.G., to Ellen Jane Swaffield.

HOULTON—MACARTHUR—The marriage took place at Epsom on August 17 between Mr. P. G. Houlton and Miss J. M. Macarthur.

Deaths

BARBASH—On August 25, Mr. Hezekiah Barbash, F.R.C.S. Qualified 1919.

GRAINGER—On September 4, Mr. Robert Grainger, F.R.C.S., F.R.C.S.I. Qualified 1930.

THORNE THORNE—On September 20, Dr. Richard Thorne Thorne, M.D. Qualified 1901.

Honours

Professor L. J. Witts, emeritus Nuffield professor of clinical medicine, Oxford, has had the honorary degree of Doctor of Science conferred on him by Queen's University, Belfast.

Appointments

Dr. J. E. Stark, M.D., M.B., B.Chir., M.R.C.P. has been appointed Consultant Physician/Senior Lecturer at St. Leonard's Hospital and St. Bartholomew's Hospital Medical College.

Dr. D. F. J. Mason, B.Sc., Ph.D. has had the title of Reader in Experimental Pharmacology conferred upon him.

The Department of Bacteriology is now to be known as the Department of Medical Microbiology and Professor Shooter as the Professor of Medical Microbiology.

IMPORTANT MESSAGE FOR YOU

The *Journal* needs non-clinical material as well as Clinical articles. Why not write a short story, or an article about your holiday in darkest Africa or tell us about your experiences with butterflies . . . ?

Please get in touch with Mike Goldsmith at the *Journal*.

ANNOUNCEMENT

Part-time or full-time clerical assistant required for research project into Hodgkin's Disease and malignant blood diseases. Experience of Bart's patients' notes OR hospital work essential. Hours flexible and to be discussed.

Applications to Dr. G. Hamilton Fairley or contact Miss Anthea Davies, 3rd Floor Medical, Ext. 591.

APPRECIATION OF DR. A. W. FRANKLIN'S WORK FOR THE JOURNAL

It is appropriate that the Bart's *Journal* should express its gratitude to Dr. Franklin at this time, for he was intimately connected with it ever since he was Editor in 1926-29. For many years he was Chairman of the Publications Committee, and despite his seniority both in the hospital and in the medical profession he always maintained that the *Journal* should be run by the students with the minimum of interference from above. The only times he felt compelled to enforce his views were when he feared the *Journal* might lose its independence, or to modify something about to be published which he knew would cause trouble without achieving its object. There must be many past-Editors who remain grateful for his advice.

The *Journal* joins with the hospital and all his many friends in wishing Dr. Franklin and his family a happy future, and we hope that he will still continue to write for us in the superb style which we all enjoy so much.

G.H.F.

OBITUARIES

JAMES HARKNESS MARGERISON, M.B., Ch.B., St. And.

James Margerison, consultant in clinical neurophysiology to the hospital and to Runwell Hospital, Essex, died suddenly on August 4th at the age of 48.

After leaving school at Blackburn he studied law at Manchester University but in 1940 he volunteered for the R.A.F. and served in it and in the Fleet Air Arm during the war. He then started as a medical student at St. Andrew's University, qualified M.B. in 1952 with various prizes. After a medical house appointment he worked for three years in the Department of Psychiatry at Dundee and early in 1956 he was appointed Peel Trust Research Fellow to work at Runwell Hospital and it was during his four years there that he became interested in electroencephalography. He then spent three years as lecturer in the department of clinical neurophysiology at the Institute of Psychiatry until he was appointed Consultant in Clinical Neurophysiology at the Whittington Hospital in December 1962 and he built up an active department at that hospital.

He was appointed to the staff of Bart's in October 1964. James Margerison was a man of great determination and was a good organiser and by the use of these qualities and with the most generous support of the Governors of the Hospital he developed a large and superbly equipped department of clinical neurophysiology which was officially opened in 1969. He made an impact at the hospital in other ways also. His somewhat abrasive attitude at committees was combined with a great deal of common sense and a determination to get things done in the way which he thought was right.

Margerison published a considerable number of papers, some on E.E.G. topics, especially on frequency analysis of E.E.G. records, and others on various aspects of epilepsy, a subject in which he was deeply interested. He did much useful work for the British Epilepsy Association, in particular on its research committee. He was also involved in the problems of sports medicine, especially swimming, and it was while attending the Amateur Swimming Association's meeting at Blackpool, at which his daughter was a competitor, that his death occurred.

It is a great loss to Bart's, to clinical neurophysiology and to research into epilepsy that he should have died so soon after the opening of his department. He was full of enthusiasm and ideas for developing its routine work and for research projects to be carried out in it.

We offer our sincere sympathy to his widow and to his son and daughter.

J.W.A.T.

BERTRAM LEWIS HAMMOND, F.B.I.S.T.
1896—1970

Many old Bart's men and a great many more Bart's patients will have happy recollections of a very kind and able, gentle quiet man who occupied a small room on orthopaedic outpatient days measuring patients for surgical appliances and fitting them out.

Mr. Bertram Lewis Hammond was wounded in the First World War and was ultimately admitted to the Military Orthopaedic Hospital that Robert Jones founded at Shepherd's Bush in what is now the Hammersmith Hospital housing the Royal Postgraduate Medical School. That hospital was staffed by many men whose names are now memorable, including R. C. Elmslie and S. L. Higgs who did so much to build up also the orthopaedic department at Bart's. The word rehabilitation was unknown in those days but the great war hospital inspired by Robert Jones had remedial workshops of advanced kind, including workshops for fitting out the wounded with surgical appliances. Here Hammond, as a patient, was appointed Storekeeper and was responsible for the issue of appliances. His spirit of enterprise led him to take a great interest in the manufacture and fitting of these aids. On discharge from hospital he joined the firm of Beckett & Bird who have served Bart's ever since the first attendance there of Mr. Alfred Bird in 1916. After some years of tuition, Hammond eventually took over at Bart's in 1926, when the writer was still a student.

In 1950 Mr. Hammond left to take charge of the Government Orthopaedic Workshop in Salisbury, Rhodesia. On returning to England 8 years later, he rejoined his old firm and resumed his regular attendance at Bart's until 1966.

He retired to Lewes in Sussex, his home county, and there he died on June 1st, 1970, at the age of 74, leaving behind a host of patients and fellow workers warmly grateful for all that he did so skilfully and so gracefully.

H.J.B.

How to Love Americans and Get Rich Quickly

By Mike Goldsmith

Every clinical medical student knows how difficult it is to supplement the somewhat meagre allowance, which the Government bestows upon him, by doing outside work. Because we only get six weeks holiday per year, there is virtually no opportunity to take on a holiday job. With this problem in mind, in early May of this year, I set about finding a job which could be done on a part-time basis (weekends and evenings only), and which was lucrative. To this end, after reading several back pages of the *Times*, I discovered an advertisement which read: "Intelligent young people aged between 20 and 30 years required to use own cars under four years old to show tourists around London and environs." I applied and, after a very cursory glance from a rather pretty ex-S.R.N. at my car and my tonsorial length and appearance, I was taken on as a Guide for Undergraduate Tours.

Since that time, many an American "green-back" has flowed through my wallet, but I remember clearly the first tuition I received, on guiding tourists around London. One of the firm's senior guides was paid by the firm, for the morning, to take me and one other aspiring young guide on a three hour tour around the Metropolis, in the manner which we were supposed to emulate when we were "qualified". We were bundled into a rather large comfortable car, of the sort used by most travelling salesmen, and driven by a gentleman who looked for all the world as if he had spent his last 30 to 35 years selling washing machines to frustrated housewives. His patter, as we rumbled on past the Japanese Embassy and then Benjamin Disraeli's birthplace, was something akin to that of a Petticoat Lane stall-holder, on a Sunday morning, trying to sell rugby boots to a man with no arms. However, within the three hours we learnt not only a set route around London, but that there really was an immense amount of history in London, even in the less glamorous areas. I had lived all my life in the big city but this was the first time that I had realised what a fascinating place it was. When the lesson was over we were told to learn up all the History of import, particularly of Westminster Abbey and similar places from the "Penguin Guide to London" which is a very comprehensive but concise guide and history.

One week later we arrived for the test, which consisted of driving another senior Guide on our route around London, and giving him the "spiel". This was successful mainly due to a considerable amount of bluff, a skill picked up during Anatomy vivas. We were then briefed as fully fledged Guides. The scheme is that visitors to Britain book a Tour of London, or elsewhere in England, from the Hall Porter at the Hotel in which they are staying. These porters, who one may categorically state are not the most delightful people in the world, are responsible for displaying in a prominent place the firm's colourful brochure, for which they receive an overlarge commission of 25% on every booking which they make. When the firm has accepted a booking, the operator checks the availability boards in the "control room" to see which guide is best suited by dint of language or size of car. There are three grades of cars, mini, medium and large, and, because all Americans consider what we would call a medium car a tiny car, cars like Herald convertibles (my own) are classed as Minis. A half day London tour therefore consists of a three hour tour for, in the case of a Mini, £5. Of that figure, one half goes into the guides' pockets, one quarter goes to the Hotel Porter, and one quarter goes to the firm. The petrol and running expenses are paid for by the guide himself, out of the £2 10s. that he gets. The charges are correspondingly higher for a larger car or a further distant tour. A Stratford upon-Avon all-day tour, which involves 280 miles and 11 hours' driving, would cost the visitor £16 10s. and the guide would get £8 5s. but would have to pay for correspondingly more petrol. The real bread and butter of this job are the tips, which are usually in the region of 15 to 25 per cent. Each week a guide gives his availability to the firm, which he is required to fulfill. The guide must also insure his car for "hire and reward", and because this is normally very costly, the firm have organised a scheme in which he can obtain insurance for £8 for two months. He must also buy a Guide's pass to Westminster Abbey and the Tower of London.

From May until early August therefore, I worked as a Guide and these three months were certainly some of the most interesting but also tiring that I have ever spent. One learns the tricks of the trade; like how to treat Traffic Wardens, Hotel Porters, Policemen, and, most important, the visitors themselves. At one stage I found that my income from tips were drastically reduced, and on advice from colleagues I discovered that this was due to becoming too pleasant and friendly to the visitors, so that they felt embarrassed to tip. There were many "perks" to the job like being invited to lunch, leaving the choice of restaurant up to you. Also there were free theatre tickets, gifts, petrol being payed for, and one Texan gentleman who sent me a funny book about an American consultant Proctologist with an inscription saying how much he had enjoyed his trip "to the boondocks of England". Many visiting cards were given, and these may well prove useful on any future trips to North America (or the Philippines, or Japan, or Brazil . . .).

The visitors themselves (one is never allowed to call them Tourists) are an interesting breed. They are mainly Americans, as Europeans tend to enjoy walking. However this year there has been a great increase in the numbers of Japanese and South Americans coming here for their holiday. Whatever country they come from, they all want to see the same things, even if they cannot see anything when they stand in the pouring rain outside Buckingham Palace they can still tell their "friends back home" that they saw the Changing of the Guard. They all love posing with policemen and guards, and the former are always obliging although they always turn their head away from the camera ("it's regulations Sir"). Most visitors are pleasant and friendly, but there are always the exceptions, and, having to spend all day travelling around England with an unpleasant tourist and his equally unpleasant family is not only hard work but mentally and often physically exhausting. They love to appear knowledgable, and a favourite trick among Americans is to pretend not to have heard that you have just pointed out Marble Arch, and two minutes later say "Hey, wasn't that Marble Arch back there?". Then there are the embarrassing moments, like the one where a Dutch woman did not want to listen to the commentary from the official Guide at Blenheim Palace, and so started up a rival one, reading from her guide book (official) in opposition. There was a brief battle of increasing Decibels, and then my client won and the official guide retreated, leaving fifty people listening to an ignorant Dutch woman.

In retrospect, this was a very lucrative and thoroughly enjoyable job, which did not interfere with any studying, since one worked as little or as often as was convenient. It is hard on the car; I did 3,000 miles in two and a half months, but very good for self-confidence and for learning to communicate with other people. This latter quality is, after all, one of the most important ones needed in Medicine. I would recommend the job to anyone with a sense of humour, a little patience, and fast gear-change.

STUDENTS' UNION OPEN MEETING TO DISCUSS TEACHING METHODS

An open meeting between a panel of consultants and the Teaching Committee was convened by the Chairman of the Students' Union on Thursday September 18th 1970 at 11.15 a.m. in the Clinical Lecture theatre. The panel of consultants comprised Dr. A. M. Dawson, Mr. I. M. Hill (sub-Dean), Mr. A. W. F. Lettin, Dr. J. S. Malpas (Dean), Mr. I. McColl (assistant Dean), Mr. J. O. Robinson, and Professor G. W. Taylor. Teaching Committee members present were Mr. George Lodge (Chairman), Mr. Brendan O'Farrell, and Mr. J. R. Oxley. In the temporary absence of Professor Taylor, Mr. Robinson agreed to take the chair.

(1) General Medical and Surgical Teaching

Mr. Lodge put forward the Teaching Committee's recommendation that the first clinical year should comprise six two-month firms in order that students' interest should be maintained throughout each firm and that all students should receive the benefit of specialised teaching on as many firms as possible. He pointed out that under the present system a student could emerge from the first year without having been taught on a variety of important topics because the firms to which he happened to be allotted did not specialise in these subjects. Mr. Lodge said that it had been pointed out to the Teaching Committee that such a system would entail a fixed holiday programme, as otherwise undue disruption would be caused to a two-month course if students were permitted to take holidays at will. He said that no-one at the previous meeting had objected to the idea of fixed holidays in principle.

Mr. Hill doubted whether increasing the number of firms in the first year would increase the range of topics covered and he said that such a system might well lead to increased duplication of teaching. He reminded the meeting that a six week firm system had been tried in the past and had been greatly disliked. On the subject of fixed holidays he pointed out that the timing of these holidays would be dictated by the Hospital and not by the College and that students might receive rather short notice of an obligatory holiday period if a ward were to be redecorated or a theatre closed.

Mr. Robinson wondered whether the Teaching Committee meant to imply that members of staff should teach on wards other than their own in order to achieve greater coverage of medical topics. Dr. Dawson expressed his support of the two-month firm system, and suggested that there might be an increase in the number of clinicopathological conferences to supplement ward teaching. He recommended a system whereby students should be taught intensively for a short period of time in a manner analogous to the "block" system used by the Nursing Staff, and then they should be farmed out to peripheral hospitals as assistant housemen. He maintained that the only time students work really hard is when they have some measure of responsibility, and he cited the change that comes over Bart's students when doing locums in support of his argument. Mr. Lettin believed that studying away from the parent hospital was a greatly over-rated pastime and he asserted a firm belief in the traditional form of bedside teaching, supplemented by other teaching in order to impart any other information that was thought desirable. He complained about the lack of co-ordination between the timing of lectures and work on the wards, particularly in his own speciality of orthopaedics. He proposed a system whereby students should attend one or two lectures or tutorials per day while working in a particular speciality. Mr. Robinson asked Mr. Lodge whether the "block" system of teaching was incorporated in the Teaching Committee's plan. Mr. Lodge said that the Teaching Committee proposal for six two-month firms was in some ways a temporary measure to improve the situation while some more radical changes were being considered. Dr. Malpas reported a scheme put forward by Professor Taylor under which students on a particular firm would be divided up into four groups of three students and that during a particular two-week period one such group from each firm would be sent to ward rounds organised for the purpose by the specialist departments.

Mr. McColl largely supported Dr. Dawson's ideas. Mr. Hill pointed out the difficulty of controlling teaching at peripheral hospitals because they lack the time and staff to teach students adequately. He said that such a system would be more hazardous in terms of ensuring that all students covered the major topics in medicine and surgery. A different scheme had been proposed whereby teachers from Bart's would go to peripheral hospitals to teach on the material there, but this scheme had caused so much bitterness that it had to be abandoned. Mr. Hill spoke against fragmentation of the first year course because fundamental principles and techniques were being overlooked. Point from the floor: It was stated that constant repetition was common and harmful. Tutorials were advocated as being an effective teaching method. Dr. Dawson rejoined that tutorials were a two-way affair and that some effort on the part of the students was required. Tutorials had been tried on his firm and the results had been poor. He regretted the fact that the first year was regarded as frustrating and disappointing but he felt that this was probably inevitable.

Mr. Robinson suggested that further discussion of Professor Taylor's proposals should take place. Mr. Lodge pleaded on behalf of the Teaching Committee's proposals at least as a temporary measure and he said that only a minor administrative change was needed to implement them. Mr. Hill disagreed and said that he

thought that the Teaching Committee's scheme would be impossible to implement even with the aid of a computer. Point from the floor: Mr. Hann deplored the present system whereby students were moved "en bloc" from firm to firm during the first year, and he supported the six two-month firm scheme. Mr. Robinson said that the administrative staff would welcome more information as to how these proposals might be implemented.

(2) Compulsory attendance

Mr. Lodge reviewed the opinions expressed at the previous meeting that more compulsion should be exerted on students to attend ward rounds but that attendance at lectures was more open to individual decision. Mr. Hill reminded the meeting that students were signed up to the effect that they had attended the course before being permitted to sit for the Final M.B. examination. He stated that some students had recently not been signed up because of inadequate attendance and that their finals would be delayed by six months. Dr. Dawson pointed out the difficulty of punishing firms for poor attendance. Mr. Lettin said that it was particularly difficult to implement compulsory attendance in the final year because of the large number of exams taken at odd times during this year. He felt that for this reason the last three months of the final year should comprise an elective period so that students could study for exams. Dr. Malpas and Mr. Hill disagreed with this view, stating that the elective period in the final year was not being used for its intended purpose, namely for the study of one subject in depth. Mr. Hill felt that the rotating system in the final year had been a failure.

Mr. Robinson, returning to the subject of compulsory attendance, felt that some compulsion was necessary but that it was up to the chief of every firm to implement it in his own way. Point from the floor: It was suggested that active student participation in patient care was a more effective method of ensuring attendance than compulsion, but that if sanctions were ever necessary, public redress was an effective form of punishment. In connection with this, Mr. Robinson supported the proposal that students' notes should be incorporated into a patient's file as had been done in the past. There was much support for this proposal from the students present. Mr. Hill said that the hospital suffered from storage problems which would be exacerbated if students' notes had to be stored as well. It was suggested as a compromise that a student's notes should be retained in the patient's file until the patient was discharged, at which time the notes could be returned to the student concerned. Professor Taylor pointed out that instructions to include students' notes in the patient's file were printed in the "Notes to Dressers" leaflet, and he felt that notes of high quality made by students should be kept in perpetuity as they often contained valuable information not to be found elsewhere.

(3) Obstetrics and Gynaecology

Mr. Lodge put forward the Teaching Committee's view that the courses in Obstetrics and Gynaecology were too long and that they ought to be shortened from five months to three months and that the teaching of Gynaecology In and Out patients should be integrated. It was pointed out that the length of course might be governed by University regulations. Mr. Hill said that this was not the case and that there was much sympathy for the Teaching Committee's view, but that the problem lay in converting the Gynaecologists to this viewpoint. Point from the floor: It was suggested that the two months gained from shortening this course could be used as an elective period.

