

Journal Christmas Card 1972

The cover of this year's Christmas Card is a colour reproduction of a print of St. Bartholomew's Fair (below). The Fair is to be revived in 1973 to commemorate the 850th anniversary of the Hospital's foundation.



Priced at 6p, the card will be available throughout the Hospital. Overprinting of names and addresses can be arranged at £2.55 per order; these orders should be placed 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 should be clearly marked "CHRISTMAS CARD"

SAINT BARTHOLOMEW'S HOSPITAL JOURNAL

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Editorial

"Doctor" is derived from the Latin verb "docere", to teach. Of course, this function falls on only a very small percentage of medical graduates; but very few, if any, of those who do teach, get any formal training in teaching methods.

This is, now, apparently a situation almost unique to medical education. It used to be true of all University courses, the rationale presumably being that a man who has already devoted a good many years of his life to a specialised subject, will get some of it to rub off onto his students, one way or another.

But in the last decade, other Faculties have seen the need to have trained teaching staff, as the concepts that have to be put across, get more numerous and more complex. It enables them to utilise the means at their disposal to their best effect.

In medicine, however, this has not been the case. This may be because, in medical schools, the role of all clinical teachers is supplementary to their main functions as physicians and surgeons—in contrast to their opposite numbers in other science Faculties. It may also be that the intensity of postgraduate education does not permit the time for even a short course in teaching.

Even so, the fact remains that Barts' and all its counterparts are Teaching Hospitals. Whilst no one denies that the first duty of any hospital is towards its patients, the teaching component in such hospitals must come a close second.

I am not suggesting that, because of this lack of training, all the academic staff are bad at teaching. Indeed, some are excellent; most are very good, and only a very few seem totally unsuited to teaching.

But these few come into contact with comparatively large numbers of students, and, over the course of the clinical training period, can considerably influence the knowledge and attitudes of these students. What, then, is the answer? It would seem that the likelihood of incorporating a teaching course in the medical post-graduate system, is remote.

But surely, one immediate step which could be taken, is to employ "teaching ability" as a criterion in the selection of all grades of staff in Teaching Hospitals (with the obvious exception of Junior House staff). This could be assessed when the applicant comes for interview, by an educationalist, with experience in such matters. It would have the additional effect of redirecting otherwise first class medical staff, whose interests and abilities do not lie in teaching, to fill posts in non-teaching Units, thereby relieving the force of competition for Teaching Hospital places, and upgrading the standard of hospitals elsewhere.

LETTERS

STUDENTS' UNION LETTER

Abernethian Room,
St. Bartholomew's Hospital.

Dear Sir,

At the time of writing, the Union is going through the usual slack period, that occurs at this time of year. On July 18th there was a Staff/Student committee meeting. One of the points arising in this, was the possibility of including an optional foreign language course in the curriculum. I would welcome comments from students as to the popularity of such courses. With a view to joining the Common Market, French and German are the two languages being considered.

This will probably be the first *Journal* available to the new pre-clinical year, and I would like to take this opportunity to welcome them to Bart's. In previous years, the first few days of a fresher's life at Bart's have largely consisted of following one another from laboratory to lecture theatre, registering for the course, and listening to a succession of somewhat boring lectures. This year, we are hoping to organise more social activity in the first week and would therefore welcome assistance from individuals and clubs who would like to contribute, particularly for evening entertainment.

May I also take this opportunity to give the date of the Students' Union A.G.M. which will be at 17.15 hours on Tuesday, November 7th.

Yours sincerely,

GUY ROUTH,
Chairman S.U.

Grindelford,
Kilmacollm,
Renfrewshire.

The Editor,

Gentlemen,

Re July No. 7, Vol. LXXVI, 1973 850th Anniversary.

1. At the 1923 celebrations of the 800th Anniversary, my role was stallholder at the "Hook the trout, win a prize". I still have a photo of the several hundred participants in their medieval garb.

2. In preparation of the 850th Anniversary, records of previous fairs will be obtained as a background, and no doubt Johnson's "Bartholomew Fair" will be referred to, and even some ideas adopted of historic interest. (The Archivist would help in this.) Perhaps prints of the Fair could be reprinted as postcards?

Other booths at the fair were fortune telling and astrology. Perhaps bull and bear baiting would be disallowed, but there could be bare-fist pugilism. "Fat Lady", six-legged sheep, etc.

Yours sincerely,

S. JENKINSON (Surgeon).

The Abernethian Room,
St. Bartholomew's Hospital,
London, E.C.1.
July 12th, 1972.

The Editor,

St. Bartholomew's Hospital Journal.

Sir,

I was fascinated by Arnold Barnsley's article "Verbal Diarrhoea" in the July issue of the *Journal*. It would seem that there are many people who are on his black list (see "Lapsas Grammatici" in his article) for no good reason. For instance, his objection to the use of "different to" instead of "different from" cannot be justified. The Concise O.E.D., 4th Edition, 1950, states that "(different) from, to, than (are) all used by good writers past and present" while Fowler in *Modern English Usage*, 2nd Edition, 1965, says "that *different* can only be followed by *from* and not *to* in a SUPERSTITION" (Fowler's capitals, not mine) although he continues "this does not imply that *different from* is wrong, on the contrary, it is now usual (O.E.D.); but it is only so, owing to the dead set made against *different to* by mistaken critics."

Similar remarks apply to Arnold Barnsley's insistence on using "in the circumstances" instead of "under the circumstances", and "compared with" instead of "compared to". Both Fowler and the O.E.D. have some interesting things to say in both these cases.

Yours faithfully,

ANTHONY P. MADDEN.

56 East Point,
Avondale Square,
London, S.E.1.
20th July, 1972.

The Editor,

St. Bartholomew's Hospital Journal.

St. Bartholomew's Hospital,

West Smithfield,

London, E.C.1.

Dear Sir,

I would simply like to express through the pages of the *Hospital Journal* my appreciation and thanks to all the doctors and staff who were involved in arranging such a delightful party for me upon my retirement.

When I look back over my 45 years at St. Bartholomew's, I can think of the many wonderful people who have been so kind to me. It is a great wrench parting from you all but I'm sure I'll get used to it in time.

I was very touched with the kind gifts and the collection that was made for me and I shall treasure the memories of my years at Bart's.

Yours,

VIOLET CLIFTON.