(4) Tutorials

Mr. Lodge emphasised the Teaching Committee's view that Tutorials are an essential and effective teaching method, and that tutorials should be available on all firms. The majority of the panel concurred with this suggestion, although Dr. Dawson repeated the fact that his staff had become rather disillusioned by the lack of student interest in tutorial teaching. Professor Taylor remarked that teachers should not become discouraged by this and that there would always be some students, and he believed a majority, who would benefit from personal attention. Mr. Hill said that it was not easy to advise fellow consultants how they should organise their teaching programme.

Point from the floor: It was suggested that students should be allotted to small group tutorials irrespective of the subject they happened to be studying at any particular time. Professor Taylor agreed that this system should be tried again. Dr. Malpas did not think it would be easy to find enough tutors for a universal tutorial scheme. Point from the floor: It was suggested that Registrars should be paid for the time they spent teaching, and that this might encourage them to take students for tutorials. Professor Taylor said that under the present NHS Act this would be illegal. Following a suggestion that not all students would want tutorials and therefore not as many tutors would be required, Mr. Lodge said that tutorials should not be made voluntary as only third year students were sufficiently motivated to ask for them.

5) Adjournment

A request was made from the floor for student representation on the Curriculum Committee. Although no objection was raised to this proposal, Mr. Hill thought that in all probability the Committee would be reconstituted before its next meeting.

Mr. Hill requested to know whether or not the student body wished him to publish the firm gradings. He said that these gradings were used to help him to decide if a student had completed the course satisfactorily before signing him up. In future a system of continuous assessment might well be used and then the grades would assume greater importance. Professor Taylor remarked that the grades were also used by the Board of Examiners in dealing with borderline examination candidates. Mr. Hill felt that the Sub-Dean's Office could not cope with students going there to find out their grades privately, but he was assured that this system was already in operation. The meeting did not give Mr. Hill an unequivocal reply to his question.

Mr. Robinson said that although only half the agenda had been covered he was obliged to close the meeting because of time. He felt that much had been gained by both sides from this discussion and that it had once more emphasised the difficulty of finding satisfactory solutions to the many problems of teaching medicine.

The meeting was adjourned at 12.25 p.m.

JOLYON OXLEY.

A MODEST PROPOSAL

by S. L. Schlesinger

[Stephen Lawrence Schlesinger is a senior medical student at the Medical College of Virginia, Richmond, Virginia. He is presently doing a three-month elective at St. Bartholomew's in the Departments of Gynaecology and Pathology.

This article was written to be presented to a panel on "The Student" at the annual meeting of the Chairmen of Departments of Pathology of the American medical schools. It is one student's attempt to discuss student interest, participation and representation as it applies to his own medical school system.—Editor.]

The student is the most important individual in a medical school and his education is the main purpose for which the school exists. The better educated the student, the better the physician. It is the responsibility of the medical schools to turn out not only more physicians but also better educated ones who have learned to enjoy medicine and have a desire to continue their medical education once out of a formal school. This is no easy task since medicine is a difficult and demanding field and if the learning process becomes too tedious and unrewarding, then the student learns to associate more learning with more tedium.

Although hard to believe, it is a fact that most medical students are very impressionable and even after 4 years of college have not altogether acquired the study habits which they will need as physicians if they are to carry on the process of continuing medical education at the postgraduate level. The student comes to medical school knowing that the going will be tough but when the admittedly difficult material is presented in an uninteresting and perfunctory fashion, many previously motivated students "tune out." Instead of enjoying their learning experience it becomes a dry and boring chore. The bad habits they fall into are, I am sure, known to everyone, i.e. not keeping up with their work, letting outside activities become primary, taking pills a day or two before an exam in order to stay awake and cram the material they should have been learning all along. These bad habits are admittedly brought forward from the students' undergraduate experience but they are often a reaction to the medical school environment. This is to say if the school makes the material interesting, the examinations reasonable, the student an active participant in his own education, then these bad habits would not necessarily be an outcome of the system.

This paper will deal with only some of the possible areas of student participation. How can course material be made interesting to the students?

1. Get student representatives involved in the decision making: (a) the number of lectures per day, (b) what sort of study aids used in conjunction with classroom lectures, i.e. T.V.-tapes, Kodachromes, etc., (c) the types of tests to be given and total number of questions per test, etc.

If student representatives are in on the decision making and they report back to their fellow students then lines of communication are established to pass on committee decisions to the students and the student grievances to the committee. One example of a problem which can be solved in this way is if there were five lecture sessions in one day, this would wear out the best students and the lesser students would either not show up or act punchy by the last lecture. In such a situation the student representative could immediately go to the committee and future errors of scheduling along these lines could be eliminated. The upshot of this swift justice would be that students would feel they have a purposeful say in their own education and respond positively to the system of which they are an integral part, and the professors would have more attentive classes and everyone would be happier.

2. The quiz at the end of each subject matter should be subject to post test scrutinisation by the students, i.e. students should be allowed to criticise questions and answers in writing and if their arguments are valid, the test questions should be changed. This allows the student to feel more a part of the system and although in the long run the number of answers changed would be minimal the overall atmosphere becomes more on the graduate level.

3. At the end of each course student comments should be actively sought and their opinions and suggestions incorporated in the following year's curriculum, as far as possible. This of course does not aid the class making the suggestions, but if the faculty is honestly interested in useful student suggestions and whenever possible uses the proposed modifications, then the word will get out that the class in front of you has improved "such and such" part of your course. This means your class is getting the immediate benefits from the chaps one year your senior and the chaps one year your junior will get the same benefits from your class. This system allows one to vent grievances in a socially acceptable way that is useful to the school and the student body as a whole.

4. Student participation at the teaching level should be encouraged whenever possible.

(a) Third year clinical students might be used as preceptors for 1st year students in the study of the fundamentals of physical diagnosis. This forces the 3rd year students to be on their toes and becomes a valuable learning experience for them as well. The 1st year students get a glimpse of patients, some early valuable experience with physical diagnosis and some insight into what their clinical experience is going to be like. This also may add to the interest of the 1st year student in anatomy and physiology when he sees it applied on the wards, i.e. the position of the heart in the chest becomes more relevant when one tries to listen to a heart murmur or read a chest X-ray on a patient that one has some acquaintance with.

(b) Senior students are in an unique position—they are brimming over with practical and textbook knowledge and they are beginning to learn some of the nuances of medicine. They are secure in their position in the medical school and are beginning to prepare themselves for internships. They are in a better position to know the pitfalls and high points of being a medical student than are the teaching staff or even the house-staff and they usually have the time to spend passing on this valuable information to others. This time is however usually consumed in bull sessions with their contemporaries. The opportunity should be made available for certain senior students to tutor freshmen especially those 1st year students who are in immediate academic distress. These seniors could tutor in their areas of special interest. For instance a senior who did exceptionally well in the study of the C.N.S. could teach both the subject matter and the art of studying the central nervous system. Another area for seniors to aid freshmen is in the pure art of being a medical student. A senior who has done well could pass on both his methods and his enthusiasm to selected small groups of freshmen students, the most receptive would be those doing most poorly. This would be a means of introducing academically orientated senior medical students to teaching methods and the problems therein. For the freshmen student this type of aid could be a God-send. The methods taught should prove most helpful in studying various subject matters and the grades ought to improve if only because someone higher up in the system has taken an active interest (the phenomenon is referred to in education circles as the "Hawthorn effect"). Since it is a maxim in medical schools that "failure leads to failure and conversely success leads to success," once the student's grades begin to improve, his interest and motivation for more learning will follow suit and this should have a cumulative effect. The student should then be better prepared for Finals and National Boards and eventually for his internship and residency. Once his ego is involved in a "need to succeed" fashion, then enjoying continued medical learning might become a life style. Conversely if the freshman only barely gets through his exams and uses random luck plus some cramming then a life style of another sort is often inevitable. This sort of inter-student tutorial has obvious implications for the medical school. 1. fewer failures from the first year. 2. definitely fewer failures from the 2nd year (that group who barely got through the first year but were promoted only to find their difficulties compounded in the 2nd year). 3. the school is given a means of taking an active interest in its poorer students in a positive way instead of fruitless hours of counsellor-student interviews which are often "too little, too late."

(c) A corollary to the above suggestion is to make a sort of big brother system whereby each incoming freshman student has a senior student to act as his counsellor. These seniors could contact the incoming students and advise them on such basic matters as books and where to buy laboratory equipment, etc., as a start. This contact would be just to break the ice and set up channels of communication. Then the counsellors would be informed by the Dean's Office only if their little brothers failed an exam. In the event of this happening they could contact their counsellors and discuss the problems, be they academic, social or emotional. The problems will usually be minor and not unlike those the counsellors had themselves only 2 or 3 years previously. Therefore they ought to be well qualified to give very practical advice. Also the freshmen should see the senior as a non-threatening individual or at least less threatening than any assistant Dean or a psychiatrist. In this low tension setting, minor study problems can easily be ironed out and more major problems can be brought to the surface and if necessary referred to more experienced personnel.

Above are presented several suggestions whereby student interest and participation can aid the medical school community as a whole. The medical schools must be flexible enough to accept student criticism and participation if they want student activism to progress along constructive lines. The medical students of today are more mature and more desirous of responsibility than those of a decade or two ago. While they do not yet have the skill to perform human organ transplants they do have some unique talents and knowledge which if properly utilised should offer ample responsibility, at the same time aiding the medical school in its primary mission.

Catheterisation of the Superior Vena Cava

A Review of four percutaneous techniques

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Catheterisation of the superior vena cava in situations other than the diagnostic cardiology laboratory has assumed increasing importance in recent years. The procedure is indicated for the measurement of central venous pressure (C.V.P.) in the control of intravenous fluid replacement (Sykes 1963, Boulton 1969), to avoid the complications of prolonged or multiple peripheral venous infusion including thrombophlebitis and septicaemia, (*Annotation* 1970, Brown 1970, Foley 1969, Pruitt et al 1970), for the infusion of hypertonic and irritant solutions such as amino acids, carbohydrates and fat suspensions, for rapid massive transfusion in the treatment of hypovolaemic shock (Hardaway 1969, Pacey 1969) and when frequent central venous sampling is indicated.

It is an obvious advantage, if it is possible, to introduce the catheter percutaneously through a needle in order to feed its tip to the desired position in the great central veins, as this avoids a surgical incision to expose a vein.

A number of different techniques of percutaneous catheterisation have been described employing various commercial pre-sterilised needle-cannula systems which are readily available. This paper describes four of these techniques and discusses the various advantages and disadvantages of each.

Catheterisation of the median cubital vein

Catheterisation of the right heart was first described by Forssman in 1929 who passed a catheter via his own median cubital vein through the superior vena cava into the right ventricle.*

Technique. Careful sterilisation of the skin of the antecubital fossa is followed by the insertion of the needle of a 24 inch Deseret E-Z cath. percutaneously into the median cubital vein in a medial and proximal direction. The cephalic vein on the lateral side of the cubital fossa should not be used because difficulty is usually experienced in threading the tip of the catheter through the point where the vein pierces the clavipectoral fascia on the superior aspect of the shoulder joint. The needle is introduced well into the distended vein, the needle-stylet is withdrawn, and the catheter advanced using the special plastic grip provided. Passage of the catheter is facilitated by the lubricant on its surface.

*Forssman was awarded the Nobel Prize in 1956.

Advancement may be impeded by the presence of valves in the basilic vein, or tortuosity of this vein. These obstructions may often be negotiated if the infusion is run fast through the catheter, as it is being advanced. Difficulty may also be experienced in manoeuvering the tip of the catheter around the bend in the subclavian vein produced by the first rib. Abduction and elevation of the limb usually solves this problem. Sterility is assured by the outer polythene covering of the catheter, and the plastic grip permits a no-touch technique to be employed.

The Braunula system may also be used. A "Braunula" cannula is inserted into the vein, and a 24 inch Braunula catheter inserted through it and passed up to the superior vena cava in the same way. A "no-touch" technique is again assured by the special pack provided with the Braunula catheter, which is a 24 inch stiff plastic sheath with a self sealing slit along its length.

Complications. The catheter may not pass in the direction which the operator intended. There are cases on record in which the catheter travelled up the external jugular vein or across the innominate vein and into the subclavian vein of the opposite arm.

These misplacements can be diagnosed by X-ray and easily corrected by withdrawing the catheter the appropriate distance. If the catheter enters the right atrium or ventricle, the characteristic exaggerated pressure waves are seen as the central venous pressure is recorded and the catheter must be withdrawn until it lies just within the superior vena cava.

The infraclavicular approach to the subclavian vein

This approach was first described by Aubianac who reported the results of ten years' experience of the method in 1952 (figure 1). He pointed out the advantage that, in severe war injuries and burns, this route was always available for transfusion, while other routes for intravenous fluid administration were not. He used the technique extensively in children for whom he felt it was particularly suitable. Catheters in this position proved reliable and were readily accepted by the nursing staff, but his report of this particular approach was unique in that, in several thousand cases, he had no serious complication (*vide infra*).

Technique. The patient lies supine in the head-down position to congest the veins of the head and neck. The head is turned to the contralateral side. Right handed operators usually find it easier to approach the right sub-

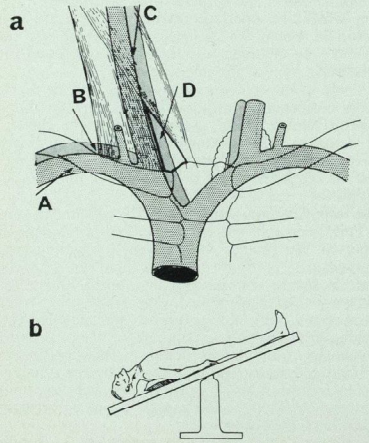
clavian vein. After cleansing the skin, placing towels around the operative area and injecting a local analgesic into the skin if the patient is conscious, a Bardic "intracath" is inserted one finger breadth below the midpoint of the clavicle and passed upwards and medially between clavicle and first rib until the subclavian vein is entered between 3.8 and 6.2 cm deep to the skin (Keeri-Szanto 1956). The success of this manoeuvre is indicated by the free egress of desaturated blood down the catheter. The catheter is then advanced through the needle and down the subclavian vein to the superior vena cava. Sterility is guaranteed by the plastic outer cover which surrounds the needle-catheter system and through which the catheter may be manipulated. The needle is withdrawn, the needle guard is fixed in position and the catheter taped to the skin. Any other similar catheter system may be employed, but the importance of the no-touch facility cannot be overestimated.

An alternative technique is to detach the needle from the unit and mount it on a syringe containing heparinised saline, for insertion into the vein. The syringe is removed when the vein has been entered, the unit is reassembled and the catheter inserted in the usual way. It is sometimes easier to introduce the needle in this way, but it is more difficult to maintain a satisfactory no-touch technique and there is a risk of air embolus unless the patient is in a steep head-down tilt.

It is occasionally difficult to thread the catheter following the insertion of the needle into the vein. In no circumstances should the catheter be withdrawn through the needle because of the danger of severing the catheter. Buchman (1969) suggests that a twisting motion should be employed as the catheter is advanced to the tip of the needle. He believes that this enables it to pass freely into the vein when difficulty in threading the cannula is encountered. This procedure is probably not without the risk of severing the catheter. Buchman also comments that nursing acceptance of the procedure has been excellent.

Complications. The commonest complication of the infraclavicular approach has been pneumothorax. Ashbaugh (1963) described one case in nineteen patients. Davidson (1963) one case in a hundred, Smith and his colleagues (1965) had one case in two hundred, while Matz (1965) reported various complications including two cases of pneumothorax in six patients, one of which was fatal and the other bilateral. However, both Aubaniac (1952) and Giles (1966) have many years' experience extending over thousands of cases with no such complication.

Smith and his colleagues (1965) report cellulitis at the puncture site in one case in two hundred with fatal septicaemia, and Ashbaugh (1963) recommends electively changing the catheter site at three or five days to prevent the possibility of infection but Buchman (1969) had no infection or thromboembolic phenomena with 275 catheters which were in place for an average of 6.9 days: the longest duration 28 days.



(a) Diagram showing the approaches to the subclavian and internal jugular veins.

A. Infraclavicular approach to the right subclavian vein.

B. Supraclavicular approach to the right subclavian vein.

C. Elective site of approach to the right internal jugular vein.

D. Alternative site of approach to the right internal jugular vein.

(b) Position of the patient for cannulation of the internal jugular or subclavian veins. The site of election for internal jugular cannulation is marked.

Misplacement of the catheter occurs either into the tissues (Smith et al 1965) pleural space or subclavian artery; Buchman had 5 instances of the latter complication in 222 patients.

Smith and his colleagues (1965) also report haematoma formation, injury to the brachial plexus and subcutaneous emphysema and recommend that other routes should be selected in preference to the infraclavicular subclavian approach. The authors believe that this route should be abandoned.

Catheter embolus may occur in any technique in which an improperly protected needle is left *in situ* on the catheter. In the case of the infraclavicular approach the problem was reported by Turner (1954) and Taylor and Rutherford (1963). Massumi and Ross (1967) describe the removal of a subclavian catheter from the right atrium by snaring it with a wire loop, passed through a Teflon catheter, inserted from a saphenous vein.

The supraclavicular approach to the subclavian vein

Yoffa (1965) introduced this approach as being simpler, safer, and speedier than the intraclavicular approach (figure 1). He pointed out that the subclavian vein has a constant position, is large (in the adult it can be up to 2 cm in diameter) and is always patent. The needle traverses only fascial structures and is introduced at a point which is easily established with precision.

Technique. The patient lies supine in the head-down position. No pillow is used and the head is turned to the contralateral side. The skin is prepared and towelled and local analgesic is injected, if this is necessary. A right handed operator should make the venepuncture in the left subclavian vein. A Bardic "Intracath" needle is connected to its placement unit or a syringe and is introduced at the junction of the lateral border of sternomastoid with the clavicle. It is directed at an angle of 45° to the sagittal plane and 15° forwards of the coronal plane, and is easily advanced to enter the subclavian vein. Correct position of the needle tip is indicated by a flow of venous blood. Puncture is achieved at a depth of 0.5 to 1.5 cm from the skin. The catheter is then threaded through into the superior vena cava. The needle is withdrawn and protected by the guard provided. Catheter position is rechecked by aspiration of blood along its lumen. It is then taped in place.

Yoffa (1965) pointed out one advantage common to all the techniques which are described, except the approach via the median cubital vein. This is the lack of encumbrance of arms and legs, with consequent increase of comfort and morale. His catheters functioned for as long as they were required without thrombophlebitis occurring. This was attributed partly to the high blood flow around the catheter and also to the small diameter of the catheters which were used (Bardic Intracath Size 1614).

Venepuncture was achieved at the first attempt in 80% of 130 patients with subsequent success in the other 20% at second attempt. In 3% there was difficulty in threading the catheter. Yoffa (1965) stressed that the desire to use force must be strongly resisted.

Complications. Misplacement into the subclavian artery occurred once. The treatment is simple and is the same for any arterial puncture; the needle and catheter are withdrawn and digital pressure is applied at the site for five minutes by the clock. There were no pneumothoraces (the needle advances away from the pleura) and no significant haematomata. Air embolus occurred in one patient because the procedure was performed with the patient sitting up! Pneumothorax has been seen by one of the authors (A.F.) when this technique was used.