Material will not be published unless the name of the author is known to the *Journal*. We will respect the confidence of persons preferring anonymity or a pen-name.

ANNOUNCEMENTS

Engagements

TUCKWELL—SANSON—The engagement is announced between Dr. G. D. Tuckwell and Miss S. M. Sansom.

SHAND—MANSELL—The engagement is announced between Mr. W. S. Shand and Mrs. A. C. D. Mansell.

BESSER—PEARLMAN—The engagement is announced between Dr. G. M. Besser and Miss V. A. Pearlman.

ELSE—HOLMAN—The engagement is announced between Mr. Oliver F. Else and Miss Elizabeth Holman.

Death

KADLEIGH—On June 18th, 1972, Sergei William Kadleigh, M.B., B.S., M.R.C.S., L.R.C.P. Qualified 1970.

THE ANNUAL DINNER of the Tenth Decennial Club will be held in the Guild Room of the hospital on Wednesday, October 25th, 1972, at 7 for 7.30 p.m. Dinner jackets should be worn.

Associate members of the Eleventh Decennial Club will be welcome. For further information please contact Dr. George Rossdale, 36 Montagu Square, W1H 1TL.

Consultant Appointments

Dr. J. E. FREEMAN, M.R.C.P., F.F.R., Consultant Radiotherapist from August 29th, 1972.

Dr. A. J. LIEBENBERG, F.F.A.(S.A.), Consultant Anaesthetist from December 1st, 1972.

Appointments

Professor R. A. Shooter has been appointed Dean of the Medical College as from October 1st, 1972, in succession to Dr. J. S. Malpas.

Mr. Alan Fuller has been appointed Sub-Dean of the Medical College as from October 1st, 1972, in succession to Mr. I. M. Hill.

Dr. I. Kelsey Fry will be continuing as Postgraduate Assistant Dean.

Miss E. Fenton has been appointed Assistant Academic Registrar in the Medical College.

The University of London have conferred the title of Reader in Physiology on Dr. B. N. Davies.

Dr. Derek Crowther has been appointed Senior Lecturer in the Department of Medical Oncology as from October 1st, 1972.

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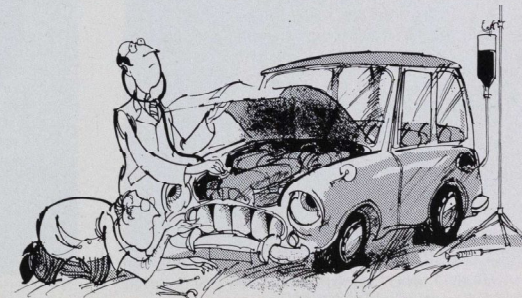


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PAST EXPERIENCES FROM ABROAD

By MISS K. A. D. DRURY, M.D., F.R.C.O.G.

When one is working in countries where medical care is not freely available or where there is reluctance on the part of the patient to seek advice, a doctor is frequently faced with gross medical conditions such as are not seen in this country. I hope that the accompanying illustrated case histories may be of interest.

1. Pregnancy in a hernial sac.
2. A case of Advanced Extrauterine Pregnancy.
3. Hydatidiform Mole.
4. Gross Abdominal Calcification after tuberculosis.

CASE 1

PREGNANCY IN A HERNIAL SAC (S. ALARI)

A parous Yoruba woman of about 30 years attended the ante-natal clinic for the first time when 8 months pregnant. Her previous deliveries had been at home and apparently uneventful. This time, however, a large ventral hernia complicated her pregnancy (Fig. 1). She complained that this swelling worried her because it seemed to rub on the ground when she was squatting on the floor to do her cooking. In fact, areas of the skin overlying the protuberance had already ulcerated.

When the patient lay down the hernial sac still projected outwards. Palpation showed it contained an irreducible cystic swelling which proved to be the pregnant uterus enlarged to 36 weeks gestation. Foetal parts were readily felt and the foetal heart heard.

A lateral X-ray of abdomen was taken using a metal band at the base of the hernial sac as a marker (Fig. 2). This showed that the sac contained almost the whole foetus and the foetal head projected at right angles to the pelvic brim.

No amount of manipulation would allow reduction of the uterus back into the abdomen and it was impossible to support the hernial sac so that the uterus remained in the midline. On pelvic examination the presenting part could scarcely be tipped; it was very high and not applied to the cervix. Thus in order to avoid the serious danger of a transverse lie or rupture of the uterus if labour was allowed to proceed, it was decided to perform an elective Caesarean Section. After some days rest in order to clean up the ulcerated skin, a lower segment operation was carried out, the baby weighing 6 lbs. Owing to the marked vascularity of the poorly formed lower segment, rather free loss occurred and blood transfusion was necessary.

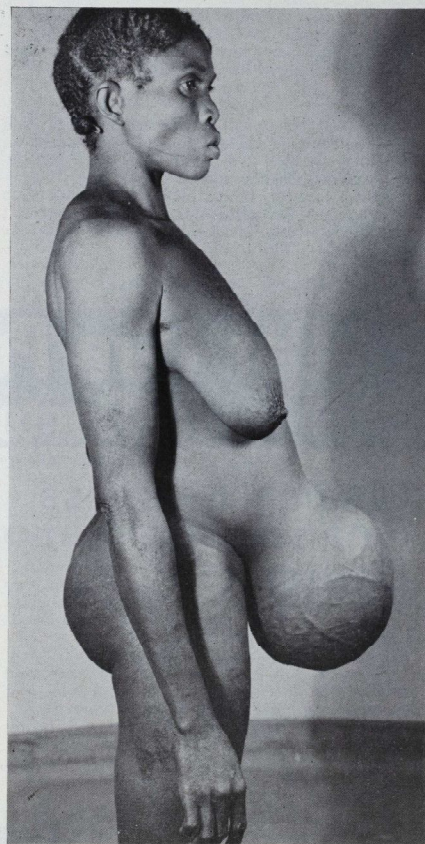


Fig. 1. Pregnancy in a Hernial Sac.

The ulcerated skin took six weeks to heal, after which time the hernial sac was excised and repaired with good operative result.