Catheterisation of the internal jugular vein

English, Frew Piggott and Zaki described this technique in 1969 and recorded 500 cases (figure 1). The surface marking of the internal jugular vein is just lateral to a line joining the medial edge of the clavicular head of sternomastoid to the mastoid process. On the right side the vein is in a direct line with the superior vena cava. It lies immediately anterolateral to the common carotid artery and deep to sternomastoid.

Technique. Two techniques were described. With both the patient is placed supine with the head well extended (this requires a sandbag under the shoulders for infants and small children) and a head-down tilt to congest the vein and to prevent air embolism figure 1 (b). The head is turned to the contralateral side.

In the elective technique the vein is approached midway between the sternomastoid and the clavicle and is the method most preferred in anaesthetised patients. In the original description profound muscular relaxation was considered to be mandatory in order that the vein might be palpated but the authors have successfully used this technique in conscious patients in whom there has been normal tone in the sternomastoid. In this case the position of the vein is estimated by gently placing the fingers of the left hand on the right common carotid artery or vice versa. The right handed operator will find it easier to use the right internal jugular.

The skin is prepared, the towels are positioned and local analgesic is injected if this is necessary. A Bardic intracath needle is inserted caudally, in line with the internal jugular vein, 1 cm lateral to the artery, at an angle of 30 to 40 degrees to the skin surface. As it is advanced, the deep cervical fascia is pierced with a definite "give" followed by the same sensation of "give" as the vein is entered. The correct position of the needle tip is indicated by free egress of the blood into the catheter or syringe. The catheter is then threaded down the vein and the needle withdrawn and placed in the plastic guard. A swab is applied firmly to the puncture site to prevent haematoma formation. The catheter is taped to the skin. Occasionally the needle compresses the vein and goes through it without egress of venous blood. In this case the needle is slowly withdrawn until a free flow occurs indicating correct placement. The catheter is then threaded in the normal fashion.

On rare occasions it is difficult or impossible to thread the catheter. This indicates that the needle is only partly in the vein but the catheter must not be withdrawn before the needle is removed from the neck as the catheter may be severed.

The "alternative" technique is of use in both anaesthetised and conscious patients and in cardiac arrest or severe shock. The intracath needle is inserted near the apex of the triangle made by the sternal and clavicular heads of sternomastoid and the clavicle. It is advanced caudally at an angle of 30 to 40 degrees to the skin 1 cm lateral to the common carotid artery. Reflux of blood confirms venepuncture at a depth of 0.5 to 2 cm from the skin. The catheter is introduced in the usual way. This technique should not be used on the left side of the neck as there is a danger that the thoracic duct might be severed.

The overall failure rate in the 500 patients reported

by English et al (1969) was 5.2%. There were three arterial punctures and one pneumothorax in a case where the anaesthetist was working over the head of a bed. Normally speaking the needle point is a considerable distance from the dome of the pleura.

Other techniques of vena caval catheterisation

Inferior vena caval catheterisation via the femoral vein has been criticised for the high complication rate (46%). There have been fatalities from septicaemia. (Bansmer et al 1958, Nasbeth and Jones 1958).

Catheterisation of the superior vena caval via the external jugular vein may be practicable in a number of cases, but the anatomy is very variable and it is often difficult to thread the catheter through the venous valve, which is frequently present at its termination, and round the sharp angle which it makes with the subclavian vein. The catheter also frequently passes into the arm. It is worth noting, however, that a long stiff cannula like the Braunula No. 2 may often be introduced and can provide a reasonable means of measuring C.V.P. under general anaesthesia. Such cannulae are, however, uncomfortable and liable to obstruction in the conscious patient.

Precautions in all techniques

If injection is to be avoided great care must be taken to observe a meticulous no-touch technique and in the care of the puncture site. In the Intensive Care Unit at St. Bartholomew's Hospital a small light dressing is applied after spraying with polybactrin spray. If the dressing is anything but spotlessly clean it is changed and the site resprayed with "polybactrin."

In needle-cannula systems such as the Bardic Intracath where the needle remains on the catheter after introduction great care must be taken in protecting the needle point to avoid the catheter being severed. In the authors' opinion the guard provided with the newest version of the Bardic intracath is highly satisfactory. Great care must also be taken in fixing the needle-cannula system to the skin.

CONCLUSION AND SUMMARY

Four percutaneous approaches for catheterisation of the superior vena cava for therapeutic and diagnostic purposes have been described. At present it appears that percutaneous catheterisation of the internal jugular vein is the easiest and carries the lowest complication rate. It is suggested that the infraclavical approach to the subclavian be abandoned because of the danger of complications.

Successful cannulation or catheterisation of any peripheral vein requires practice, care and skill. Catheterisation of the superior vena cava calls for the application of the same principles.

APPENDIX

The needle cannula systems mentioned in this article are obtainable from the following manufacturers:

E-Z cath (Deseret) from Macarthys Ltd. of Romford, Essex.

Bardic Intracath from Bard Ltd. of Clacton-on-Sea, Essex.

Braunula cannula and catheter from Armour Ltd. of Eastbourne.

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FIFTY YEARS AN ANAESTHETIST

By Arnold Barnsley, M.A., M.D., F.F.A., R.C.S. D.A.

It is only when one has passed the Allotted Span that one sits in front of the fire, thinking of the Present (not at all), of the Future (a little), and of the Past (a very great deal). These are the retrospective years, which everybody comes to, sooner or later.

I was thus drowsily sitting when I cast my mind back fifty years, to the time when I decided to become a Doctor. I had finished my stint in the Army in 1918, and was a member of the Army of Occupation in Germany when the order came through from Headquarters that farmers and medical students were to be demobilised forthwith. Farming did not appeal to me: I was unable to tell a turnip from a mangold-wurzel. I therefore decided to become a Doctor, and went to Cambridge and Bart's.

After qualifying I became a Junior Resident Anaesthetist under the aegis of the great H.E.G. ("Cocky") Boyle. It was then that I decided to make Anaesthesia my career.

However, this ambition soon had a serious set-back. A patient with an acute abdominal condition was admitted and I happened to be on duty. At operation it was found that she had acute pancreatitis with advanced fat-necrosis and she died on the operating-table.

This, my first "D.O.T.," depressed me unutterably, and on the day of the Inquest I was sitting in the Square when Sir Bernard Spilsbury came and sat beside me. He was then on the Staff in charge of Morbid Anatomy, and had conducted the post-mortem, which I could not bear to attend, little knowing what they might find. He was the kindest of men, and told me that no blame could be placed at my door and that the poor woman would have died in any case in a couple of days. He attended the Inquest himself (which he need not have done) and his testimony, as always, carried much weight and a verdict of Accidental Death was returned, with no blame attached to the Anaesthetist.

After my six months, wishing to get married, I applied for—and to my intense surprise—secured the post of the first Anaesthetist ever to be appointed to Malaya, a country approximately the size of England. (This appointment I later discovered was due to the large number of deaths that had occurred under anaesthesia and the fact that the Press had taken the matter up in a big way.)

So there was I, a young man with six months' experience, being met at the quayside at Singapore by the Principal Civil Medical Officer (Dr. Hoops), the Chief Medical Officer of the General Hospital (Dr. Taylor) and several other big-wigs, all awaiting my arrival to attend to their nearest and dearest for their tonsils and hernias. I pictured myself on the next boat for Home.

Worse was to come when I inspected the equipment provided for me. I had fortunately brought out with me a Clover's Inhaler which I found invaluable; ether in the tropics on an open mask is an almost impossible agent unless one wishes to be anaesthetised oneself. I had also bought at enormous expense an electric blower-cum-sucker, which was put out of action in the first week when an over-zealous Surgeon sucked some pus into its innards.

No; there was nothing but ether and chloroform and Schimmelbusch masks; no nitrous oxide, and oxygen imported with difficulty from French Indo-China. There was also a Junker's Inhaler—now a museum piece—which consisted of a bottle of chloroform through which, hooked through one's buttonhole, one pumped with a bellows a stream of chloroform vapour into the patient. If wrongly connected, as it sometimes used to be, it projected a stream of liquid chloroform into the patient's lungs, with dire results. I remember on one occasion a Bart's man—Bill Adams—coming down from Penang, where he was Senior Surgeon. For some reason which I do not remember he was carrying out a tonsillectomy at Singapore General Hospital. I was giving the anaesthetic through one of these contraptions leaning over and watching the operation, when to my intense astonishment Adams sprang to his feet with a bellow, and wrenching off his boot dashed over to the wash-basin and plunged his foot into cold water. I had heard of the possible effects on the human mind of a tropical climate, and I feared the worst; but it transpired that my inhaler had been emptying its contents into his boot, and liquid chloroform can be very, very painful! It can also, as everyone knows, be very lethal. Arthur Dickson Wright was then Professor of Clinical Surgery at Singapore, and he told me that before I arrived he had had to carry out more than a dozen cardiac massages. Indeed, one only had to tell him that the patient's breathing was not too good and if you didn't stop him he was inside that abdomen like a scalpel.

I indented for seven hundred pounds' worth of equipment, including a supply of nitrous oxide by every shipment, and was still awaiting its delivery a year later when Lady Marriott, the Colonial Secretary's wife, required an anaesthetic for her piles. She came to the Hospital to see me. She was a very charming though rather masterful woman. (Unfortunately both she and her husband died later in England of pneumonia, soon after his retirement).

"What about the anaesthetic?" she asked. "I suffer from bronchitis, and I gather that ether is bad for that, and chloroform I'm afraid of. What about this gas and oxygen?"

"I'm hoping to get this, Lady Marriott, any day. I put in for it nearly a year ago."

"You shall have it," she said, and left. It was there within the month. The cables to Whitehall must have been red-hot.

The three years I spent in Singapore were not wasted. I gained a great deal of valuable experience and managed to write my M.D. thesis; but finally I decided to go Home. Brunel Hawes, the Professor of Medicine had advised this, as my wife had had a bad attack of typhoid. This decision was perhaps lucky for me, because otherwise the Japs would later have had me "in the bag."

I sent my wife and daughter Home and wrote to my old Bart's friend Frankis Evans asking him what openings there were in England for experienced Anaesthetists, and soon had a reply.

I do not think for a second that he feared competition—his reputation was too great for petty jealousy—but he advised me to go into General Practice, and this I did, for five years—a lustre that I did not enjoy.

Two things put me off General Practice—dirt and immorality. The first of these was brought to my notice soon after I joined this country partnership. I, who had spent the previous four years in sterile theatres, was consulted by a woman with a sprained ankle. When I asked her to take off her other shoe in order that I might compare the two sides, she said blushingly "Oh, Doctor! I haven't washed the other foot!"

And then, immorality; or perhaps I should say a-morality. As I remember, the first Saturday in September was the date fixed for the local Carnival, when sex was rampant. It was impossible to walk in a field without falling over a courting couple, and I and my two partners were never able to have a holiday in April or May; we were far too busy wielding our forceps.

I once attended the Bad Girl of the Village in her confinement. It was her fifth child (all with different fathers) and my friend the Vicar and all the congregation tittered at the Christening when he said "Name this child", and she had called him after me! If there is a man in England named Arnold Barnsley Williams I sincerely hope that he will not get any false ideas as to his paternity.

Apart from all this, the petty hypocrisies that one had to practise got on my nerves after a time. For instance, the dispensing. Unlike today, when as far as I can see everything is in tablet form, we were faced with the two alternatives of making up an "elegant mixture" (terrified that it might explode before the patient reached home) or of buying the stuff in concentrated form from the Wholesalers, which used to present a problem. It would never do to dart out of the dispensary after thirty seconds with the all-powerful elixir; a certain interval in the dispensary, which adjoined the waiting-room, was essential, smoking a cigarette or rattling a pestle and mortar, to give the impression that the medicine was adequately prepared; all very time-consuming to one eager to start on his rounds.

So I sold out, and applied for and secured the appointment as Anaesthetist at the Royal Surrey County Hospital at the vast honorarium of £150 a year, which post I held for over thirty very happy years. I have been in several hospitals, but this was the happiest in which I have ever served.

I have come to the conclusion that there are three qualities that go to the making of a good Anaesthetist. The first is that he must be physically strong—strong enough to lift an eighteen-stone patient onto the operating-table. The second is that he must be a good "feed" (as it is termed in Vaudeville) for the Surgeon's wit. He must always be ready to be laughed at. The late Gerald Steele used to tell the classical story of Wilfred Trotter, his former Chief, who, when operating with a somnolent Anaesthetist and a straining patient, said "Surely, Doctor, if you expect your patient to keep awake it is only fair that you should do the same!"

Steele told other stories which he swore were true; two about nurses, one of whom was told to go and get a pelvic rest and was found later sitting on a chair in the corridor, and the other—a Jamaican—to whom the Anaesthetist, wanting to put up a drip, said "Armboard, Nurse", to which she replied "Sure, Doctor; ah'm bored, too!"

Gerald was always "taking the mickey" out of me; but one day I had *my* laugh at his expense. He always sat down to operate, and one day he pulled up what he thought was his stool with his foot, only to find when he sat down that it was the lotion-bowl!

The third requisite is, of course, the ability to give a good anaesthetic.

It is far easier to do so now than it was fifty years ago. Then, it was like driving a car; one gave a strong mixture for the initial abdominal exploration and the sewing-up, but when coasting along the level (for example, the anastomosis) one could weaken the mixture accordingly. Nowadays it is only necessary to be able to get into a vein to give a perfect anaesthetic; "Just give her a bit more relaxant, old boy; she's a bit stiff." In fact with your Barnet's Ventilator and the "Bosun's Whistle" (to summon you from your coffee in Sister's sitting-room) it is scarcely necessary to be in the theatre at all!

It was at Guildford that I had my one and only explosion. During a bronchoscopy for a lung abscess by the late T. B. Jobson the lamp in the instrument broke and there was a loud bang audible all over the hospital. There were no ill effects except that the unfortunate patient went blind in one eye, and as he was by profession a Printer's Reader, I feared a lawsuit. However, he later coughed up a pint of pus and a bit of tooth that some dentist had lost, and the patient was so pleased that we heard no more about it.

Speaking of lawsuits, my narrowest escape from one was after I had, out of kindness and boredom, snipped off a pedunculated papilloma the size of a pea from a lady's chin while she was having her hallux valgus repaired. She was furious, as she said she liked playing with it while watching television!

* * *

My reverie in front of the fire was over. I found myself inventing a "Noun of Multitude" for Anaesthetists, like "A Pride of Lions", "A Gaggle of Geese", or "A Muster of Peacocks".

"A Sleep of Anaesthetists"! Yes, that's it!

"A 'Sleep'." . . .

NURSES' REPORTS

HILL END HOSPITAL

Hill End is a psychiatric hospital built at the end of the last century, a vast sprawling series of buildings with appropriately confusing corridors connecting the whole.

Until about ten years ago our specialised units were situated down here, but when the Q.E.11 block was completed they were moved up to town. Consequently, the only link with Hill End now is the four or six nurses from each set who have the opportunity of spending two months doing a course in psychiatric nursing.

None of us knew what to expect, but we were all struck with the general atmosphere of quietness and tranquillity. This impression was kept by the two of us who went to Littlefields Ward first, but the two of us who went to Grafton were amazed by the air of organised chaos!

Our first week was spent in block—an "orientation" week. Their methods of teaching are completely different from ours. We sat in comfortable chairs and the tutors joined us in discussions. At first the terms they came out with—psychoses, neuroses, paraphrenia—left us cold. We sat and tried to look intelligent while hoping that elucidation would follow.

Our daily exercise consisted of visits to the wards, our first being a male geriatric ward. The Charge-Nurse who escorted us introduced us to one or two of the patients and invited us to talk to them. He encouraged them to tell us about their hallucinations and delusions, and having over come our initial awkwardness, we were able to question them ourselves.

After this introductory week we settled into our individual wards. Grafton and Littlefields. Grafton is an acute female admission ward, and Littlefields is a mixed neurotic ward. These two wards are the two extremes of psychiatric nursing and are therefore chosen, as such, to give us the widest range of experience in the short time available to us.

Shortly after arriving on Grafton we were issued with a large pass key, which has been recorded as being used 144 times in one shift! The call is a permanent one of "Nurse, will you let me out please?", and one has the horror of releasing the wrong patient. Can you imagine the frustration of permanently locking and unlocking doors and the pushing as the wrong patients try to get out!

Our first sight of the Padded Room was of a small, smelly, claustrophobic room, with a thick, heavy, double bolted door. Leading into the "Pads" is the "Unit", a large room with unbreakable glass and a mattress on the floor. When a patient becomes disturbed she is placed in the "Unit" or the "Pads", depending on the degree of her mania.

Littlefields, on the other hand, is completely different. The patients are mostly neurotic or depressed. The pace is much slower, and we spent a lot of time just talking to them—very easy on the feet!

The treatments that are carried out on this ward are narcosis (sleep treatment from three days to a week), modified insulin therapy (inducing a mild hypoglycaemic coma to relax the patient and help him put on weight) and electro-convulsive therapy, the latter also being carried out on Grafton.

On the whole we all enjoyed our time down at Hill End, and appreciated the experience gained, but it was nice to get back to General Nursing again.

SUSAN GIRLING

A NEW SYLLABUS

It is proposed from November to introduce a completely different system for nurses' duties. Many people may not know that as from November, 1969, a new syllabus was introduced for the training of nurses up to state registration. The course continues to extend over three years but certain changes are taking place. Previously only 70 per cent. of the nurses in a set had the option of a three-month obstetric course in the unit at Bart's or a two-month psychiatric course at Hillend Hospital, St. Albans. Now it is obligatory for all student nurses commencing training after November, 1969, to have completed either (a) a three-month psychiatric or geriatric course, or (b) a three-month obstetric or community care course.

At Bart's all student nurses will undergo the obstetric course and either the psychiatric or geriatric course. Further only a certain amount of theatre or casualty experience will be required compared with the six weeks of each that we have been doing so far.

In order to accommodate this new syllabus conveniently, a new system of a four-week duty rota is being planned. This necessitates internal rotation of night-duty. Each student nurse will work one week in four on night-duty, with, it is hoped, three nights off over a week-end. She will work slightly longer daytime hours (at present 7.30 a.m. to 3.30 p.m. or 1 p.m. to 9 p.m.) and have two full days off a week, preceded by an early duty and followed by a late duty; this is compared with the 48 hours that we have at present.

I gather that the general opinion is in favour of internal night-duty. This will end the four to six weeks of continuous night-duty which makes one feel so cut off from life. This is only a rough plan of the proposed rota as final details have not at the time of writing been announced.

ROS ASPDIN

HOUSE APPOINTMENTS: 1st OCTOBER - 31st DECEMBER 1970

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		Male	*Female*
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Dr. C. M. B. Pare			
Department of Urology			
Mr. J. E. A. Wickham	N. B. Waterfall	Bowlby	Heath-Harrison
Mr. C. A. C. Charlton		Waring	Abernethy

Coming Events

A NEW PLAY—A DECEMBER FINAL?

The relationship between fantasy and reality, normality and abnormality, internal experience and external behaviour has fascinated and bewildered philosophers and poets alike for many centuries. In late November, 1970, Bart's Drama is to present a new play which deals with aspects of insanity from the twelfth century to the present day. Although much of the material comprises accurate accounts of "madness" this play is far from being a documentary or dramatised lecture on the progress of psychiatry through the ages. It is very much an entertainment, and as such should appeal to a very wide range of audience. This play, written, compiled, edited and translated by Paul Swain, constitutes Bart's 1970 entry for the N.U.S.-"Sunday Times" Drama Festival, to be held in Southampton at the end of December. The cast is headed by James Griffiths and I hope that the Drama Society will be well supported in this production which stands a very good chance of being accepted for the final.

JOLYON OXLEY

THE MUSIC SOCIETY

The next production is to be Handel's Messiah. It will be held on December 17th in Southwark Cathedral. Rehearsals every Monday, 8 p.m., in Gloucester Hall. Students, nurses, lay staff . . . anyone is welcome to come along and join.

COLIN BROOKBANKS

DIARY OF EVENTS FOR NOVEMBER

November 7th Hockey Club Hop.

November 21st Cricket Club Hop.

November 26th 5.45 p.m. Medical College. London Medical Group. Symposium: The Ethical and Social Problems of Congenital Abnormalities. Chairman: D. B. Fraser, B.A., B.M., B.Ch., F.R.C.S., F.R.C.O.G., St. Bartholomew's Hospital. Professor J. P. M. Tizard, M.A., B.M., B.Ch., F.R.C.P., Professor of Paediatrics, Institute of Child Health. D. M. Forrest, F.R.C.S., Consultant Surgeon, Westminster Children's Hospital.

8 p.m. Rahere Ensemble. Great Hall. Concert in aid of C.A.R.E.

Recent Papers by Bart's Men

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*BURKITT, E. A. Department of Psychiatry, Darlington Memorial Hospital: Report on first sixteen months operation. 14 pp. [TYPESCRIPT].

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*GREY-TURNER, E. European Common Market and British medicine. *Brit. med. J.*, July 25, 1970, pp. 216-218.

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HODGSON-JONES, I. S. Clioquinol and iodine metabolism. *Trans. St John's Hosp. Derm. Soc.*, 56, 1970, pp. 51-53.

HOFFBRAND, A. V. Folate deficiency in premature infants. *Arch. Dis. Childh.*, 45, 1970, pp. 441-444.

HOWARD, M. R., *see* CHAMBERLAIN, D. A., and others.

*KAZANTZIS, G. Mercury and the kidney. *Trans. Soc. Occup. Med.*, 20, 1970, pp. 54-59.

KNILL-JONES, R. P. (with others). Combined treatment of parkinsonism with L-dopa and amantadine. *Lancet*, Aug. 22, 1970, pp. 383-385.

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*LEHMANN, H. (and Huntsman, R. G.). The haemoglobinopathies. *In*, Woodruff, A. W., *Ed., Alimentary and Haematological Aspects of Tropical Disease*, 1970, pp. 297-369.

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*MILLARD, F. J. C. (and others). Urinary calcium excretion after immobilization and spinal fusion in adolescents. *Arch. Dis. Child.*, 45, 1970, pp. 399-403.

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—— *see also* GIBB, W. E., and others.

*WIGGLESWORTH, R. In, *Living with Handicap*, A Synopsis of the Report of the Working Party on the Needs of Handicapped Children under the Chairmanship of Dame Eileen Younghusband. 1970.

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*Reprints received and herewith gratefully acknowledged. Please address this material to the Librarian.

ST. BARTHOLOMEW'S HOSPITAL

PRE-REGISTRATION HOUSE APPOINTMENTS

APPLICATIONS ARE INVITED FOR the appointments set out below:

JANUARY 1971

1 post : House Physician to Sir Ronald Bodley Scott
1 post : House Physician to Dr. Hayward
1 post : House Physician to Dr. Black
1 post : House Physician to Dr. Oswald
1 post : House Physician to Professor Scowen
1 post : House Surgeon to Mr. Tuckwell
1 post : House Surgeon to Mr. Nash
1 post : House Surgeon to Mr. Robinson
1 post : House Surgeon to Professor Taylor
1 post : House Surgeon to Mr. Todd
1 post : Junior House Physician to the Department of Child Health
3 posts : House Surgeon to the Department of Orthopaedics
2 posts : Rotating Iooums

Regional Board Hospitals

CONNAUGHT	House Physician	(one post)
HAROLD WOOD ...	House Surgeon	(one post)
NORTH MIDDLESEX ...	House Surgeon	(one post)
	House Physician	(one post)
PRINCE OF WALES'S ...	House Surgeon	(one post)
	House Physician	(one post)
ROYAL BERKSHIRE ...	House Surgeon	(two posts)
WHIPPS CROSS ...	House Physician	(one post)
	House Surgeon	
ST. LEONARDS	House Physician	(two posts)
PLYMOUTH GENERAL ... (Devonport Section)	House Physician	(two posts)
	House Surgeon	(one post)
ROYAL CORNWALL	House Physician	(one post)
ST. PAUL'S	House Physician	(one post)
ROCHFORD	House Physician	(four posts)
	House Surgeon	(two posts)
SOUTHEND	House Physician	(one post)
	House Surgeon	(two posts)

APRIL 1971

1 post : House Physician to Sir Ronald Bodley Scott
1 post : House Physician to Dr. Hayward
1 post : House Physician to Dr. Black
1 post : House Physician to Dr. Oswald
1 post : House Physician to Professor Scowen
1 post : House Surgeon to Mr. Tuckwell
1 post : House Surgeon to Mr. Nash
1 post : House Surgeon to Mr. Robinson
1 post : House Surgeon to Professor Taylor
1 post : House Surgeon to Mr. Todd

Regional Board Hospitals

ST. LEONARDS ...	House Physician	(one post)
ST. PAUL'S	House Physician	(one post)
PRINCE OF WALES'S ...	House Surgeon	(one post)
	House Physician	(one post)
ROYAL BERKSHIRE ...	House Surgeon	(two posts)

Applicants should state for which post they wish to apply and give a second choice.

The posts are tenable from 1st January 1971 or 1st April 1971, as listed.

Applications for **both** the January and April posts should reach the Sub-Dean's Office by **Thursday, 19th November 1970.** (Application forms are available from the Sub-Dean's Office) where further information may be obtained.

I. M. Hill, M.S., F.R.C.S.,
Sub-Dean of the
Medical College.

Barts Sport

LADIES' TENNIS CLUB REPORT

Season 1969-1970:

This season has been one of the most successful in recent years. A total of thirty-nine first and second team matches were arranged, twenty-one of these being played. Seventy per cent. of cancellations were made by opposing teams.

Results:

	P.	W.	D.	L.	F.	A.
1st Team	19	10	7	2	68	64
2nd Team	2	0	2	0	3	10

Although this record may not seem spectacular we do play many of the larger girls' colleges in addition to other hospitals.

Three mixed matches were played, providing several enjoyable relaxed afternoons.

Cup Matches

For the first time in the history of the Ladies' Tennis Club we reached the finals of both the U.L.U. and U.H. cups. In the U.L.U. cup we were forced to withdraw as the final had to be played on the afternoon on which half of the team were taking 2nd M.B. Physiology, and the other half were revising for a Pathology exam the next day.

In the U.H. cup we lost the final round to Charing Cross 0—8.

Cambridge Tour

This was extended this year to include a match against Homerton T.C. in addition to our usual matches against Girton and Newnham. Although we didn't exactly set the town on fire, the tour was a great success from both tennis (all the matches were very close) and social views.

Results

Homerton	Won 5—4
Girton	Lost 4—5
Newnham	Lost 3—5

Tournaments

Singles and doubles tournaments were arranged. The doubles had to be abandoned due to the pressure of exams and the singles final has still to be completed. Finalists are Pamela Benison and Vivien Bramwell.

As a large proportion of our members have been involved in 2nd M.B. this year, finding good teams has been difficult. However, we look forward to a successful season next year when most members should have a little more free time.

Cup Team: Janion Haywood, Rosemary Bradstreet, Vivien Bramwell, Pamela Benison, Susan Parrish, Lois Pihlens (née Stebbings).

Also: Vivien Gillis, Elizabeth Mansi, Frances Seccombe.

V. BRAMWELL

CROSS COUNTRY CLUB REPORT

During the season 1969-1970 Bart's Cross Country Club enjoyed one of its most successful seasons to date. In the early part of the season we had three runners representing London University in matches against the Universities of Oxford and Cambridge. In the London University League we held our position in the 1st Division quite easily, while in the Inter Hospitals fixtures we maintained our close rivalry with St. George's Hospital. They won the Porrit Cup for road racing but Bart's took both the Cross Country Relay and the Inter Hospitals Cross Country Championship.

We have many attractive fixtures (mainly on Wednesday afternoons) arranged for this winter and these include trips to Brighton (v. Sussex Univ.) and Cambridge (Selwyn Relays). We can offer anyone who is interested a varied and plentiful fixture list of running. We train every Monday evening on the Embankment and leave College Hall at 5.00 p.m. All those interested in starting or continuing Cross-Country running are encouraged to come along.

R. MOODY

ATHLETIC CLUB REPORT

The Athletic Club enjoyed a successful season during the summer of 1970. Although the numbers of the team were depleted through exams, the fixtures held were enjoyed by those taking part. The first event of the season was the University Championships at Motspur Park. Both J. Brooks in the 3,000m steeplechase and P. Bebbington in the Discus won their events and went on to represent the University later in the season.

A lot of hard work was put into Sports Day in a determined effort to make it a success. Many new ideas were introduced successfully and with the experience gained this year, future Sports Days should be even better.

The Inter Hospitals Sports were also held at Motspur Park. Our main triumph was in the tug of war championship where we retained our title. The liquid prize for first place obviously works wonders on our lads. What they will do for a couple of pints!

We also competed in a few inter club matches with a moderate amount of success, and our fourth place in the invitation Medley Relay at the Westminster Bank Sports Day was particularly well merited.

Anyone who is interested in doing Athletics next summer is asked to contact officials of the club, who will advise them of the plans for next year.

R. MOODY

CRICKET CLUB REPORT

This was a very varied season, upset by several of the team being involved in examinations for much of the time.

Consequently many of the results appear paradoxical, since we lost to some very poor opposition, yet beat the majority of our stronger opponents.

Having been runners up in the U.H. Cup for the previous two years, our hopes were high this season, not only for playing our third three day final in three years, but this time for bringing back the trophy. Our hopes however, were shattered in the semi-final by the eventual winners, the Middlesex Hospital, a greatly improved side, who cruelly exposed our lack of bowling. The 2nd team did well to retain their cup which they had won last year.

Next year will be a critical one for this club, since we shall be losing some of our veterans, without whom we would have been struggling this season. This is a challenge to all concerned with the club, and not least to those cricketers who have arrived at Bart's this month.

Season's statistics are as follows:
Played 29; Won 15; Drawn 6; Lost 14.
Batting (Qualification 10 innings)

TEAM AVERAGES

	Innings	Times n.o.	Runs	Highest Total	Avg.
G. Purcell	17	0	608	60	35.8
P. Furness	26	2	821	106 n.o.	34.2
R. Firmin	14	1	289	49 n.o.	22.2
D. Husband	16	2	250	44	17.8
P. Cooper	20	0	346	62	17.3
S. Leach	10	2	136	40	15.1
N. Welsh	10	2	114	34 n.o.	14.2
J. Shepherd	12	5	98	42	14.0
I. Hann	12	2	134	26	13.4
D. Berstock	14	1	148	35	11.4
K. Jones	11	7	20	11 n.o.	5.0

Bowling (Qualification 10 wickets or 50 overs)

	Overs	Maidens	Runs	Wickets	Avg.
P. Cooper	53.5	6	169	18	9.4
A. Munro	52.0	16	106	11	9.6
P. Furness	33.0	3	135	11	12.3
D. Berstock	197	44	483	37	13.1
D. Edmondson	118.2	34	367	27	13.6
K. Jones	140.2	24	434	26	16.7
N. Welsh	87	26	241	14	17.2
E. Lloyd	60.2	13	193	11	17.6
D. Husband	160.2	28	487	22	22.2
I. Hann	75	15	223	8	27.8

P. J. FURNESS

BART'S RUGBY

After last years successful season it will require a great deal of hard work from all members of the Club to maintain the high standard achieved. A number of senior players are taking their finals, and although there is plenty of talent in the Pre-clinical years it will need considerable skill to keep up with our previous record.

At the Annual General meeting held earlier this year, the following officers of the Club were elected:

President, H. Wykeham Balme; Captain, N. Fairhurst; Hon. Secretary, J. Laidlow; Hon. Fixture Secretary, R. F. McNab Jones, F.R.C.S.; Vice-Captain, A. Mason; Treasurer, N. Packer; Assistant Secretary, D. Jackson; Social Secretary, S. Smith.

Three new Vice-Presidents were also elected: Dr. J. E. d'E Stevens, Mr. A. Fuller, Mr. A. Nixon.

The season opened with a 7-a-side Tournament at Cheltenham, attended by such illustrious clubs as Coventry, Moseley, Penryn and Wasps to name only a few. Bart's arrived in inimitable fashion at the last possible moment, and after a very short time met the home side and local favourites, Cheltenham, in the first round.

Laidlow opened the scoring with a fine try for Bart's, but two quick Cheltenham goals made them 10 points to three at half time. By now, however, the effects of fatigue were more than offset by wearing off the stiffness from a three hour car journey, and two further Bart's tries were scored, one by Davies, the other in the dying seconds by Jefferson. As the last few seconds ticked away Fairhurst attempted the conversion, but with complete confidence he put it between the posts and we had won 11-10.

In the second round against St. Lukes College, Exeter Bart's were 10-nil down after a very short time, but recovered well so that a final score of 16-10 was a fair result for a very exciting game. Laidlow and Jefferson scored the tries, and Fairhurst converted them both.

Team: N. Fairhurst, D. Davies, I. White, T. Fenton, R. G. Lambert, D. Jefferson, J. Laidlow.

J. LAIDLOW

HAT-TRICK FOR BART'S

On Thursday, September 24, Bart's nurses won the "Nursing Mirror Swimming Shield" for the third time in a row; this shield is presented to the hospital with the best performance at the Inter-Hospital Nurses' Swimming Gala.

The gala took place at the Ironmonger Row Baths, E.C.1, and was by no means an easy victory, with many breath-taking and exciting finishes. The results were as follows:—

100 yards Freestyle: 1st Daphne Polson.
One length Backstroke: 2nd Gillian Jones.
Two lengths Freestyle: 1st Gillian Jones.
Style Contest: 3rd Daphne Polson.
One length Butterfly: 1st Daphne Polson.
Diving Contest: 1st Jan Houlton.
Freestyle Team Race: Won by Bart's. Team: Caroline Wilcox, Jan Houlton, Gillian Jones, Daphne Polson.
Medley Team Race: Won by Bart's. Team: Gillian Jones, Daphne Polson, Caroline Wilcox.

May I convey my thanks for the support from our Chief Nursing Officer, Assistant Matrons and Sisters. It was most noticeable that not many nurses came to support and it seems a shame as we have a good team and had such an exciting and rewarding evening. We would appreciate as much support as possible in future events and also would welcome any new swimmers at training nights which are on Mondays between 7 p.m. and 8 p.m., alternatively contact me at the Nurses' Post Office, Box 251.

DAPHNE M. R. POLSON.
(Swimming Captain)

SWIMMING TIMES AT GLOUCESTER HOUSE POOL

Monday
Nursing Staff only: 9 a.m.—12 mid-day.
*Men: 1 p.m.—3 p.m.
**Women: 4 p.m.—6 p.m.
Mixed: 7 p.m.—8.30 p.m.

Tuesday
Nursing Staff only: 9 a.m.—12 mid-day.
**Women: 1 p.m.—3 p.m.
Mixed: 4 p.m.—5.30 p.m.

Wednesday
**Women: 9 a.m.—1 p.m.
*Men: 1 p.m.—4.30 p.m.
*Men: 5 p.m.—6.30 p.m.
Nursing Staff only: 7 p.m.—8.30 p.m.

Thursday
Nursing Staff only: 9 a.m.—12.30 p.m.
Nursing Staff only: 1.30 p.m.—4 p.m.
Mixed: 5 p.m.—6.30 p.m.
Nursing Staff: 7.30 p.m.—9.30 p.m.

Friday
Nursing Staff only: 9 a.m.—12 mid-day.
**Women: 1 p.m.—3 p.m.
Mixed: 3.30 p.m.—5.30 p.m.

SATURDAY AND SUNDAY POOL CLOSED.

** Open to all Resident Staff and to Physiotherapists, Radiographers, Dieticians, Lay Staff and Medical Students.
* Open to all Medical Staff, Lay Staff and Medical Students.

Nurses: G. Jones, J. MacArthur, D. Polson at the inter-hospital gala receiving the Shield.

Form 9a.

THUR, 12 MAY 1898

Port of CARDIFF Continuation of Report No. 17660. dated 9th May 1898 on the

a number of butts cleaned out & restopped.
Two indented butts unriveted, faired, and
reriveted. Bottom scraped and coated.
A new single plate rudder constructed —
as per sketch and certificate attached, and as
approved by the Committee (see Secretary's Letter 19/4/98)
— and fitted, and the steering gear all
overhauled and refitted. Rudder marked Lloyds No 1496 A.K.H

A Kedge anchor has now been placed on board marked as follows
8.1.0 / 2.2.14 tested at Cardiff to 10.4 tons No of certificate 2242 10th July 1895 G. W. Penn
Supt. tonnage for equipment 2095 tons weight Kedge anchor required 5¼ 6½ cwt.

A 3½" steel wire hawser — one 7" hemp hawser & one 6" hemp hawser have
now been supplied.

J. G. G. Reale
Andrew A. Hamilton

2274.—5000.—27/7/96.—Trans. Ink.

LRF-PUN-CFF85-0058 (2/2)

N.B.—If this Report is copied by Copying Press, especial care must be taken that the copying paper is not so much damped as to spread the ink, or cause it to show through to the other side.

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.

JOURNAL CHRISTMAS CARD 1970

The Illustration is a coloured print of a 14th century manuscript from the Hospital Archives.

The Christmas card is now on sale in the Hospital and Medical College Libraries and also the Hospital Flower Shop. It costs only 1/-.

All enquiries and orders should be addressed to the St. Bartholomew's Hospital Journal, St. Bartholomew's Hospital, West Smithfield, London, E.C.1. and clearly marked "Christmas Card".

SAINT BARTHOLOMEW'S HOSPITAL JOURNAL

Founded 1893. Vol. LXXIV No. 12

Editorial

In this edition of the *Journal* we publish an article by the Dean of the Hospital, Dr. J. S. Malpas, on the Todd Report. In this he sets out the present position in the discussions and negotiations concerning this controversial report. It was intended to pair this article with one giving an articulate, concise expression to the views of those who oppose it, either wholly or in part. Two prominent members of the Medical College Staff who are well known to have serious reservations about the report have been approached with this end in view, but have both declined to put their names to any expression of opposition to it. Their main reason is that because the College had accepted it in principle and entered into discussions on its implementation, anything which could be seen as an attempt to rock the boat and disturb the outwardly united approach of the College should be avoided. Whilst we have to respect their point of view this represents a dangerous and self-defeating course. If the opposition of those in authority who are against some of Todd's proposals cannot be expressed in print, who is going to safeguard the Hospital and College against unfavourable policies? If large sums of the taxpayers money are to be spent on a scheme which—its detractors predict—will not produce any more doctors than at the present, then surely these detractors should feel free to express their opposition and campaign for what they believe to be in the interests of the Hospital. The self-imposed veil of silence of those in authority with unorthodox views can only be detrimental in the long run to those interests they claim to be intent on preserving.