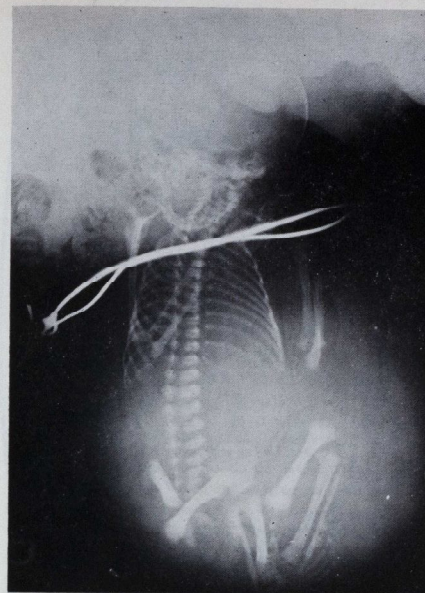


Fig. 2. Lateral X-ray showing Foetus in Hernial Sac.

CASE 2

A CASE OF ADVANCED EXTRAUTERINE PREGNANCY (DEBORAH)

A uniparous patient aged 33 years was admitted as an emergency at 34 weeks gestation with a history of recurrent attacks of abdominal pain and vomiting during her pregnancy. She gave no history of vaginal bleeding but on questioning she did admit to an episode of pain with slight bleeding in the early months of the pregnancy, suggesting a ruptured ectopic gestation.

She was rather anaemic but afebrile. There were some tender areas over the abdomen, but no guarding and the foetus was lying transversely and was unusually high up in the abdomen, the foetal heart was heard above the umbilicus. On pelvic examination the cervix was felt to be long and firm almost as in a non-pregnant state. A soft rounded swelling was palpated in the left fornix which later proved to be the hypertrophied uterus. A diagnosis of advanced extrauterine pregnancy was made.

On radiographic examination there were characteristic features (Fig. 3). (1) The foetus was lying very high up of the pelvis, (2) no uterine shadow surrounded the foetus, (3) a hysterosalpingogram immediately prior to laparotomy outlined the uterus in the pelvis separate from the foetus.



Fig. 3. X-ray Abdomen, showing Foetus lying high and transversely.

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At 36 weeks, in order to avoid the dangers of a spurious labour at term with foetal death, a laparotomy was performed with abdominal delivery of a living female infant. Blood transfusion was set up prior to the operation and further blood was crossmatched. On opening the abdomen some clots were present around the foetal sac. The pregnancy was arising from the right tube and the placenta extended on to the right lateral pelvic wall, adherent to tissues overlying the external iliac vessels. It was obvious that the placenta could not safely be removed without danger of uncontrollable haemorrhage occurring; already free bleeding had started when one small cotyledon was accidentally separated. The procedure carried out was thus to leave the placenta in situ, having first cut short the cord and trimmed the amniotic sac. The abdomen was then closed without drainage. Antibiotic cover was prescribed and blood loss was replaced.

The baby weighed 4 lb. 1 oz., and at first appeared ugly and deformed, but the asymmetrical head and puny legs with talipes were only pressure deformities due to lack of liquor amni. The everted right eyelid was caused by an amniotic band (Fig. 4). Both of these were temporary and the infant soon recovered.

At one year the baby looked healthy and normally intelligent but bilateral congenital dislocation of the hips was noted.

It is said that if the placenta is retained in the abdomen following delivery of an extrauterine pregnancy, it is gradually absorbed. In this case, however, after two months had elapsed, no sign of absorption was apparent, in addition there were recurring infections of the amniotic sac with fluid formation, thus the decision was made to remove the placenta. At laparotomy the placenta was shelled out easily without any undue bleeding; this was firm with glistening surface and was 1 lb. 3 oz. in weight.



Fig. 4A. At Birth—Note Everted Eyelid.

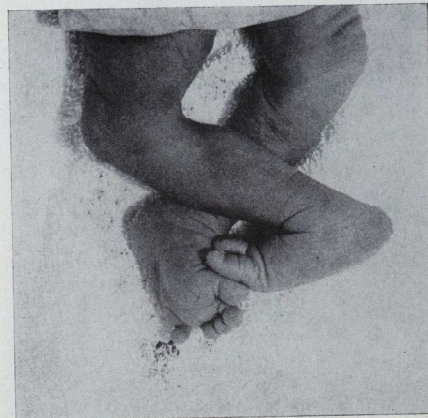


Fig. 4B. At Birth—Legs showing Pressure Deformities.

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CASE 3

HYDATIDIFORM MOLE—Abdominal Hysterotomy. (H. S. LAM)

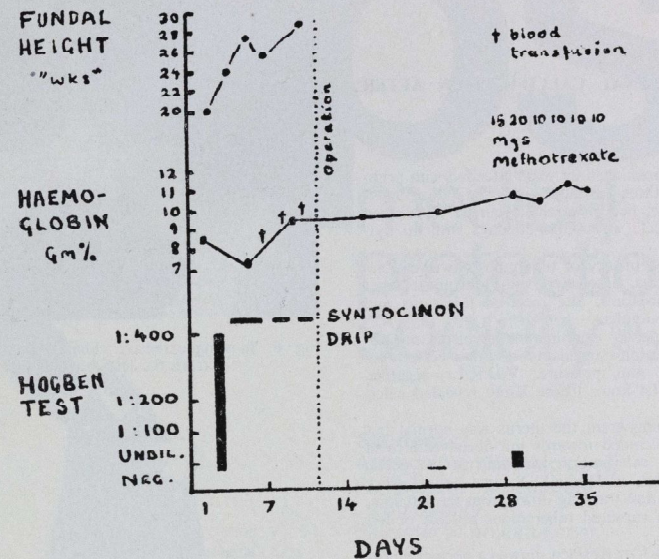


Fig. 5. Situation after 12 weeks Amenorrhoea.

A nulliparous patient aged 27, gave a history of 12 weeks amenorrhoea with vaginal bleeding for the past 20 days. Attacks of lower abdominal cramping had occurred with vomiting and anorexia. Bleeding had been heavy at times with clots.

On admission the patient was pale, temperature 99.4°, B.P. 130/60, pulse 96/min. regular, urine—no albumin. The uterus was enlarged to 20 weeks gestation in size yet no foetal parts were felt or foetal heart heard. There was a brownish vaginal loss and the cervix was closed; Haemoglobin estimation 8.4G%; 24 hour urine—Hogben pregnancy test positive up to a dilution of 1 in 400; X-ray chest N.A.D.; Abdominal X-ray—no foetus seen. A diagnosis of hydatidiform mole was made.