Whilst the *Journal* can call on those charged with negotiating the future of the Hospital to preserve the better aspects of Hospital life, we are not actually sitting in on the discussions, and must rely on those who oppose the Report to present their views so that the student body can be kept aware of the important decisions being made. Silent opposition is ineffective opposition.

LETTER

WARD SHOWS

Resident Staff Quarters,

6th November, 1970.

The Editor, *St. Bartholomew's Hospital Journal,*

Dear Sir,

This past year has been no exception in the increasing publicity given to student unrest. The public image of "the student", no matter which discipline he or she may follow, has sunk to regrettable levels. We meet a cross-section of such a public in our daily work and it is at Christmas that the student body of this Hospital can go a long way towards repairing this tarnished image.

Bart's is fortunate in having, not only an energetic student body, but also a considerate nursing and administrative staff who allow the patients of the Hospital to enjoy the unique entertainment of the Ward Shows. These are intended primarily for the patients and their guests with the inevitable off-shoot of a superb Christmas for the participants. For continued success we must resist the tendency of former years to reduce the number of shows and participants, and encourage enthusiasm amongst all the students to produce original entertainment.

Rowdyism, disguised in festive goodwill, can do nothing but abbreviate the future existence of the shows which for many years have been a highlight of the Hospital Calendar.

Good luck to the medic who catches the twinkling eye of Sister who, with sherry glass in hand, leads the fortunate man off to her sitting room to "sort out the decorations"!!

In anticipation of another superb Christmas,

Yours faithfully,

IAN D. FRASER.

Senior Resident.

Announcements

Births

PUMPHREY—To Dr. J.H. and Dr. R.S.H. Pumphrey, a daughter.

MISSEN—To Janet and Mr. John Missen, a daughter.

MIDDLETON—To Susan (née Sharman) and Dr. Basil Middleton, a daughter.

Engagements

SKIDMORE—LONG—The engagement is announced between Mr. M. B. Skidmore and Miss Gretchen Long.

HANNING—VINE—The engagement is announced between Mr. Christopher Hanning and Miss Margaret Vine.

WELLS—HURREN—The engagement is announced between Mr. Irving Wells and Miss Evelyn Hurren.

HARRISON—WALSWORTH-BELL—The engagement is announced between Mr. Richard Harrison and Miss Joanna Walsworth-Bell.

Marriage

NOBLE—ROWNTREE—On April 18th Mr. Bruce Noble to Miss Sarah Rowntree.

Deaths

CURNOW—On September 20th, Dr. R. N. Curnow, M.R.C.S. Qualified 1928.

FITZGERALD—On October 10th, Maurice George Fitzgerald M.R.C.S. Qualified 1925.

DARGUIER DE PELLEPOIX—On September 9th, Dr. Anne France Darguier De Pellepoix, B.M. Qualified 1955.

GORDON—On August 30th, Dr. J. C. Gordon, M.A., M.B., B.CHIR. Qualified 1928.

DE LA M. SAVAGE—On June 9th, Dr. de la M. Savage. Qualified 1926.

STURTON—On September 28th, the Rev. Dr. Stephen Sturton, O.B.E. Qualified 1921.

PAYNE—On October 14th, Mr. Anthony Payne, F.R.C.P. Qualified 1941.

Appointments

Dr. George Discombe has been appointed Director of Laboratories at the Reza Shah Kabir Hospital, Shahr-e-Rey, Tehran, Iran.

Mr.Napier Thorne, M.D., M.R.C.P., has been elected to the Senate of London University as a Representative of Convocation.

Dr. A. G. Stansfeld has been appointed reader in Histopathology in the University of London.

MACCABAEAN PRIZE AND MEDAL

Entries for the 1971 Maccabaean Prize of 25 guineas and a bronze medal are now invited for an essay of 4,000 to 6,000 words on some aspect of the history of medicine or pharmacy. Intending candidates, who must be under 30 years of age on March 15th, 1971, may apply for further particulars to the Honorary Secretary of the Faculty of the History of Medicine, Dr. F. N. L. Poynter, The Wellcome Institute of the History of Medicine, 183 Euston Road, London, N.W.1.

OBITUARIES

DR. MAURICE FITZGERALD

"Fitz", as we all knew him, was one of the popular men of his year. Born in South Africa, where he was educated at St. Andrew's and went to Jesus College, Cambridge, and subsequently to Bart's, where he qualified M.B., B.Ch. in 1924. He took a prominent part in all student activities and was a member of the Rugger XV. Unfortunately he developed rheumatic fever, resulting in heart lesion and the stopping of his athletic career. He was House Surgeon to the late Mr. Rawling and later joined the late Dr. Camps in general practice at Teddington. He was on the staff of Teddington Hospital and was recognised as an able surgeon. His practice grew to be one of the largest in Teddington. His wisdom, ability and kindness were appreciated by a large number of patients who, on his retirement, subscribed to a roll on which there were hundreds of names. He was indeed the "beloved physician" gay, always a quip or a merry answer, careful and devoted in the care of his patients.

His last years were saddened by increasing disability due to his heart and retinal haemorrhages which prevented him from getting around. He never complained —he bore his long illness (and for a man of his temperament, depressive) with extreme gallantry.

He married Wynne Giddings, a theatre Sister at Bart's, and to her wonderful devotion and unceasing nursing in their happy marriage, he owes many years of his life. There are three children—two sons and a daughter. One son is a doctor in general practice at Maidenhead and the other a dentist at Crowborough. To them, as to his wife, go our deepest sympathy in the loss of one of the best types of family doctor, a great sportsman, an excellent companion and one who enriched the lives of all who met him.

GRAHAM MAJOR

Graham Major died recently at the early age of 26. He was a Yorkshireman by birth and came to Bart's from Cranley. He was well known and liked from an early age in his undergraduate training, and the cricket side benefited greatly from his batting, which was always competent and frequently entertaining.

Although taking an active part in the sporting life of the Hospital he had no difficulty in passing all his exams at the first attempt, but much to his disappointment he was only able to work for six weeks before he became ill. The illness which preceded his death was long and painful, yet Graham always maintained hope of recovery and bore his discomfort with patience and characteristic cheerfulness.

He leaves a wife, Sue, and a daughter Belinda to whom we extend our deep sympathy.

D.N.O.

THE REV. DR. STEPHEN STURTON, O.B.E.

Stephen Sturton was a fellow student at Bart's who went as House Surgeon to the Royal Sussex County Hospital and then to Hong Kong as a missionary and worked in the Happy Valley Sanatorium for many years. He gained a great reputation as a Radiologist and for his work on malignant disease. For his work in Hong Kong he received the O.B.E. Late in life he took Holy Orders and after his wife died he returned to Hong Kong only to come back to England because of illness. He will be greatly missed by all who knew him.

DIARY OF EVENTS FOR DECEMBER

December 3rd

Lunch-time lecture, Clinical Lecture Theatre at 12.15 p.m. "Problems of Drug Abuse" by Prof. W. Linford Rees, M.D., F.R.C.P., D.P.M. Physician in Charge—Department of Psychological Medicine. Coffee will be served 15 minutes before lectures. Tickets for admission are available from the Clerk's Office. Please collect tickets as theatre only holds 160 people and in the event of numbers exceeding this, ticket holders only will be admitted.

Rugger Club Ball, Charterhouse Square.

December 7th

Harvey Society Meeting, Pharmacology Lecture Theatre, Charterhouse Square at 5.45 p.m. "What is Rejection" by W. J. Dempster, F.R.C.S.

December 10th

Luch-time lecture, Clinical Lecture Theatre at 1.15 p.m. "A General Guide to Decimal Currency" by S. G. Evans, Esq., Senior Officer of the Decimal Currency Board's Executive Staff. Coffee will be served 15 minutes before lectures. Tickets for admission are available from the Clerk's Office. Please collect tickets as theatre only holds 160 people and in the event of numbers exceeding this, ticket holders only will be admitted.

December 12th

Hockey Club Hop, Charterhouse Square.

December 17th

Handel's Messiah. Music Society production in Southwark Cathedral at 8.0 p.m.

December 21st

Service of Nine Lessons and Carols in St. Bartholomew's the Less at 5.30 p.m.

December 25th and 26th

Ward Shows on the Hospital Wards after lunch.

December 29th and 30th

Pot Pourri at the Cripplegate Theatre at 7.30 p.m. Tickets available from Hospital Library.

December 31st

Pot Pourri at the Cripplegate Theatre at 5.30 p.m. Tickets available from Hospital Library.

Pot Pourri Party at Charterhouse Square after performance.

THE REPORT OF THE ROYAL COMMISSION ON MEDICAL EDUCATION

By the Dean of St. Bartholomew's Hospital Medical College,
J. S. Malpas, D.Phil., M.R.C.P.

The first comprehensive review of medical education in Britain was that of the Goodenough Committee in 1942/44. The changes brought about by this Committee have been relatively few and dissatisfaction with medical education in this country and an increasing awareness of our failure to train an adequate number of doctors were among the reasons "to deem it expedient that a Commission should forthwith issue, to review medical education, undergraduate and postgraduate, in Great Britain, and in the light of national needs and resources . . . . to advise Her Majesty's Government on what principles future development should be based". The Commission reported in April, 1968, and what most concerns us at present is the far-reaching proposals for re-organisation of the London Medical Schools.

Each of the twelve Schools were to be paired or "twinned" and incorporated with a multi-faculty College. St. Bartholomew's Hospital Medical College was to "twin" with the London Hospital Medical College, both Colleges developing their basic medical sciences together at Queen Mary College. In order to further these recommendations, London University set up a Steering Committee and in 1968, some six months after the publication of the Report, Bart's Medical College accepted the request of the Steering Committee that we should join forces with the London Hospital Medical College with the proviso that when we moved to Queen Mary College, facilities as good as or better than on the present site in Charterhouse Square would be available.

It is a basic tenet of the Report that more students should be taught in a more stimulating way, and that the way to provide this stimulation is for students of physics, chemistry, the arts, and medicine to work together in a multi-faculty College. Clinical training will of course continue at the two Hospitals, and there will be no likelihood of the Colleges losing their identity or having to lower their standards. The increased numbers of students taught in this new medical faculty should ensure that more money would be available, and thus facilities would be better—it is up to the Colleges to see that this is so. The question of how large the student entry is to be is sub judice at the moment, and I would rather not comment.

Undoubtedly all these changes will come about very slowly. I am expressing a personal view when I forecast that the removal of our Pre-clinical School from Charterhouse will not take place until the end of the present decade. In various ways the planning that goes on in the next few years will have to be compatible with the Royal Commission's recommendations, but probably little will be evident as far as the Bart's student is concerned. An example of what may be achieved by co-operation however, is the recent proposal, on which the Steering Committee has accepted the view of the two Schools, that a joint Academic Unit in Paediatrics be set up between Bart's and the London, centred on Queen Elizabeth Hospital, Hackney, which will be closely associated with the Hospital for Sick Children, Great Ormond Street. In this way the teaching resources of the Great Ormond Street Hospital, a centre of excellence in paediatric care, will become available for students both at the London and Bart's.

The immediate future probably holds little further development in the undergraduate facilities on the Charterhouse site. It does not, I feel, preclude an attempt to improve facilities for the clinical students. Unfortunately the Clinical School suffered damage in the War from which it has still not recovered and it is certainly in need of reconstruction. This is perfectly in accord with "Todd", for there is no point in twinning if one of the twins is marasmic!

It is even more difficult to say what the impact will be on the curriculum. The reason is that what is included and what is omitted from the curriculum before graduation must depend on how satisfactory is the surveillance of the young qualified doctor immediately after graduation. If a proper scheme of vocational training is provided after qualification, then the clinical years can be both more theoretical and curtailed. The provision of general professional and vocational training is the responsibility of the Department of Health, and what happens to post-graduate education determines, I think, and this again is a personal viewpoint, what happens to the Report of the Commission.

It would be quite impossible to cover all aspects of the Commission's Report in a short article but it will be seen that planning has started, money is being made available and, although many fundamental decisions have yet to be made, nevertheless I do not think we should fear participation in an unique and exciting educational development.

Are Clinical Teachers Really Necessary?

Dr. Neville Oswald, T.D., M.D., F.R.C.P.

"Sorry I missed your ward round on Thursday, Sir. I was road testing a Rolls-Royce". What should be the reaction of a hardened clinical teacher when he is addressed thus by one of his firm, whilst crossing the Square? Resentment is clearly inappropriate as it may lead to an embarrassing discussion upon the merits of his ward rounds. Disciplinary action, these days, is out of the question. Perhaps the most suitable response is a negative one, saying nothing but implying with a smirk that such intolerable behaviour cannot be overlooked more than once. After all, clerks on the writer's firm in recent months have managed to combine their ward duties with, among other things, assisting in the repair shop of a garage, supervising car hire for visitors to London, hawking a discotheque and, perhaps most unlikely of all, making a profit at gambling in night clubs.

Doing an E.S.R. Most students who become overburdened with extra-curricular activities, and they are only a very small minority, find that attendance at some ward rounds is inconvenient. At first, suitable excuses are readily accepted. Later, something rather more elaborate has to be devised. An E.S.R. can usually be rustled up from somewhere and half-an-hour can reasonably be allowed for collecting the apparatus, obtaining the blood and setting up the test. Then there is the question of convincing the hardened clinical teacher that the first half-hour of his round has indeed been spent in this way. One student, again on the writer's firm, overcame this difficulty by walking the length of the ward, passing the ward round in progress without looking to either side, whilst holding the laden test-tube about 18 inches in front of and at the level of his chin. When he joined the round later, there were murmurs of "well done", but whether they referred to the presumed success of his strategy or to surprise that he had been able to get into the vein is uncertain. Should a diabetic be available, then of course "doing a glucose tolerance test" is much superior to "doing an E.S.R.", since it combines regular periods of relaxation with opportunities for the exponent to be in visible contact with the round; it is a godsend for anyone with a hangover.

Improving the curriculum. Having reviewed the background against which medical teaching must be judged, possible improvements should be considered. The Dean, who bears the ultimate responsibility for teaching, must be allowed to have his say. The odd thing about Deans is that they are all the same. On assuming office they invariably try to convince their colleagues that they have a better grasp of medical education than any of their predecessors. If this fails they quote from American or Scandinavian experience, which is usually less extensive than that of those they are trying to convince. Their ultimate gambit is to invoke London University regulations, which nobody understands anyway. The result, after about a year of discussion and recrimination, is an overhaul of the curriculum, which means that the same long suffering teachers trot out the same old cliches but in a slightly different order, without any measurable effect upon the ultimate results.

Circumlocution. In the end, the wretched clinical teachers have to carry the heat and burden of the day. What are they to teach? On the writer's firm, it takes all of three months to teach students to give a straight answer to a straight question; anything else is purely incidental. Many questions demand one of three answers, namely 'yes', 'no' or 'don't know'. For some reason this simple truth has not penetrated the palaces of Charterhouse and the instructors over there have much to answer for. Take an example at random. "Do hookworms pass through the lungs at some stage in their life cycle?" Clearly one of the three alternative answers applies but it is rarely given. The most probable response is "Hookworms" said in a rather loud voice, implying either that the speaker does not enunciate properly or that he dropped his voice at the beginning of the sentence. Having established that hookworms are indeed being discussed, the next most likely reply is that hookworms used to infect tin-miners in Cornwall, especially if a Cornishman is being addressed. This has the advantage that at least it refers to hookworms, but it may shake the teacher's equanimity. If it is followed by "well, roundworms do", the point of crisis is not far off and the teacher must be on his guard. If he is, for instance, a simple chest physician he may not wish to be involved in the life-cycles of too many intestinal parasites simultaneously and he would be well advised not to pursue this subsidiary subject; nor must he abandon the discourse altogether as that would be a sign of ignorance. He must go back to the hookworms, on the assumption that he knew they went through the lungs, otherwise he would not have asked the question in the first place.

The end product. The ultimate concern of all institutions is the quality of the end-product, in our case the Bart's doctor. Surely one of the most extraordinary phenomena in the whole range of medicine is the change that takes place in students during their clinical years. Perhaps the words of a former Dean of this Hospital may be quoted. "You spend months trying to pick the best and then when they arrive in October and you see them in the mass they look perfectly dreadful". Yet three years later they are the embodiment of assurance, knowledge, capacity for work and sense of responsibility. How much of this change derives from teaching as such is uncertain. A little undoubtedly but not as much, I suspect, as from the example set by teachers and from the environment. Then there is that little extra which only Bart's doctors possess, which has to be learnt and is discernible in odd ways. For example, our road tester was asked to look over a Rolls-Royce; no other make would have done. Some years ago your contributor was asked to see a titled gentleman in the fox-hunting shires, who lived in a castle. He was aged 92, propped up in bed, passing grossly blood-stained urine and inhaling oxygen. Your contributor told the general practitioner, a Bart's man, that the patient had a carcinoma of the prostate and was unlikely to survive for more than a day or two. He replied that he was well aware of both the diagnosis and prognosis, but there was a rule in his firm that no member of the County was allowed to die without oxygen and a second opinion. "I have given the oxygen and you are the second opinion", he said. Maybe that would not occur in these enlightened days, but let us not be too hard upon students who at times look beyond the wards for their experience. There is more to doctoring than can be learnt at the bedside. It is a matter of style, really.

ANKYLOSING SPONDYLITIS

By Dr. H. W. Balme, M.D., F.R.C.P.

Ankylosing spondylitis is one of those things that young men are liable to acquire round about their twenty-first birthday. It is really quite common—something like one per thousand—and 90 per cent. of the cases are male. Fortunately the majority have it only mildly and are not troubled much by it: it is a condition that often crops up as an unexpected incidental finding when patients are being examined for something else. It might be, for instance, that a middle-aged man has a coronary, is noted to have a rigid spine when the back of his chest is being examined in bed, and remembers vaguely that when he was a young man he had some backache for a while but the doctors did not seem to know anything about it and he gave up wasting his time with them. Indeed, the usual lapse of time between the first symptoms of this disease and the first time it is correctly diagnosed is seven years, so it is not surprising that most men with it tend to be somewhat cynical about the Medical Profession.

One reason why it is missed is that doctors do not appreciate that pain arising from deep skeletal structures is commonly felt a long way away. Another reason is that, although the spine is about the easiest organ in the body to examine, most doctors do not know how to do so. The disease has various different tricks and modes of presentation but the majority of cases are sufficiently characteristic for the diagnosis to be very simply made from quite early on.

In a typical case the young man starts having stiffness and aching in the lower back and upper thighs. Dr. Desmarais tells me that one of the French names for the disease, spondylose rhizomélique (Pierre Marie), refers to the pain being in the roots of the limbs, rather than to root pain as the neuro-anatomists would have it. The symptons are very much worse in the early morning than during the rest of the day, and often come on during sleep and wake the patient up. A characteristic symptom then is that he has to get out of bed at 4 a.m. or so and wander round his bedroom to limber himself up before crawling back to finish his sleep. And, when the time comes to get up, he really needs someone there to push him out of bed as he has got too stiff again.

The ache in the roots of the thighs comes from the sacro-iliac joints (Fig. 1); the ache near the sacro-iliac joints comes from the lower lumbar spine; the ache over the iliac crests comes from higher up the lumbar spine; the ache radiating forwards from the renal angles towards the groins and invariably mistaken for renal pain comes from the upper lumbar spine (Fig. 2). At

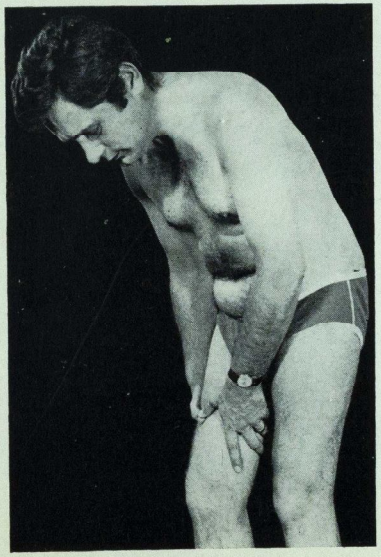

Fig. 1. Sacro-Iliac pain.

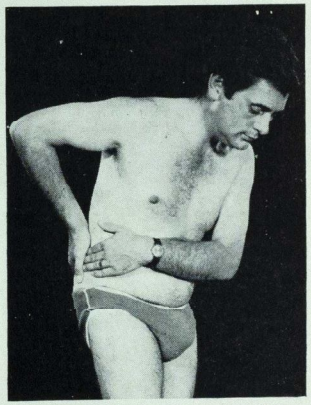

Fig. 2. Pain from upper Lumbar Spine.

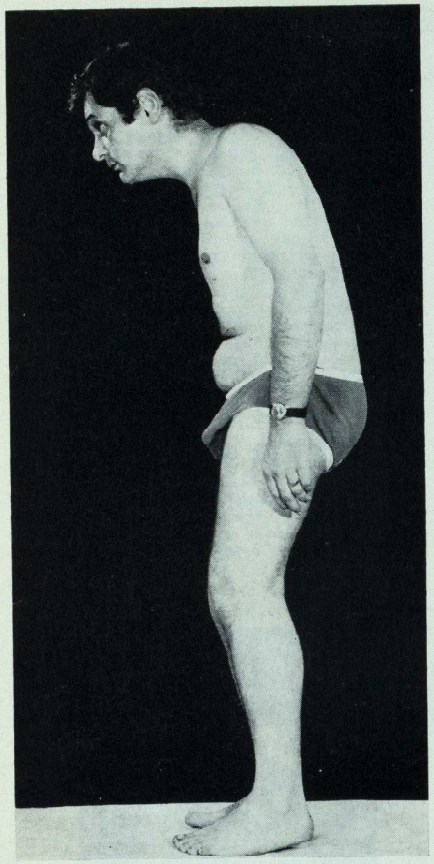

Fig. 3. Patient trying to touch toes.

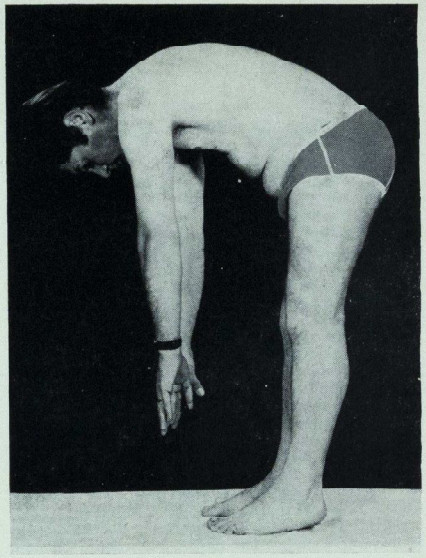

Fig. 4. As per Fig. 3.

Fig. 5. Pain from Thoracic Spine.

this stage ordinary ritual examination in bed reveals no abnormality, for the legs and hips are normal, the abdomen normal, and the back not examined. All one needs to do is to stand the man up, in his underpants, if you must, but certainly with his vest and trousers off, and watch him bend forwards to touch his toes (Figs. 3 and 4). The normal young male flexes his lumbar spine comfortably, but the early spondylitic does not and the difference is obvious. Make it even easier for yourself by examining suspected cases early in the day, when stiffness is worst, for movements may actually come back to normal in the afternoon. Stand him up and examine side flexion by getting him to run his hand down the outer side of his thigh to his knee, keeping his legs straight and allowing no spinal rotation. Watch from behind and see the erector spinae muscles stay contracted on the side towards which he is bending, indicating how stiff the spine is, and verify this by feeling the muscles. (Obviously the normal thing is for the opposite muscles to be working harder, if the spine is healthy, for otherwise, gravity would make you end up like a croquet hoop.)

After a couple of years the thoracic spine causes pain and stiffness, and diagnostic confusion reaches its peak. Pain from it is felt anteriorly as well as posteriorly, and it is usually the anterior component of the pain that the patient complains about most, because it frightens him most. Thus pain from the lower thoracic spine is felt round the costal margins as far forward as the nipple lines. It may be accompanied by referred muscle tenderness, and because the costo-vertebral joints are involved in the spinal lesion it may be worsened on inspiration. This combination produces a false positive Murphy's sign, like gall-bladder disease. All too often, when full investigation of gall-bladder and liver functions reveals no abnormality the poor fellow is labelled a neurotic and is at risk of being prescribed barbiturates or other depressant agents. Pain from T.6 and T.7 is felt sub-mammarily (Fig. 5) and is again likely to be worsened on inspiration. The patient fears heart disease, the doctor thinks it is pleurisy, and diagnoses cardiac neurosis when the X-ray is seen to be clear.

By this time, however, the lumbar spin will be obviously abnormal, if it is properly examined, and there will be obvious—though symmetrical—wasting of the erector spinae mass in that region. To examine movements of the thoracic spine sit the patient down and forcibly rotate it by twisting his shoulders, watching out to see whether this reproduces his pain, as it should. Also, measure chest expansion, using a cloth tape measure, just below the nipples, for by now it is likely to be reduced below 2 inches and cause pain when attempted. This pain may well be bilateral and submammary and accompanied by a sense of constriction indistinguishable from that produced by myocardial ischaemia.

In a few years the lower cervical spine may become involved, and this causes the syndrome of "fibrositis of the trapezius", the great non-existent disease. Pain spreads across the shoulders and is accompanied by much muscle tenderness with local exquisitely tender spots ("fibrositic nodules"—equally non-existent). This mythical lesion tends to get treated by radiant heat and massage, which greatly waste the patient's time and grotesquely over-develop the physiotherapist's deltoids. Later, however, movements of the neck become obviously limited (Fig. 6), reversing his car becomes difficult,

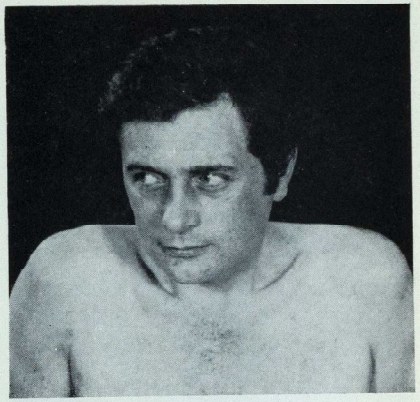

Fig. 6. Limitation of Neck rotation.

Fig. 7. Even socks have to be put on backwards.

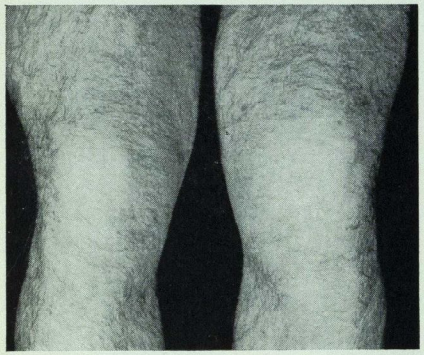

Fig. 8. Arthritis of Knee.

Fig. 9. Sacro-iliitis.

and this is about the stage when at long last the correct diagnosis is likely to be made. Unfortunately the lower parts of the spine will have fused together by then, so treatment to them cannot be of any use at all. Whether or not earlier treatment would have led to the arrest or even to a slowing down of the ankylosing process is not known, but at least it would have been possible, with earlier diagnosis, to prevent the unnecessary spinal deformities that are so commonly seen in this disease. The usual end result in severe cases is a general kyphosis throughout the whole spine, a perpetuation of the stoop one adopts when working at a desk, and this is a great nuisance. Regular extension exercises in the early inflammatory—pre-ankylosing—stages would have easily prevented it. Regular breast-stroke swimming is fine, for the patient has to keep his back well extended then or he will drown.

There are other tricks to this disease. Peripheral joints are quite often affected. The hips can unfortunately be severely involved with a similar ankylosing process, in which case disability becomes extreme and even if his knees are all right it means that he can only go upstairs backwards (Fig. 7), cannot sit on the lavatory, and can no longer drive a normal car. The knees may sometimes have a chronic synovitis (Fig. 8), but they are less likely to ankylose. The feet and ankles can sometimes be in trouble too, much like rheumatoid arthritis. The sterno-clavicular and acromio-clavicular joints may be inflamed for a while, and may ankylose too, but this matters little if the shoulders, as is usual, are spared: indeed, ankylosis of them imposes rather an impressive military bearing upon the patient at times. To a lesser extent ligaments and tendons give trouble, and a queer sort of fasciitis occurs at times in the plantar ligaments which can be quite incapacitating. Tenosynovitis, however, is not at all as prominent a feature as it is in rheumatoid arthritis.

The main non-skeletal manifestation is iritis, and indeed ankylosing spondylitis in this country is the (or is it only a ?) major non-ophthalmological cause of it. Sometimes it dominates the clinical picture entirely, symptoms from the spine being quite trivial. Far less commonly ankylosing spondylitis may cause aortic incompetence, and even heart block and sudden death, but this is mainly restricted to long-standing very severe cases.

Quite often patients with ankylosing spondylitis give a history of rheumatic fever, but this is spurious. It is now known that a fair proportion of children with polyarthritis ("Still's Disease") will, after puberty, develop into spondylitics, for it is as if ankylosing spondylitis behaves like an acute sero-negative polyarthritis, if it attacks you before you have reached puberty, and will then change its nature after that.

X-ray changes naturally lag many months behind clinical effects. Pathologically, there is a persistent inflammatory lesion, resembling rheumatoid, in or near the synovial joints of the spine and in or near its long ligaments. Soon this causes bone erosions, and X-ray of the sacro-iliac joints may be the first to show them, the joint lines becoming even more indistinct than usual, and wavy (Fig. 9). Erosions may soon be very obvious in the lumbar vertebral bodies, which then lose their top and bottom angles and thus become square instead of cotton-reel-shaped (Fig. 10). Later the inflammatory region ossifies, bone scleroses, ligaments ossify (Fig. 11), and joints ankylose (Fig. 12).

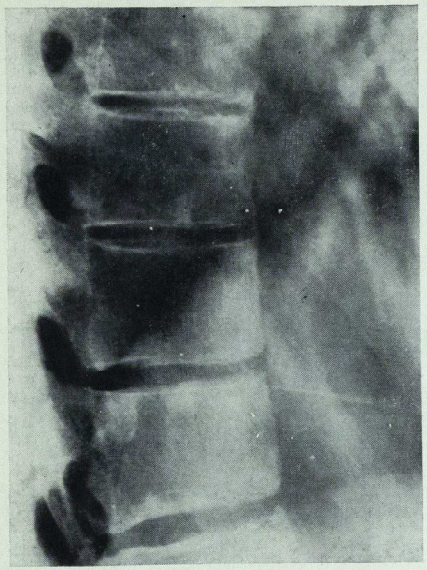

Fig. 10. Erosion of Vertebral bodies.

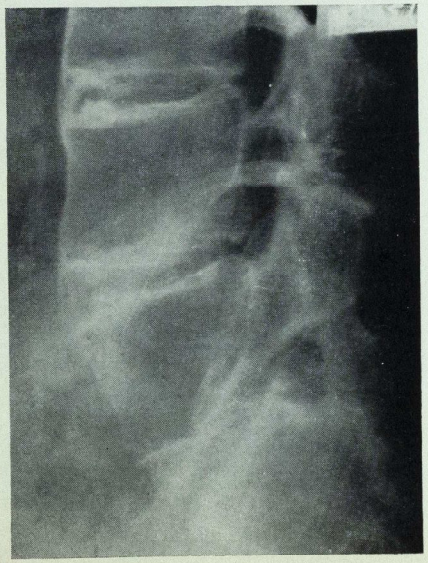

Fig. 11. Ossification of Vertebral bodies.

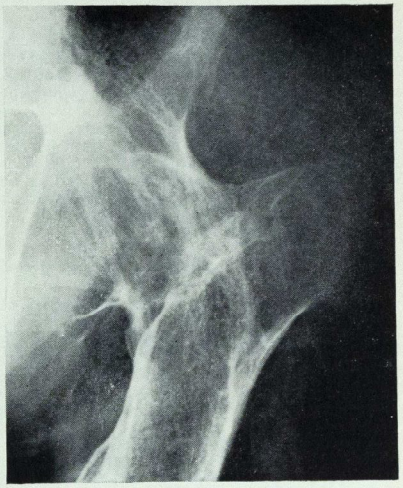

Fig. 12. Ankylosed Hip joint.

Most patients are not particularly ill with it and are reasonably cheerful. The E.S.R. may be 40 or more, the haemoglobin 80-ish, but otherwise tests are negative, plasma proteins are normal, and there are no abnormal antibodies or rheumatoid factors. Just every now and then a patient develops amyloidosis, but this is far rarer than in rheumatoid. The cause of the condition is quite unknown. Even auto-immunity is strangely silent about it. Like wooden legs it runs in families at times but it is not much more inheritable than they are. There is said to be an even higher incidence of genital infection amongst young men with it than amongst other young men, so the germ theory of its causation still lingers on—and is strengthened by the observations that typical ankylosing spondylitis is remarkably common in ulcerative colitis and that Reiter's Disease—thought to be infectious—is sometimes indistinguishable from it.

There is no cure but treatment is surprisingly worth while. Pain is relieved by ordinary analgesics, given regularly and in full dosage. If for this phenylbutazone is chosen stiffness of inflammatory origin is surprisingly well relieved too, and 200 mgm daily is often quite sufficient. When pain and stiffness have been as fully relieved as possible regular exercises are started to keep the back supple and in as good a position as possible. (This is the only inflammatory disease I can think of that, in 1970, is treated deliberately by exercise and not by rest.) Small regions of disease that give important

disability—such as the cervical spine—are much improved with a shortish course of radiotherapy, but in general one avoids this because of the risk of subsequent leukaemia. The patient is seen at regular intervals —say every six months—and three measurements made each time. Stand him up against the wall, with his feet and buttocks touching it, and see if he can touch it with the back of his head. If he cannot, measure the head-to-wall distance and if this is greater than last time curse him into doing his bathroom exercises better. Stand him up a little away from the wall and see how near to the ground he can get with his fingers, keeping his legs straight. Curse him again if this distance is increasing. Lay him down on his back with his legs wide apart and measure the distance between his malleoli. When this distance starts diminishing watch out for hip disease. Finally, you can measure his chest expansion if you like, but this really relates to the old days when we thought that chest infections were liable to finish the patients off. They are not. With reasonable supervision the great majority of these stiff young men enter stiff middle age and stiff old age with remarkably little disability and are able to lead a much more normal life than one might have imagined from the textbooks.

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THE RELATIONSHIP, ASSESSMENT AND THERAPY OF MALIGNANT LYMPHOMAS

By D. F. H. Wardle, M.B., B.S.

Lymphomas are usually thought of together as a single category of disease. This tends to overlook the diversity in their histological identification, and clinical behaviour as well as their variable prognosis. The only feature they share is their frequent manifestation in lymph node structures. Since Hodgkin's is a more common disease than the other lymphomas it is inevitable that much of the information quoted here concerns this disease. Efforts during the last ten years have been concentrated on the evaluation of Hodgkin's disease rather than the other lymphomas. The application to lymphomas of current concepts of behaviour and treatment, as worked out in Hodgkin's disease, has progressed more slowly.

In reviewing the current state of knowledge and theory about lymphomas there immediately arises the problem of classification of these diseases. Until recently it was generally accepted that there were four main categories of which the incidence according to Lumb[1] was as follows:

Giant follicular lymphoma	7%
Lymphosarcoma	20%
Reticulum cell sarcoma	6%
Hodgkin's disease	51%

The histology of the remaining 16% was too "anaplastic" to make a definitive diagnosis. It was felt that these diseases arose from a common mesenchymal stem cell in that this was the parent cell of both the lymphocytes and reticulum cells found in the lymph gland[2]. The former gave rise to giant follicular lymphoma and lymphosarcoma, the latter to reticulum cell sarcoma, while Hodgkin's disease was of both lymphocyte and reticulum cell in origin. The idea of a common parent mesenchymal stem cell also comfortably supported the fairly widely held view of the apparent interconvertibility of lymphomas. Giant follicular lymphoma for example, after an initial benign phase, usually converted to lymphosarcoma, but cases were also reported as having converted to reticulum cell sarcoma and very occasionally to Hodgkin's disease.

Currently held ideas object to the above view of lymphomas. The problem is that a stem cell is a largely hypothetical concept. Morphologically it cannot be identified. Most histologists also believe that one type of lymphoma rarely transforms into another but remains basically true to its original cell constituents. It is probable that the ideas of frequent inter-convertibility of lymphomas have arisen out of the difficulty and inaccuracy of interpretation of some histological sections.

The present concept of the classification of lymphomas owes much to the work of Rappaport[3] who carried out a retrospective study of serial biopsies from 253 patients with "follicular lymphoma". This study showed that malignant lymphomas, with a follicular or nodular pattern of histology, have a tendency to develop into diffuse lymphomas of the corresponding cell type. As they progress the histological pattern often changes. Nevertheless, this is in degree of differentiation of its cellular components and does not represent a shift from one major group to another[3,4]. A single cell line being malignant and more aggressive than others will tend to become more dominant as the disease progresses.

In the present classification of lymphomas the terms giant follicular lymphoma and lymphosarcoma no longer exist. It is felt that follicular lymphoma as a separate disease entity probably does not exist but represents the clinically quiescent phase of one of the other malignant lymphomas particularly nodular well differentiated lymphocytic lymphoma. These diseases may be defined as malignant proliferations of the lymphoreticular system, in which the involved cells are lymphocytes or reticulum cells, which may be either well or poorly differentiated. They are now classified into three main types:

(i) Lymphocytic lymphoma
(ii) Reticulum cell sarcoma
(iii) Hodgkin's disease.

Their further subclassification and relationship to previous classifications is shown in Table I.