Blood transfusions were given over a period of several days and syntocinon drip induction was instituted. There was, however, no response although the dilution was increased to 20 units per litre, and the uterus continued to enlarge with tenderness to 30

weeks in size (Fig. 5). It was then decided to abandon the attempt at induction. Further blood transfusion was given as the haemoglobin had meanwhile dropped to 7.4G%. Then on the tenth day after admission an abdominal hysterotomy was carried out using the classical incision. Molar tissue together with clots were evacuated from the uterus taking care to allow no spill to occur. The total measured loss (fresh and clots) was 900ml. It was noted that the left ovary was cystic and enlarged. An Ampicillin course was given post-operatively.

Histological examination confirmed a hydatidiform mole; but marked atypical trophoblastic activity was present.

The Hogben pregnancy test was at first negative by the tenth day after operation, but became positive again on the seventeenth day. A course of Methotrexate was started, 85 mgms. had been given when toxic symptoms of stomatitis, diarrhoea and skin rash prevented further medication, but the pregnancy test again became negative and remained negative at subsequent follow-up.

In multigravidae the treatment of choice is usually hysterectomy, but in primigravidae or multiparae desiring more family induction of abortion is commonly carried out for hydatidiform mole, using high concentrations of syntocinon if necessary. In this case, however, the uterus was unusually distended and there was a danger of rupture of the uterus had higher concentrations of oxytocic drug been used.

CASE 4

GROSS ABDOMINAL CALCIFICATION AFTER TUBERCULOSIS

(P. W. CHAN)

A married woman aged 29 years attended with primary infertility of three years duration. She had no menstrual disturbance, her menarche occurred at thirteen years and her cycle was 4-5/28-30 days with no dysmenorrhoea.

She gave a past history of tuberculosis twelve years ago when in China, associated with low grade fever but no chest symptoms. She received injections and tablets for three months.

General and pelvic examination revealed no abnormality. Insufflation carried out revealed both tubes blocked at 190 mm pressure, V.D.R.L. negative, E.S.R.—15 mm 1st hour. Chest X-ray revealed calcified glands only.

At Hysterosalpingogram the uterus was normal but the tubes were occluded towards the fibrial ends with no spill. Marked calcification was seen in the pelvic glands. Subsequent abdominal X-ray showed very extensive calcification tracking down from the left loin, as though from a ruptured tuberculous abscess of left kidney (Fig. 6).

E.U.A. and D & C performed showed a normal uterus and cervix; cavity 7.5 cm tubes not palpable. The normal looking endometrium was sent for section and culture—no evidence of tuberculous endometritis was detected. Intravenous pyelogram revealed a hydronephrosis of the left kidney (Fig. 7). Although repeated urine examinations were negative it was likely that a dormant tuberculous salpingitis and renal infection persisted, thus triple therapy was started.

In this case active genital tuberculosis was not fully proven but the infection is known to remain latent sometimes for many years. Owing to its insidious onset outstanding symptoms of the disease are frequently lacking. However, in Hong Kong, during a period of 3½ years, 21 cases of proven genital tuberculosis were encountered, amounting to 0.7% positive endometrium, by histology or culture, of all non-abortion endometrial curettings.

(Miss Drury is Consultant Obstetrician and Gynaecologist at Redhill General Hospital.)

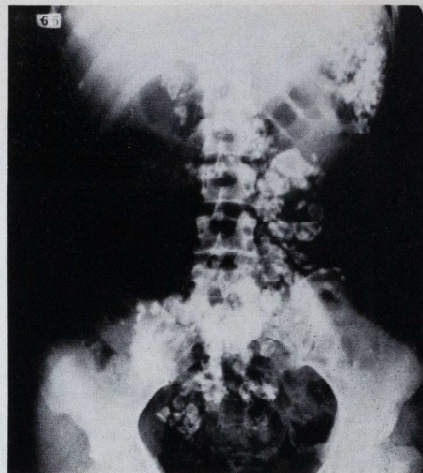


Fig. 6. Showing extensive calcification tracking down from the left Renal angle.

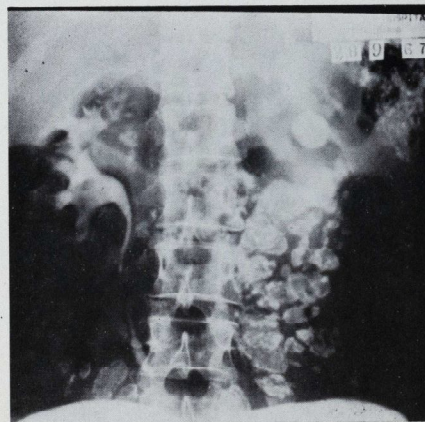


Fig. 7. I.V.P. showing a left Hydronephrosis.

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FIFTY BOB A LAPAROTOMY

By JEREMY J. VEVERS

If you take the road out of Kampala to Mbarara, in the southwest of Uganda, and continue over the Ankole Hills towards Kasese, pause awhile on those hills and take in the wild spaciousness. The road crosses the plain of the Queen Elizabeth game-park and disappears under the shadow of the Rwenzori Mountains. Continue down the road, but at the Equator signs turn left, and remain on this road for seven miles. Take the second turning on the right and stay on this, now murum (mud) road, for about five miles until the Kagando mission hospital buildings come up on your right.

Kagando was started eight years ago by a Bart's doctor with the help of, amongst others, some medical assistants fleeing from the civil war in the Congo. Originally all that were there were the buildings of a disused leprosanarium. The dark asbestos-roofed huts are now the wards. The main buildings have become the Maternity unit and the I.C.U. higher up—the hospital is on the side of a hill—the missionary staff have built their own homes, made from bricks fashioned and baked in the sun, or the traditional African method of building with wattle and daub.

For Keith Waddell it was a return trip; he had spent two years away and could hardly conceal his excitement at returning. For Eva Smith, a newly qualified doctor from Sweden, and myself it was certainly a surprise, as neither of us expected to see a hospital in such beautiful surroundings. Some of the staff there already knew Keith. Barbara Batty, the self-trained pharmacist, Howard Hawes and his wife, Janice, were all missionaries who had been there before. John Allen and his wife, Ruth (John was the Doctor), and Lois Clarke, qualified midwife from Bart's, had been working there since Keith had left. It was a warm, sultry evening, the sun had rapidly sunk behind the hills and there was much to talk about.

The morning's work began at about eight o'clock, and after the staff prayers, the ward rounds were made. At first sight, the huts seemed dirty and dark, conditioned as we were to the wards of a clean Western hospital. But the African, used to living in mud huts, often finds difficulty in adjusting to the cold marble floored edifices which we would take for granted. They seemed more at ease here than in the big Government hospital from which I had just come, in Kampala. In these wards, in the I.C.U. and in the Maternity unit, the patients have their everyday needs such as food and water provided for by relatives, who live with the

patients, and who also provide some of the nursing care. This is a system used throughout Uganda, a country that lacks the "nursing tradition" that we in Britain take for granted. Kagando did not have any African qualified nurses, as they command far higher salaries than such a mission could possibly afford. To cover for drugs and those African staff that were used, the patients have to pay for their treatment (50c a day for a bed, 20/- for a normal delivery, 50/- a laparotomy!).

There were about fifty people recruited from the local village that had been trained at the hospital for various duties. These included giving out drugs at the Pharmacy, conducting some of the routine investigations at the outpatients' hut down the road, as theatre staff and assisting in the labour wards. They were also very patient translators.

The local people come from a large tribe called the Bekongo, and speak a highly developed language. Kikongo, as it is now called, is a language, not of three-noun classes as in English, but thirteen, and each class alters the verb, the prefix, the suffix, and the pre-suffix accordingly! Barbara and Keith may have been the first people to try and write it down. But this is no easy task, as the word sounds are often too subtle for our alphabet. Swahili, which is a phonetically simpler language, is also spoken by most of the men, but none of the Ugandan languages are simple. Their complexity may have arisen to keep pace with the heightened sense of communication that is instilled in the African boy as he comes of age and joins the village talking groups after work.

Uganda is a small country and has many ethnic groups. The predominant influences that have left their mark in the last seven hundred years have come from three main sources. From the north, the tall, thin, high-cheekboned people from the Nile—the Illemetic group that were nomadic, cattle-raising people; and from the south east, the Swahili-speaking folk who followed the trade routes and connected the heart of Africa with the outside world.

The Bekongo, coming from Ziare (formerly Belgian Congo), have, despite their remoteness, not been slow in accepting the Western influences brought in almost solely by the missionaries.

The Ugandan Government relies on the missions in this part of the country for its medical services. There



The Kagando Mission Hospital

was one hospital within twenty miles of Kagando at the Kilembe mines that provided medicine almost exclusively for the miners.

Thus, Kagando had to supply the remainder with medical services—a very large area stretching well into Ziare. Also, as I shall describe, it tried to provide the urgently needed prophylactic services.

The situation at present may well resemble that suffered by the West two or three generations ago. The infectious diseases are still producing a horrifying infant mortality rate, and about forty per cent of the children born will never reach their fifth year. At Kagando, a hospital with seventy beds, they were losing a child, on average, every other day. As many as three hundred sick people would form a queue at the outpatients each morning, and half that number might be carrying one or possibly two sick children.

The disease picture varies from relatively mild "flu" to bronchitis, bronchiolitis, severe lobar pneumonia (much commoner than broncho-pneumonia), poliomyelitis, T.B. (leprosy is also seen in the adults), smallpox, neo-natal tetanus and the meningitides. Measles is a serious disease in Africa because of its more sinister complications, e.g. meningitis, otitis media and respiratory tract infections.

Protein calorie malnutrition which is a prime factor in lowering the defences to infection is fundamentally produced by the local diet which is mainly carbohydrate.

Their diet of casava, rice, sweet potato, mutoke (cooked banana) and maize meal should have been supplemented with such foods as sorghum, ground nuts and meat—but these were not available. To combat this, clinics have been set up to teach the mothers hygiene in cooking and also to demonstrate the quantity of available food that a growing child needs, so providing a more permanent safeguard than the free milk that has previously been given away. At these centres, they are shown how dangerous feeding a child with an unsterilised bottle can be, often resulting in salmonella infections. The dehydration produced by these infections has devastating results, and at a hospital such as Kagando where they come in after three or four days' journey, the situation can be hopeless. Correcting such a state (often superimposed on kwashiorkor) is no easy task for a small hospital. The serum proteins are usually reduced and they cannot cope with the increase in fluid intake. Finding a vein in such a shocked patient can be difficult, and peritoneal infusion is usually of no use, as the splanchnic circulation is minimal.

On top of this, there are the parasitic infections, such as malaria, entamoeba, ankylostomiasis, ascaris and taenia, all contributing to the anaemia picture that is so common in Africa. Sickle-cell disease complicates this still further, and as may be imagined, with this mountain of pathology, the diseases that are seen in the West come at the bottom of a very long list in Africa.



The Morning Queue!

The obstetric problems in this part of the world are quite different to those seen in the West. In a country where there is a great social stigma attached to infertility, the problems of childbirth are very important. Firstly the head never seems to engage until just before the second stage, which makes an accurate estimate as to how near they are to term difficult. The foetal instability resulting from this, especially in a lady who has had eleven children, greatly increases the chances of deep transverse arrest. Cephalopelvic disproportion is a common problem, and is solved by a method which is peculiar to the mission stations. Symphysiotomy is

used in a delayed second stage and is especially useful where the "after coming head" in a breech presentation will not deliver. Local anaesthetic is first infused into the skin and then into the periosteum and the fibres of the symphysis pubis. The urethra is then identified with a catheter inserted and held to one side as the symphysis is cut. Care is taken to hold the knees so that the legs never form an angle of more than ninety degrees. The symphysis heals in seven to ten days, and does so usually such that the bones are slightly further apart, making subsequent deliveries much easier. In a mission hospital, where such situations are common, the main



The Staff, including Dr. Waddell (3rd from left)

advantages is the reduction in the number of Caesarian sections required. As yet, Kagando has had no complications from symphysiotomies.

If Caesarian sections are carried out they are performed, as are all the operations, with a spinal block or under ether inhalation. Kagando does all its own emergency surgery as there is no referral hospital. Such cold surgery as hernia repairs, tubal ligations, tooth extractions and even corneal tear repairs are occasionally performed, with surprisingly few post-operative complications. (Staphylococcal infections in this part of the world still respond to penicillin.)