From this it can be seen that well differentiated lymphocytic lymphoma and chronic lymphatic leukaemia are represented as being probably a very similar disease. In some cases it seems to depend on who fits the diagnosis to the clinical situation. If the histologist makes the diagnosis on lymph node biopsy he will call it well differentiated lymphocytic lymphoma. A haematologist, examining the peripheral blood and bone marrow, will call it chronic lymphocytic leukaemia even though there may be enlarged lymph nodes present. If these are separate clinical entities there are a number of identical features about them. Neither are likely to appear before middle-age. With well differentiated lymphocytic lymphoma it is usual that bone marrow becomes involved and peripheral blood lymphocytosis appears. Conversely, in chronic lymphocytic leukaemia, during the course of the disease, enlarged lymph nodes arise of which the histological pattern is indistinguishable from that of well differentiated lymphocytic lymphoma[5]. Against this argument is that some cases of

THE RELATIONSHIP OF PREVIOUS AND PRESENT CLASSIFICATION OF LYMPHOMAS

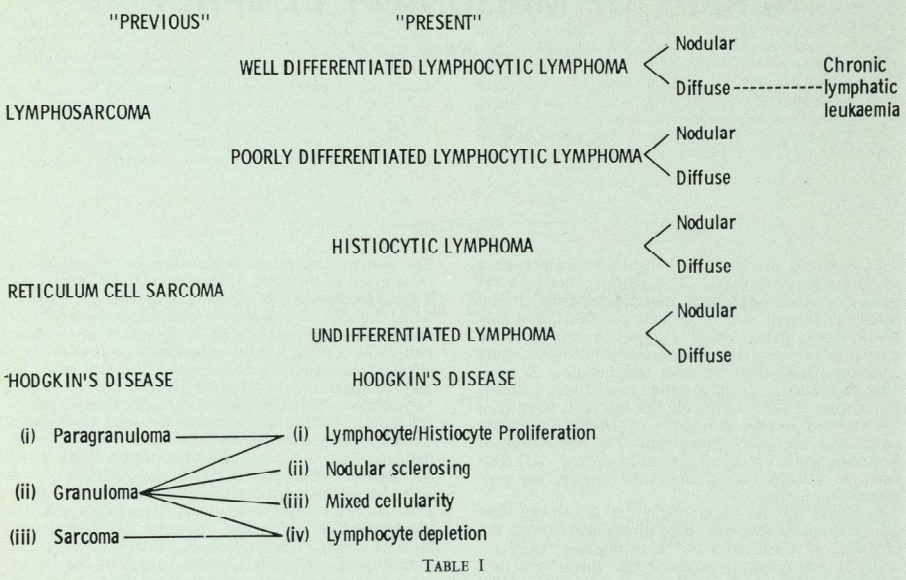

TABLE I

well differentiated lymphocytic lymphoma undoubtedly take a much more malignant course. Chronic lymphatic leukaemia rarely does.

Controversy again arises when immature, poorly differentiated cells appear in the peripheral blood in poorly differentiated lymphocytic lymphoma. It is not a common event in this disease although bone marrow is more frequently involved than peripheral blood. There has been a tendency to group this as a leukaemia but there is the possibility of this event being confused with acute lymphoblastic leukaemia. When malignant cells of poorly differentiated lymphocytic lymphoma appear in the peripheral blood they are not identical to lymphoblasts[6]. Neither does the disease behave like acute lymphoblastic leukaemia. It is probably wiser to call this a leukaemic phase of poorly differentiated lymphocytic lymphoma. Similar situations with histiocytic lymphoma and undifferentiated lymphoma should also be referred to as leukaemic phases of those diseases.

The subdivision of Hodgkin's disease for many years rested on the classification of Jackson and Parker[7] who described three groups of paragranuloma, granuloma and sarcoma. This had the disadvantage that 90% of Hodgkin's disease falls into the group of granulomas in which there is wide variation of prognosis. In an attempt to improve the prognostic significance in the identification of Hodgkin's disease Lukes and Butler[8] put forward a classification which, in slightly modified form, is now generally accepted (Table I). The malignant cell in Hodgkin's disease, and the cell by which it is identified, is the Reed-Sternberg cell[6]. The other cells, lymphocytes and reactive histiocytes, which go to make up the major part of the palpable lymph node are not malignant as in lymphocytic lymphomas but are the reflection of an accompanying inflammatory process. The significance of Lukes' and Butler's classification is that, the greater number of lymphocytes and histiocytes present, the better the prognosis. The more Reed-Sternberg cells and the less lymphocytes there are present, the worse the prognosis. This pathological classification also has the distinct advantage of correlating reasonably well with the clinical staging of the disease as described by Peters[9] and modified by a conference of the American Cancer Society.

Anatomical Staging

Stage I Involvement of one group or two adjacent groups of lymph nodes both on the same side of the diaphragm.

Stage II Involvement of two non-adjacent or more than two adjacent groups of nodes, all on the same side of the diaphragm.

Stage III Involvement of lymph tissue on both sides of the diaphragm but with disease still confined to the lymphoreticular system, i.e. lymph nodes, spleen, Waldeyer's ring.

Stage IV Escape of disease outside the lymphoreticular system with involvement of such tissues as bone marrow, lung parenchyma, bone, gastrointestinal tract, etc.

All stages may be further subclassified as *A* if there are no systemic symptoms or *B* if there are systemic symptoms—night sweats, fever, pruritis. Left untreated there is a natural progression of disease from Stage I to Stage IV.

Where the histological picture is that of lymphocyte predominance most of these cases have either Stage I or II disease; in one series 87%[10]. When biopsies show lymphocyte depletion then the majority of cases have already progressed to an advanced Stage III or IV.

The anatomical staging as described was devised specifically for Hodgkin's disease. It would appear both valid and useful to apply it to other lymphomas where progression to advanced disease, tends to be more rapid and escape from the lymphoid system earlier.

The diagnosis and assessment of Malignant Lymphoma

Much attention has been focused on the malignant lymphomas during the last ten years but it is still necessary to stress the necessity for lymph node biopsy in people where there is suspicious persistent glandular enlargement and only dubious association with infection. It is still not rare for a person with such glandular enlargement to be treated with antibiotics and reassurance for several months before help is sought. There may be no accompanying systemic symptoms during this time while the disease quietly progresses. Once the diagnosis of lymphoma is suspected and then proven on biopsy all resources are directed, towards knowledge of the exact extent of the disease. Only then can accurate staging of the disease be assessed. This work should include the investigations as listed in Table II. Some points need further note.

Lymphangiography, a technique first used in this hospital, has revolutionised the treatment of lymphomas during recent years. A reasonable assessment of the involvement of abdominal lymph nodes became feasible for, without it, anatomical staging would have been impossible. Although results are sometimes difficult to assess on films carried out at any one time, there is the advantage that dye remains within the glands for many months afterwards. On serial films accurate results are attainable and progression of disease may be seen. This

Table II

THE DIAGNOSIS AND ASSESSMENT OF LYMPHOMAS

THOROUGH HISTORY AND CLINICAL EXAMINATION

URINALYSIS AND MICROSCOPY

COMPLETE BLOOD COUNT WITH A STUDY OF BOTH PERIPHERAL BLOOD FILM AND BONE MARROW (TREPHINE)

LIVER FUNCTION TESTS, SERUM PROTEINS AND, WHERE APPLICABLE, LIVER SCAN AND LIVER BIOPSY

LYMPH NODE BIOPSY AND/OR BIOPSY OF OTHER TUMOURS IF EXTRA-LYMPHATIC INVOLVEMENT IS SUSPECTED

CHEST X-RAY INCLUDING TOMOGRAPHY IF HILAR INVOLVEMENT IS SUSPECTED.
SKELETAL SURVEY

LOWER EXTREMITY LYMPHANGIOGRAPHY TOGETHER WITH INTRAVENOUS PYELOGRAPHY

(SERUM COPPER AND LEUKOCYTE ALKALINE PHOSPHATASE)

diagnostic accuracy is placed as high as 90% by Smithers.[11] It is important to carry out simultaneous I.V.P. so that the proximity of the kidneys to involved glands may be seen. It is not possible to deliver a full tumoricidal dose of 4,000 rads to glands overlying the kidney due to the inevitable harm that would be done to that organ.

Serum copper and leucocyte alkaline phosphatase are probably more useful indicators of remission and relapse of disease than as diagnostic tools. It has been shown that the level of serum copper rises with increasing disease activity in Hodgkin's disease and decreases when treatment is proving successful in inducing a remission.[12 13 14] Leucocyte alkaline phosphatase is raised in Hodgkin's disease in relapse, but returns to normal again during remission. It does not appear to be a useful indicator in the other lymphomas where scores are normal or reduced.[15]

The Origin and Spread of Lymphomas

One area in which there has been much discussion and argument has been whether lymphomas, and in particular Hodgkin's disease, are of "unicentric" or "multicentric" origin. Does the disease arise in many random lymph nodes or does it spread from one originally involved lymph node to adjacent groups of nodes before finally escaping from the lymphatic system altogether? In other words, do lymphomas behave as other malignancies appear to do? Most of the arguments centre around Hodgkin's disease in which most studies have been carried out. It was because the

majority held to the view that Hodgkin's disease was essentially multifocal and systemic in origin that treatment used to be confined to largely palliative measures. As recently as 1963 Scheer[16] stated that in only one third of a series of 68 patients had recurrence of disease occurred in lymph node groups adjacent to those originally involved. At that time lymphangiography was not widely used and it was without the benefit of this aid that Scheer's clinical study was carried out. Since the inception of lymphangiography more recent studies have shown that Hodgkin's disease is not random in its spread[17,18]. In a series of 155 previously untreated patients with more than one lymph node site involved, Kaplan[18] found that in 78% there was involvement of adjacent lymph node groups in two, three or four sites. In 8% disease had become extra-lymphatic and in only 11% did the disease appear to be discontinuous within the lymphatic system. In this last group of 20 patients 15 appeared to show "skip" across the mediastimum between the neck and para-aortic nodes or spleen. Kaplan did not believe that this was due to blood-stream spread but postulated forward or retrograde spread via the throacic duct. Smithers points out that 80% of Hodgkin's disease arises above the diaphragm and goes on to suggest that it is unlikely that the commonest path of spread should be retrogradely via the thoracic duct or by rather poor monnecting lymph channels[11]. He says further that against the concept of unicentric origin is the fact that distant lymph nodes are not involved in this disease in a way typical of secondary malignancy. Instead of there being occasional focal subcapsular involvement the process always appears to be diffuse. There may be an explanation for this. The nodes the histologist receives for study are nearly always those which are seen to be macroscopically involved at the time of biopsy. If several lymph nodes are removed, including those which appear clinically normal, a progression of disease may be seen, particularly in the abdomen. This includes nodes with diffuse total involvement, nodes where focal involvement has just begun and nodes which appear, macroscopically and microscopically, free of disease[19]. Retrograde spread via lymphatics is thought possible in carcinomas so that it is certainly feasible in lymphomas. It is interesting that the areas across which Hodgkin's disease appears to "skip" occasionally are the mediastimum and upper para-aortic nodes. It is in precisely these areas where, even with the help of tomography and lymphangiography, it can be difficult to exclude involvement with certainty.

It is now widely held that Hodgkin's disease behaves like other malignancies. It arises in a single primary site, metastasises to adjacent lymph nodes in a sequential manner and then finally escapes to extra-lymphatic organs. It is difficult to be as definite about other lymphomas but it would appear that they may behave in a similar fashion. With the exception of some cases of well differentiated lymphocytic lymphoma, they escape from the lymphatic system earlier.

Treatment

Although the concept of cure of lymphomas is thought of as a modern idea, it was in 1915 that Yates and Bunting first suggested that hitherto published reports of 100% mortality in Hodgkin's disease were unnecessarily pessimistic[20]. Two years later they reported the possibility of at least 10% overall cure in a series of 65 patients treated over the preceding eight years[21]. It was not until the past decade that substantial advances were made and lymphomas came to be regarded as definitely curable diseases in a large percentage of patients if treated early enough. Treatment now rests securely on the foundation of vigorous radiotherapy in early stages of involvement and chemotherapy with multiple drugs for advanced disease. Improvements depend mainly on evaluation as to how soon chemotherapy should be used and whether chemotherapy and radiotherapy should be combined in a sequential manner in the same course of treatment.

(i) *Radiotherapy*

Curative treatment depends on two fundamental premises:

(a) that a full tumoricidal dose is given

(b) that all involved tissue is exposed to radiation.

Since radiotherapy was first used in lymphomas in 1906[22] there has been a steadily increasing trend in the dosage of irradiation given. This has become more feasible with megavoltage therapy. Once again it is with Hodgkn's disease that the dose/time relationship has been most comprehensively studied, but workers do have some indication as to the optimum dose in a given time that is necessary in treating other lymphomas. A short summary of this is given in Table III. There is still discussion as to how extensive a field should be treated. If it is believed that lymphomas spread to adjacent lymph nodes first, then it is logical to treat those adjacent nodes as well as the clinically involved sites, since microscopic involvement may have already occurred. Peters found that survival rates were improved by 20% with prophylatic radiation to nodes adjacent to the involved site.[23] Others have found that treating clinically non-involved adjacent nodes in Stages I and IIA Hodgkin's disease did not improve their results. In Stage IIB it does seem necessary to treat these adjacent nodes for it was found that without this 'extended field' treatment recurrences occurred mor readily[18,25]. It is the practice in this hospital to treat all patients with Stage I and II disease with prophylatic radiotherapy to adjacent nodes irrespective of the presence or absence of constitutional symptoms. People with disease above the diaphragm receive radiation to the neck, both axillae and mediastinum, with lung shielding according to Kaplan's 'mantle' field. Those with disease below the diaphragm receive

OPTIMAL DOSE/TIME CURATIVE RADIOTHERAPY

	MINIMUM TUMOUR DOSE	DURATION OF COURSE
LYMPHOCYTIC LYMPHOMA	2,500-4,000 rads	3 - 4 WEEKS (but wide variation)
RETICULUM CELL SARCOMA	4,000-5,000 rads	3 - 6 WEEKS
HODGKIN'S DISEASE	3,500-4,000 rads	4 - 6 WEEKS

TABLE III

FIGURES FOR REMISSION WITH RADIOTHERAPY IN HODGKIN'S DISEASE

	NO. OF PATIENTS IN TRIAL	MEDIAN DURATION CONTINUALLY FREE OF DISEASE	% FREE OF DISEASE
Stage IA and IIB			
KAPLAN [18]	29	27 months	79%
JOHNSON [24]	68	48 months	86%
Stage IB and IIB			
KAPLAN	10	16 months	70%
JOHNSON	34	48 months	45%
Stage IIIA			
KAPLAN	5	24 months	80%
JOHNSON	11	Min. 17 months	> 90%
Stage IIIB			
KAPLAN	17	16 months	41%

TABLE IV

treatment to an area delineated by the glands shown up with lymphangiography. Since these glands lie along the aorta and common iliac vessels this area is in the shape of an inverted 'Y'[26]. As lymphocytic lymphoma and reticulum cell sarcoma tend to disseminate more rapidly, both to other nodal sites and extra-lymphatically, radiotherapy probably has less application. Although these tumours are often singularly radiosensitive, survival rates and duration of remission are consistently lower than with Hodgkin's disease, some current figures for which are given in Tables IV and V.

It is well here to explain what is meant by the term 'cure' in lymphomas. Easson defined this as being achieved when at some time after treatment the survivors, being free of disease, have an annual death rate from all causes parallel to that of the normal population.[27] This appears to happen within about five years of successful treatment. Kaplan[18] has gone further and stated that in 109 cases of Hodgkin's disease Stage I and II if recurrences appeared they occurred within two years of initial treatment in 90%. Only one case relapsed after five years. He believes that, after five years, there is a better than 95% chance of permanent cure having been achieved. This appears to be confirmed by other worker's findings.

(ii) *Chemotherapy*

Since two recent papers in this Journal have discussed both the chemotherapy of malignant disease generally[29] and leukaemias in particular[30]. It would not seem appropriate to repeat what has already been described. It is not proposed, therefore, to explain the rationale behind the continuous, cyclical or intermittent use of drugs either singly or in combination. It is sufficient to say that most of the drugs which are of value in leukaemias and other malignancies are of some value in lymphomas. In particular the following have been used with varying degree of success: the polyfunctional alkylating agents such as nitrogen mustard, cyclophosphamide and chlorambucil; the vinca alkaloids, vinblastine and vincristine; procarbazine which is a hydrazine derivative; and steroids. Used singly Fairley[31] and others have shown these agents capable of producing a beneficial response in about 70% of patients with Hodgkin's disease. Other series have shown that the other lymphomas have also benefited from single agents with remission rates varying from 10-30%[32,33,34]. Although combined chemotherapy has shown improved results with responses, complete and partial remission, in 88-94% of patients with lymphocytic lymphoma, and 61-68% with reticulum cell sarcoma[35,36], the duration

SURVIVAL OF PATIENTS WITH LOCALISED LYMPHOCYTIC LYMPHOMA AND RETICULUM CELL SARCOMA AFTER RADIOTHERAPY

	NO. OF PATIENTS	5 YEARS	10 YEARS	15 YEARS
PETERS[24]	102	51%	42%	36%
EASSON[27]	107	52%	49%	49%
ROSENBERG ET AL[28]	245	47%	-	-

(Modified from JOHNSON, R.E. (1969) Seminars in Haematology, 6, No. 4, 368)

of these remissions is short-lived by comparison with Hodgkin's disease. It has also been shown that if no maintenance therapy is given then the duration of remissions is less than half that of maintained remissions with methotrexate, cyclophosphamide and other agents. A recent paper from this hospital[37] confirmed that intermittent combination chemotherapy, using prednisolone, procarbazine, vinblastine and mustine hydrochloride produces a higher percentage of complete and partial remissions than the use of single agents in advanced Hodgkin's disease. With patients, in whom complete remission have been maintained for more than a year, the problem has now arisen as to the length of time it is necessary to go on treating them and at what interval chemotherapy should be given. Since it is now generally agreed that Stage I and II Hodgkin's disease should be treated with radiotherapy, and Stage IV with chemotherapy, another problem remains as how best to treat Stages IIIA and IIIB. Chemotherapy or radiotherapy or both?[10 27 38]. Comparative studies of combination chemotherapy versus radiotherapy in the other lymphomas are also needed.

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Book Reviews

Social Aspects of Clinical Medicine. Jessie Garrad and Sir Max Rosenheim. Balliere Tindall and Cassell.

Designed primarily for medical students, this easily read paperback aims to present the patient as an individual in the community, and reviews the social, environmental and emotional factors that relate to his disease, and the means by which community services can be enlisted in his aid. Written jointly by Sir Max Rosenheim, Director of the Medical Unit at University College Hospital Medical School, and Jessie Garrad, formerly Senior M.S.W. at University College and now lecturer at St. Thomas's Medical School, it would prove of interest to social workers too, and also to nurses and recently qualified doctors working in a hospital setting or in general practice.

The book falls into two parts and throughout the viewpoint is that of the practising clinician. The first part deals with the social history; what it should consist of, and how this information can be put to work. It is supported in the second part by fourteen illustrative case histories showing this interlinking of illness with personality problems, family relationships and environmental backgrounds.

These case histories are brief but very effective, and emphasise the need for continued awareness of the underlying factors affecting a patient's health, of the role of the social worker, and the involvement of community resources, and the importance of the clinician in combining the efforts of his team. Part III looks at the team in practice, both in the hospital and in the community services. Part IV provides a reference section.

The factual details are clear and uncluttered and if at times the account is over simplified this must surely be counted a positive merit when the subject tends to be such a confusing one. It's full of a disciplined understanding and humanity and the case histories emphasise again and again the unique oddness and highly individual responses of that most complicated mammal a human being. It's quick, easy reading, sound and practical—and I recommend it strongly to Bart's medical students.