The prophylactic medicine which Kagando provides is probably very similar to other hospitals in any developing country, where this is seen as increasingly economical as well as humane. Each Wednesday one hundred and fifty or more women turn up at the antenatal clinic where they are weighed, assessed and given Maloprim and iron tablets, and advised as to where they should have their child. Once a month eight hundred and fifty children, carried on the backs of their mothers, come to the Children's Clinic, where they are weighed, charted, immunised and where the mothers, who may have come many miles and have to stand in a queue that may stretch for half a mile, can receive advice about nutrition before carrying their children home again, this is a long and tiring day for these families. Luckily a sense of humour always prevails which gives

the day a carnival-like atmosphere and the numbers coming to the clinic are steadily increasing.

Up till now Kagando has provided all these services with a qualified staff of a doctor, two nurses and a medical assistant. Now there are two doctors but, without the local Africans and the help of the other missionaries on the station who have to adapt to a medical life-style, they would have had to close the hospital down. They badly need more qualified help, however temporary and however secular.

The missionary has come under a great deal of fire from liberal-minded thinkers in the West and something should be added on this subject. The role of the missionary has certainly changed since the first of them pioneered their way into the heart of Africa. Their situation is now far more precarious, as they can only remain as guests in a country and can be asked to leave at any time. They are therefore playing a particularly unselfish role with very little help or thanks from the Government. But it is a job not without its perks, as we found one Sunday when three of us, with the local priest, climbed high into the Mountains of the Moon to a church in the Kingdom of Rwezoru. They gave us a welcome that I will never forget. Hard to forget, as well, are the times spent slowly walking back up the hill after a day's work, the scented night's sky covered with stars and, across the valley in the warm air, the sound of distant drumming and dancing and laughing.

SPOT THE LESION

By DR. M. J. GOLDSMITH

1. This 48-year-old woman presented with a history of epigastric discomfort for many years. Symptoms sometimes consisted of severe epigastric pain and at other times of tightness in the chest. They were worse in bed. She also felt tired and lacked energy. Haematology showed an iron deficiency anaemia and Fig. 1, was the Barium Meal.
2. This 30-year-old woman presented with a six month history of progressive dysphagia with sensations of food sticking at the level of the cricoid. She was also short of breath and had had several recent bouts of bronchitis. Fig. 2 shows a Barium swallow at the time of presentation.

QUESTIONS

- (a) What is the diagnosis?
- (b) What are the different types of this condition and their respective incidences.
- (c) What is the cause of the anaemia?

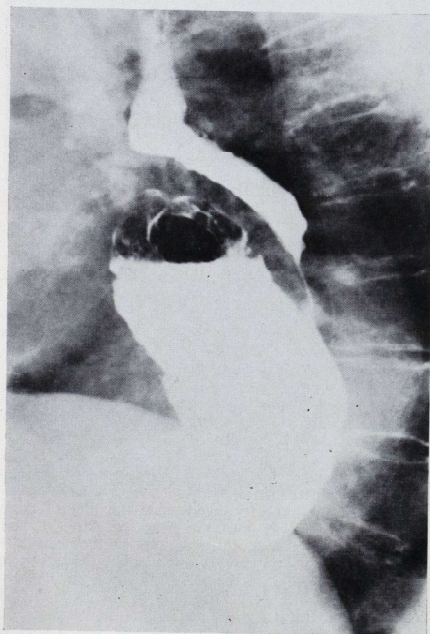


Fig. 1.

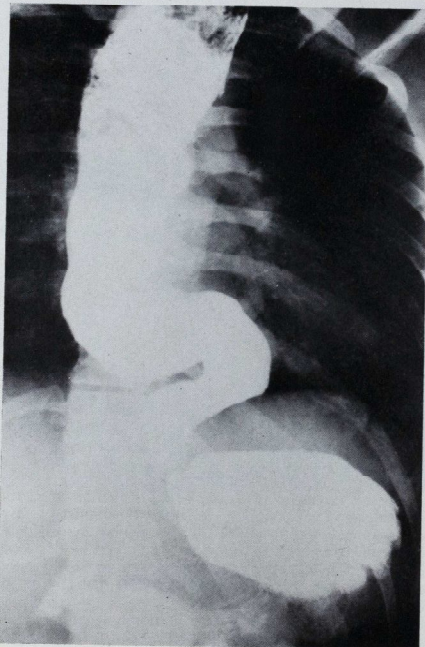


Fig. 2.

QUESTIONS

- (a) What is the diagnosis?
- (b) What is the differential diagnosis?
- (c) What is the probable aetiology of this condition?
- (d) What is the treatment of choice?

(Answers on p. 286.)

RECENT PAPERS BY BART'S MEN

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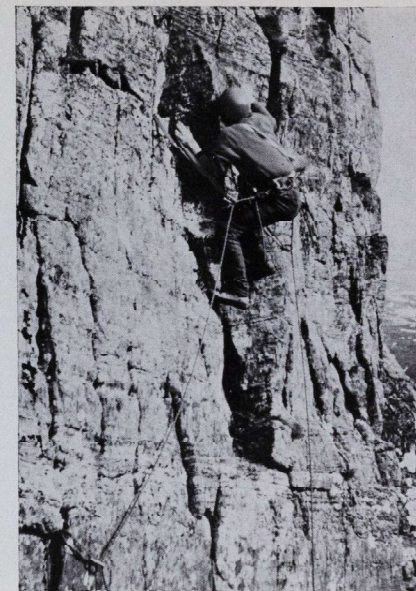
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THE MODERN CLIMBING SCENE

By S. J. WATT

If you mention casually that you're going climbing for the weekend, people look at you as though you must be slightly mad—especially your mother. Then comes a hail of questions—"Isn't it very dangerous?"—"Don't you ever get scared?"—"Have you ever fallen?". It soon becomes obvious that very little is known about the modern climbing scene, despite the recent television productions and the publicity surrounding modern expeditions. So in case you should meet a scrupulously dressed man with a bright red rope and a collection of ironmongery far from any mountain, I'll try and explain what's happening.

In its early days in this country climbing was a sport for the sophisticated outdoor man whose main interest was an annual visit to the Alps where he was rushed up impressive snowy peaks by a well-paid guide. After the last war climbing began to appeal to a much wider variety of people, most of whom had a quite different approach. There was more interest in climbing in this country and rock climbing developed as an entity sepa-

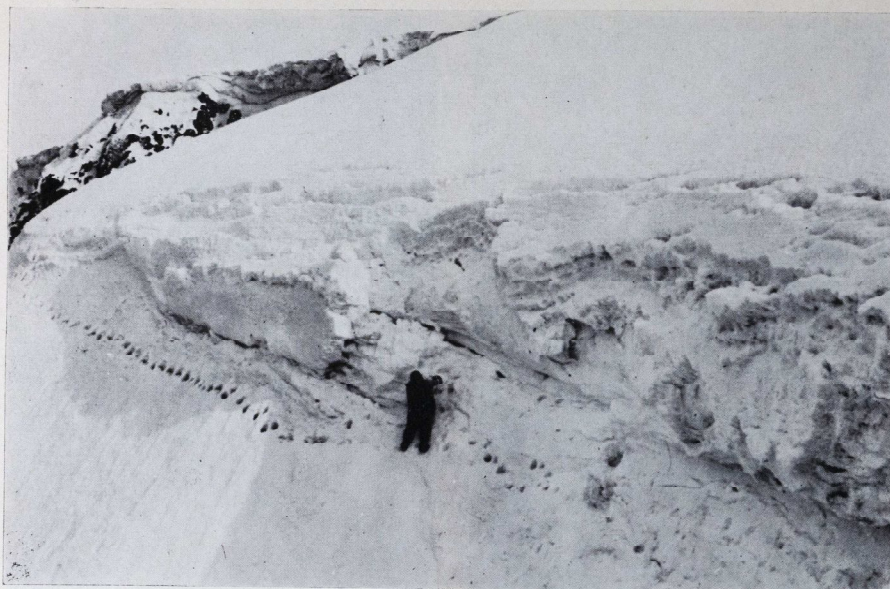
rate from mountaineering. Great emphasis was placed on the standard of difficulty and the routes climbed by Brown and Whillans were an incredible advance. Climbing has since become a popular youth club activity with the result that the number of climbers has multiplied enormously. Although the almost legendary feats of Brown and Whillans will probably never be surpassed climbing standards have continued to improve such that many of Brown's routes are repeated several times each weekend.

At the same time there has been an increasing need to find more places to climb. The popularity of North Wales and the Lakes will never be equalled by modern areas of which there are hundreds. The most important of these are sea cliffs such as Gogarth on Anglesey. Inland the development of climbing on limestone has opened up many important areas. Limestone was originally described as too steep, too slippery and altogether too dangerous. Now there may be forty to fifty climbers at one time at Malham Cove and Cheddar Gorge.

Quarries are often crowded with climbers, especially granite and limestone quarries—even slate quarries are getting cautious investigations. Probably the chalk cliffs at Reaehy Head are the only variety of "rock" classed as unclimbable at present.

As climbing horizons have widened the climber has changed, too. He is no longer a development of the hill walker—a fact proved by the great popularity of roadside crags. He is much more a technical rock gymnast, fiercely competitive with his mates and never very well off. He has great experience of car maintenance gained as one old banger after another are discarded, damaged attempting to drive even nearer to the cliff. There are few regular North Wales climbers who've escaped an accident on the notorious A5. Extraordinary efforts are made to prevent the loss of gear—great risks are often taken to retrieve small items. Paying for anything is resented especially parking and hut fees. Climbers' huts are very variable from a simple barn with a few bales of hay owned by the local farmer to the luxurious "hotels" with central heating and drying rooms owned by climbers' clubs. Experienced climbers have little difficulty breaking into any of them to save themselves a wet night in tent or cave.

The average weekend starts immediately after work on Friday evening. As soon as the car is loaded or overloaded with climbers, girlfriends and gear it is driven as fast as possible to the hut. Owing to the Friday rush this is undoubtedly the most dangerous time of the whole weekend. Only short stops are made for supper and a drink as it's essential to arrive early to ensure comfortable bunks. Some attempt to sleep is worthwhile but will be disturbed by lesser individuals arriving later falling downstairs in the dark, etc. An early start on Saturday is unusual. About twelve o'clock is average time for uncoiling rope. Usually there is delay over the choice of route, deciding who is leading and finally summoning up courage. Provided all goes well a few routes are climbed and everyone reassembles in the pub where the day's events are discussed, compared and exaggerated. The qualities of routes are explained, techniques are demonstrated, bold climbers are praised and failures, retreats or falls are carefully explained away. Excuses such as "off form", "unfit" (or both), "wet rock" or "I'm a limestone man myself" are inadequate and damaging to a climber's reputation. Finally all retire to the hut to be disturbed yet again by late-night drunkards. So an early start on Sunday is unusual.



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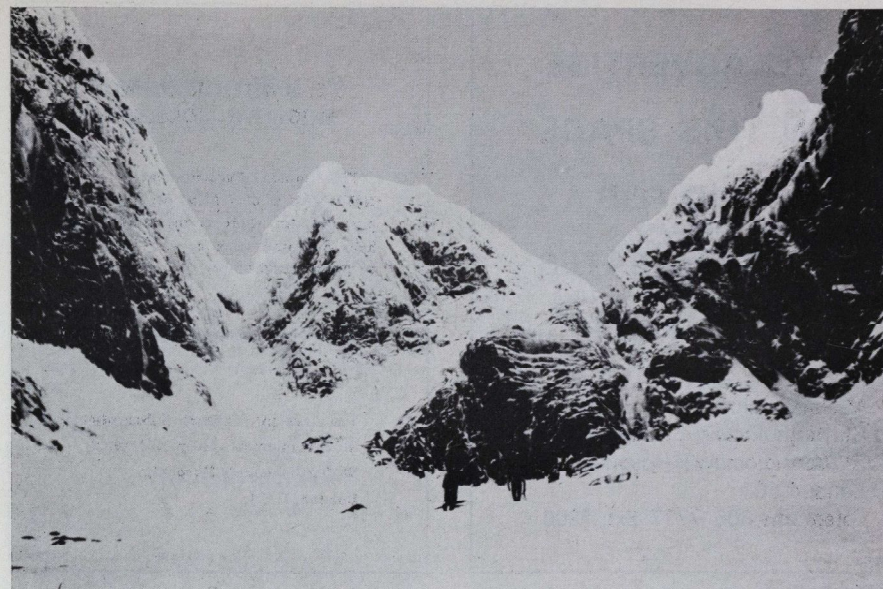
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With so many climbers about now, gear is big business. Gear is all very expensive as the majority is imported from the Continent. British gear is usually of lower quality but considerably cheaper. Boots are almost entirely imported. The classical stiff heavy vibram-soled boot is now only used for Alpine or snow and ice climbing. The majority of climbs in Britain are done in lightweight close-fitting boots with flexible smooth rubber soles which have excellent frictional properties. These have revolutionised technique as much as the change from nails to vibrams fifteen years ago. There is no doubt that they make climbs easier but they are not without their disadvantages. They have no grip at all on the steep damp grass often found on cliff tops—a feature which has proved lethal. They are also incredibly uncomfortable. On wet and greasy rock the little-used technique of putting a pair of socks on over boots is about the only way to gain purchase.