You Can't Go Home Again. Thomas Wolfe. (Penguin 12s.).

You can't go home again—there's no clinging to the past—this is the theme of this mammoth 670-page near autobiographical novel. It is subdivided into several major chapters, each relevant to a particular period in the life of its main character George Webber, a young author. It spans an era of history from the mid-twenties to August, 1939, and is not only a story of an author struggling to find himself, but a complete social commentary and reflection on the American way of life in the late twenties and thirties and includes an American's view of England and Germany in the late thirties.

In the first major chapter George Webber returns to New York to find himself back in his rut and with the same socialite stage designer girlfriend that he left behind several years ago for European travels. He returns to his small home town on which his own first novel is based, recapitulating on his childhood and comparing it with the present way of life of its inhabitants: a totally sordid way of life concerned only with status and financial gain through property speculation. People obsessed into becoming paper millionaires by daily buying and selling land for vast sums on long-term loans. It's marvellous until the Wall Street crash arrives when their whole thready existence crumples into the dust. George finds himself unable to share in this sad mania and returns to New York unable to go home again. But the picture in New York is not dissimilar. The rich are already rich and their concerns are mere trivia aligned to their social existence, just as pathetic. Piggy Logan's circus of dolls and animals praised by the art critics in intellectual clichés, compared to Chaplin and Chesterton in the same breath, is a must for everybody who is anybody. In reality it is steeped in vulgarity. The whole scene reeks of decadence, and it's all at his girlfriend's party. This too, George has to leave. The publication of his first novel is acclaimed by the critics, but reviled by the people of his home town who in their narrow-mindedness see every incident not as an imaginary reflection on their way of life but as an actual event that must have occurred. The cracking of their masks terrifies them.

The next few years are spent, after the initial flush of success, in an attempt to get to grips with his own personality, to define his own philosophy. He rents a small apartment in Brooklyn in the world of little Jewish tailors, waiters, track drivers, and the old. The atmosphere is claustrophobic; hot dogs, concrete, and four letter words the existence. Those who find the life abnormal and intolerable are their own outcasts; their escape is suicide for the poverty and degradation that has befallen them since the slump prevents them leaving physically.

His visit to England is a picture of a respectably class divided society, pleasant and stable. Germany is printed as a strong nation with setrong bonds and with a purpose to fulfill. Very slowly the ilusion is chipped away. This chapter is pleasant rather than compelling reading.

The finale is a long letter to his publisher and life long friend exuplaining the philosophy of his own life and of America. The hopes and ambitions he feels this cultureless nation will soon fulfill; its establishment as a great power. It would be interesting to see if he would have said the same today, or would have shared the views of his publisher who one was inclined to believe felt it the duty of the intelligentsia to sit down, observe, share the sufferings and the joys of their developing nation, comment privately amongst themselves but never get involved in ayone else's realities. Times do not appear to have changed. This is a well written and ultimately hopeful novel worth reading if you can find the time.

M. C. WHITE.

Lecture Notes on Haematology. N. C. Hughes-Jones. Blackwell Scientific Publications. Price 30s. (150p.).

This is a first class book. Written specifically for medical students, it contains enough haematological facts to satisfy any Finals examiner while the author's approach to his subject stimulates the interest and encourages the reader to delve more deeply into haematology. The selected references make the choice of further reading easy.

The book is based on the teaching course at St. Mary's Hospital (although Bart's gets the credit for the picture on the front cover). The excellent sections on transfusion and haemolytic disease of the newborn reflect the interest of the St. Mary's group in these subjects, while Bart's students may be surprised that the malignant blood dyscrasias do not command more space.

The chapter on haematological techniques should be compulsory reading for all those who have to interpret laboratory results—a discussion on normal variations is also included.

Only minor details deserve criticism. Firstly, it is surprising that the value of estimating red cell folate levels is not mentioned since it is the most reliable available means of assessing folate status. Secondly, although the photographs give a good impression of the abnormal appearances of red cells, it is difficult to believe that black and white pictures of Leucocyte morphology mean much to anyone not already familiar with the appearances under the microscope.

As an introduction to haematology, this book can be recommended. Those used to the high standard of the "Lecture Notes" series will not be disappointed.

C. J. T. BATEMAN.

STUDENT NURSES' ASSOCIATION

After some absence, the S.N.A. has risen again. There is a new executive committee of enthusiastic organisers consisting of: Gill Jones (Chairman), Kate Smith (Vice-Chairman), Hilary Roberts (Secretary) and Mary Fagan (Treasurer). Since being appointed several meetings have been held and new committee members appointed; there has also been a social evening.

The main proposals at present are to organise a Christmas Dance and plans are under way for the first ever S.N.A. Ball in the New Year. To be successful, these events need good attendances and all hospital staff are invited.

Anyone in the hospital wishing to know more about the Association and forthcoming events, please contact any of the aforementioned nurses.

PRESENTATION OF NURSES AWARDS AND CERTIFICATES

The annual ceremony of the presentation of awards and certificates to nurses took place in the Great Hall on Wednesday, October 21st. The many relatives and friends of the nurses, as well as representatives of the nursing Staff, and the nurses themselves, of course, filled the Hall and were welcomed by Mr. Robin Brook, the Hospital Treasurer. Here also the Dean of St. Paul's, the Very Reverend Martin Gloster Sullivan, who was taking part in his second Bart's function within a week, having preached the sermon at the St. Luke's Tide Service the week before; and the Master of the Worshipful Company of Clothworkers, Sir Francis Portal, who was to present some of the awards. The Chief Nursing Officer, Miss R. M. Jones, then gave her report, and thanked all those who had worked so hard throughout the year to maintain the nursing standards of the Hospital. She was followed by the Principal Nursing Officer (Teaching Division), Miss L. H. M. Collyer, who has only recently taken over from Miss Hector.

In a very lively and amusing address, the Dean of St. Paul's exhorted the nurses not to forget the view of life obtained from the other side of the blankets. He vividly described the horrors of his own hospital admission, during which he had had no idea of his own diagnosis, and had even been rebuked by the Ward Sister for presuming to ask a consultant what it might be! He went on to present 110 Four Year Certificates, of which 2 were with 1st Class, and 19 with 2nd Class Honours.

Sir Francis Spencer Portal gave a short, informative speech, in which he related the history of the City of London Guilds—especially that of the Clothworkers. He told how their mediaeval functions had been superseded by modern institutions, and how they came to support worthy causes with the money which they held; gifts towards nursing awards were only one aspect of this work. He then presented the medals for 1969-70, which were awarded as follows:—

Gold Medal: Miss Dora Anne Louise Turner (Mrs. Butler).

Silver Medal: Miss Sheila Margaret Twyford.

Bronze Medal: Miss Mary Clare Stanley.

Votes of thanks were proposed to the speakers by the Gold and Silver Medallists, and the afternoon's activities were very agreeably concluded with tea in Gloucester Hall.

BOB LE QUESNE.

Y. Goodman, M. Platten, D. Boyce and D. Hoyle with awards received at the Annual Presentation.

Bart's Sport

Honours Colours 1970

The following have been awarded their Hospital Honours Colours this year:

John Carroll, Rugby;

Mansell Heslip, Rugby.

Robin Lambert, Rugby;

BART'S RUGBY

1st VX v Beckenham. Away

The customary Wednesday evening game against Beckenham at the beginning of the season is always a problem, because finding 15 players who are even reasonably fit so early on, is almost out of the question. In the circumstances, the Bart's performance was very good indeed, especially during a mad 10 minutes when 3 tries were scored. Towards the end Bart's wilted a little and Beckenham came back to increase their score to14 points.

Final score: Bart's 22, Beckenham 14.

1st XV v Southend. Away

A poor game. Southend are a fit young side with a well drilled pack and strong running backs, and their tackling was so enthusiastic that Bart's never really got going. After a long journey we failed to make good use of a following wind and downhill slope in the first half, and at half-time the score remained nil-nil.

The second half also turned out to be very even, with both sides just failing to score on a number of occasions. In the last fifteen minutes, however, Southend managed to score a goal, a try and a penalty without reply, so the score at the end stood at 11—10.

1st XV v Cambridge 60's. Home

Before the game, Bart's had not won the fixture against the LX Club for many years, so it was some achievement to end the game victorious. Earlier in the week, the Cambridge 1st XV had beaten Mary's 27—0, and Guy's by an incredible 66—0, but those were against full Hospital sides, and when Bart's played the LX Club the date coincided with M.B. vivas, so hardy perennials Lambert/Britton/Johnson were in Queen's Square facing equally formidable opposition of a different nature. We were fortunate, however, to have Heslip playing for us, and Mick Martin, a fresher from Cambridge, played an excellent first game for Bart's at outside half.

Early on both sides conceded too many penalties, and neither really got into top gear, but late in the first half fumbling on the Cambridge line resulted in Laidlow pouncing on a loose ball to put Bart's ahead. Soon afterwards, Rhys-Evans put over a penalty, but Cambridge soon replied with one of their own to make the score 6—3 at half-time. The second half consisted of spirited attack and defence by both sides. The LX Club seemed much fitter: at one loose scrum Ollie Else battled alone against the entire Cambridge pack, and towards the end Bart's were defending their slim lead against repeated and ferocious onslaught—successfully.

Final score: Bart's 6, LX Club 3.

1st XV v Sandhurst. Away

Andy Mason successfully disrupted this game by having a double puncture on the M4 in his car carrying three other members of the 1st XV. When the game eventually staretd, Bart's were severely handicapped, playing four reserves in a side that contained only four of last year's victorious Cup final side. Laidlow scored two tries, Rhys-Evans converted them and also kicked two penalties. Sandhurst replied with a goal to make the final score 16—5.

Mick Martin played well at full back and the team showed improved fitness and cohesion.

Record so far:	P	W	D	L	F	A
	6	5	0	1	75	55

Summary

The Freshers' Trial in early October revealed a number of useful players among the new intake, two of whom have played regularly in the first XV and several others in at least one game. Shane Sullivan, a newly acquired prop, has played in a Wallaby side that toured South Africa and, although he never actually played in a Test, he is obviously going to be a great asset.

Looking ahead to the Cup, it is far too early to make any predictions. The Old Brigade of McIntyre and his contemporaries all took their Finals in October, and their availability for the Cup is still a matter of conjecture. With even a couple of them together with the Freshers, there seems no reason why the Cup should not remain at Bart's for another season.

JOHN LAIDLOW

SOCCER CLUB REPORT

The Soccer Club has got off to a flying start this season and has astounded its critics by actually winning something already, the something concerned being the Inter-Hospital Plate competition, held on September 26th.

Inter Hospital 6-a-sides. Won Plate competition

In the first round, Bart's had the misfortune to be drawn against Kings I (who were organising the competition) and lost 1—0 in a very close competition, in which Bart's might have won, had the centre-forward Skanderowicz been on target.

In the plate competition, Bart's swept away all contenders with consummate ease, due to their superior fitness and heir ability to make he ball do he work. It was unfortunate that Bart's had been drawn against Kings I, the eventual winners of the competition, in the first round, for this would have made an exciting final.

v Charing Cross (A) 10th October. Lost 6—3

Bart's were overwhelmed by a first-minute goal from Charing Cross, and further disheartened when they failed to score from the penalty-spot a few minutes later. Playing with pre-clinicals who were not fit, and a few Freshers who were unused to Hospital football, Bart's were not surprisingly 4—1 down at half-time. However, in the second half, Bart's came back magnificently and the final score was 6—3.

v R.D.H. (H) October 14th. Won 10—1

After a shaky start, in which Bart's conceded a goal after five minutes play, the team found its fluency, and with a back four of Wall, Barrison, Abbot and Franklin, who gave nothing further away, the team played well to put ten goals past a disheartened R.D.H. team. Notable in attack was Knight, and Murphy who scored four goals. As our score increased, so too did the hard tackling in the game, and we finished the last ten minutes with nine men. Our best wishes go to Peter Schesinger who tore both his cruciate ligaments and will not be playing with us for a while.

We are now running a full 2nd XI side with regular fixtures, and so anybody who is a devotee of the round ball is urged to join us, for I feel this is going to be our best season for some time.

ANTHONY R. J. WALL

BART'S HOCKEY CLUB CAMBRIDGE TOUR—1970

Wednesday, October 21st

v Fitzwilliam College. Won 4—0

In the first half Bart's did most of the attacking and were unlucky not to score on several occasions. Playing with more control in the second half, Robinson opened the scoring with a well taken goal following a good movement involving Tweedie, Sleight and Young.

Reid then converted a short corner with an unstoppable shot. Bart's finished the match with two good individual goals by Young.

Thursday, October 22nd

v Jesus College. Won 8—1

After a relatively quiet first night in Cambridge Bart's took the field against Jesus College, who were unfortunate to find Bart's in a goal hungry mood. Bart's led at half time following goals by Young, Reid (short corner), and Robinson. With half backs Dodson, Coleman and O'Donovan keeping Bart's amply supplied with possession, and Ashton and Young combining intelligently at inside forward, goals from Young (1), Robinson (3) and Reid (penalty) followed. On time Jesus scored following a long corner.

Friday, October 23rd

v Selwyn College. Won 5—1

An inauspicious start by Bart's, despite the support of their president, Mr. Jayes, led to Selwyn—playing with a spirit not seen by Bart's since the early hours of the morning (Jesus College closing time 12.00 p.m.!!) —opening the scoring. Bart's changed over at half-time lucky to be drawing 1—1 following a good equalising goal by Coleman.

In the second half Bart's "woke up", and goals came from Young (1), Tweedie (1) and Robinson (2). On time Price saved well, not for the first or last time of the tour.

v Caius College. Won 3—0

Bart's, eager to pull off the grand slam of wins in all four matches, took the field with guest "star" Sam Thompson. Caius, looking dangerous in breakaway movements, were well contained by the Bart's back five, notably Yates, Thompson and Foster.

Bart's opened the scoring with a short corner by Reid (who else!!), after Bates had run dangerously on the left wing.

In the second half Bart's, looking slightly jaded at the end of the tour, managed to score goals by Robinson and Young.

JIM TWEEDIE

SAILING CLUB

Regatta—September 30th

As a break from the tradition of recent years, the Club's Annual Regatta was held at Burnham-on-Crouch this year. It was planned that we would sail in Enterprises and the U.H. Squibs up the Crouch to Fambridge for lunch.

Unfortunately rain in the early morning and the possibility of gale force winds cut the original number of enthusiasts down by half. However, 13 people arrived at Burnham and we set off beating up river; five each in the U.H. Squibs and the remaining three in Percival Pott, the newly refitted Bart's Enterprise. Having left later than intended, we had no chance of reaching Fambridge before the tide turned, so at about 3 p.m., when we had ceased to make progress against the tide, we dropped anchor and ate out lunch.

The trip down river was a bit faster, with wind and tide behind us and we were all ashore in the warmth of a Public House by 6 p.m.

A cold blustery day but one of exhilarating sailing: the wind throughout the day was south-west force four gusting to force five.

The boats were helmed at various times by:—

Brendan O'Farrell, Mike Williams, Tom C. Moore
Roger Chapman and Bruce Noble.

B.D.O'F.

RIFLE CLUB REPORT

Full Bore

The season started with several practices at Bisley which we hope will be better attended in future. The first match of the season was the Pafford Cup in which we suffered defeat by the London Hospital, in spite of practice on the morning of the match. In the Armitage Cup we had a similar fate but were only beaten by one point. The match was settled on 200 yd. totals only, when shooting had to be stopped in the interests of the local Fire Brigade extinguishing a fire on the range. Nick Brooks is to be congratulated for a score of 47 ex. 50 especially since he was asked to shoot at the last minute in place of Phil. Morrison who had been left behind at Charterhouse. In the staff v students match the staff surprised themselves by winning and Mike Pembury won the Club championship.

We would like to thank Mr. Jackson Burrows who has generously had his rifle changed to 7.62 cal. and is allowing it to be used by the club.

We congratulate Paul Ciclitira, John Johnston, and Mike Pembury, on being awarded their colours for outstanding shooting. Tony Knight has been awarded his University Full Purple.

Small Bore

The number of Freshers who have joined the club and the standard they have shown indicate that we may soon have a very strong team. It would be good if we could be the top University team. This objective could be achieved this year with sufficient practice and good conditons. Improvements in range ventilation, lighting, and other equipment are being considered.

For this season we have entered the Inter-Collegiate Cup (Engineers) which is for shoulder to shoulder competitions as well as Novices postal, Ladies postal, and pistol competitions. Matches against Cranwell, the City of London Police, the Bank of England, and Whitbreads (the most important match of the season!) have been arranged and others are being considered.

The Rifle Club Hop will be on March 6th at least six volunteers will be needed to help behind the bar. The Club Dinner will be held in early February.

The range is open Monday to Friday from 4.30 to 6.00 (Wednesday 2.00 to 4.30) underneath the Outpatients Department. Anyone is welcome to come and have a shoot.

TONY KNIGHT

SPOT THE LESION—ANSWERS:

1. Carcinoma of the sigmoid colon which has led to the formation of a vesico-colic fistula.
b. Pneumaturia.
3. Vesico-colic fistulae due to neoplastic disease are commoner in males, due to the interposition of the uterus in the female.

WATER POLO CLUB

Last season the Water Polo Club had two teams in the U.H. League, held at St. Mary's Hospital. The first team came last of the six teams in the first division, only two points behind King's. We lost several games only by the odd goal: we were hindered by the fact that several clinicals were either taking exams or doing jobs out of town, so that we could not field the same team regularly. However, this was no excuse for our lack of fitness and ball skills, and we hope that these aspects of the game will be improved by regular Friday night training sessions in the U.L.U. pool.

In the U.L. League last spring the team did much better, coming equal top (with I.C. 11) of the second division. The team will probably be promoted to the first division of this league next term.

In May our tour took us to Cambridge, accompanied by certain keen supporters (although the centre of attention appeared to be the punts and several local hostelries). We managed to play two matches, drawing 4—4 with Cambridge University, and beating Emanuel 9—5; two very good results.

At the A.G.M. in August Charles van Heyningen was elected captain, Chris Fenn, secretary, Pete Durey, treasurer and Alan Frame, Charterhouse representative.

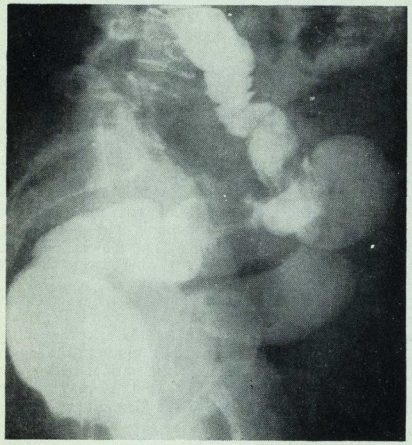
In May Chris Fenn was elected captain of the United Hospitals water polo team for the current season.

It is hoped that anyone who wants to play or learn the game will contact one of the Committee.

C. FENN

SPOT THE LESION

By Charles Hinds



QUESTIONS:

1. What is the lesion shown?
2. What would be the most likely presenting symptom?
3. In which sex is this condition commonest, and why?

The Journal wishes to remind its readers that the January issue will be printed in time for Christmas