Rope has been greatly improved. Hemp has disappeared except for a few specialist purposes. Nylon coil laid has also virtually disappeared in favour of kernmantel (core and sheath construction) ropes. The properties of this rope are fantastic. The standard 11mm diameter rope has a breaking strain of nearly two and a half tons, and an elastic capability of 66 per cent extension. At the same time its elasticity at small loads, i.e. the weight of a man is negligible. This is important for abseiling and artificial climbing. The price is similarly fantastic—about £18.

The use of ice axes and crampons is not confined to the Alps. Scottish winter climbing probably represents

the hardest ice climbing in the world but good conditions are rare. Advances in axe and crampon design over the last ten years have led to an entirely different technique with elimination of step cutting which speeds up climbing and enables more dubious ice to be climbed. Scots climbers refer to the Alps as good training for Scotland in winter.

However, simply a selection of modern gear won't get anyone up a climb. Success or failure depends upon a whole variety of factors—weather conditions—safety of the climb—whether the rock is loose or solid—the climber's fitness and important psychological factors. Apart from just feeling on form a vital factor is your companion who is responsible for holding you should you fall. Confidence in your companion and his ability to inspire confidence may well make the difference between success and failure. Finally, it's important to keep calm when things get awkward. All climbers get scared but losing control results in getting "gripped", an accurately descriptive term for the condition when a climber may actually shake himself off the rock.

Where amongst the danger, expense and discomfort is the pleasure? The answer is simple. It lies in success, in achievement not only in pure gymnastic ability but in keeping calm enough as well. It lies in the escape from the smoke and crowds of towns to a friendly community with a different aim. It lies in total application to a simple purpose. In the end few people can explain why they climb. Because it's there is only half the answer. The rest is something to do with man's origin.

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BOOK REVIEWS

THE ARITHMETIC OF DRUG DOSAGE

Part I. Administration by mouth. F. I. Hill, B. J. Isaacs and S. N. Marsdon, pp. 19, 30p. The English Universities Press, 1972.

An excellent example of Programmed Learning from three accomplished practitioners. The initial description and validation details are clearly outlined particularly the objectives and terminal behaviour expected.

The foreword to this text indicates possible use for Pupil Nurses. To this end it may prove too complex. The inclusion of Pre- and Post-Criterion Tests will prove extremely useful.

As the administration of any drug by the nurse must be accompanied by the utmost safety, then the possible use of this text must be considered by all teachers of nursing.

A. P. SMITH.

RENAL NURSING

Robert Uldall pp 200 £1.75 Blackwell Scientific Publications, 1972.

The title of this concise textbook is somewhat misleading. The nursing content is brief and mainly related to the management of patients with Renal Disease at the medical level.

The provision of normal Anatomy and Physiology is always beneficial to the student nurse. This chapter, although adequate, lacks sufficient detail for the more able student. The inclusion of more than the two basic diagrams would enhance the text enormously. The chapters dealing with Renal Failure, Haemodialysis and Renal Transplantation are superbly executed. Explanation of Kidney Retrieval from the recently deceased patient shows intense concern for all involved. Description of the surgical technique of Renal Transplantation is simple, clear and logical.

The clarity of text and cost must ensure its inclusion into a Nursing Library.

A. P. SMITH.

THE LIMITS TO GROWTH

Meadows Meadows Randers & Behrens. Price £1. Earth Island Publishers.

The subject of the book is the world we live in and the world we will be living in. In it are examined present trends in population, pollution, capital and agricultural growth, resource depletion and the consequences of these. These are shown to lead inevitably to collapse of the present system with a population crash within the next century due to ever increasing growth, reaching the limits imposed on growth by our finite world.

An attempt has also been made to give an idea of the values of population, resource depletion, food production, and pollution levels which are compatible with a steady state world.

The implications for society are staggering, without fundamental changes in attitudes to the acquisition of material goods and in our economic and legal systems the steady state will be beyond us.

Discussion of this book in the press and on television has revealed the following attitudes. A few feel that the situation is already hopeless, the pessimists, a few are affronted that such conclusions have been drawn and are confident that with future technological discoveries the limits to growth can always be pushed further back, the optimists, perhaps the foolhardy. Perhaps a larger number believe that the general conclusions reached in this book are probably right and that we should now be making changes in our economic and legal systems, and society generally to accommodate to the limits of growth. But unfortunately there is, I believe, a disinterested majority who with eyes bent on today and tomorrow cannot see the need for changes which may affect them adversely now, to prevent catastrophe in their children's lifetime, the changes necessary are fundamentally political. Politics is the art of the possible! How much can be achieved in the face of apathy?

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BARGAIN RECORDS—RICHARD STRAUSS

There can be very few composers whose music raises so much musical controversy as that of Richard Strauss. One critic, after the first performance of "Ein Heldenleben" (a hero's life) wrote "this is assuredly the creative peak—it has brilliant orchestration and many passages contain music of remarkable beauty". Another stated "one felt rather like St. Lawrence, turned on his grid iron with glowing spits . . . one reared up, gasped for breath . . . there was an uncasy shaking of heads all over the hall. Some of the orchestra members were bent double with laughter".

Richard Strauss was born in Bavaria in 1864 and lived until 1949. His music consists largely of tone poems and operas. There are concertos for oboe and horn and smaller works for piano and orchestra as well as songs. The tone poems brought him early fame and it is easy to see why. "Till Eulenspiegel's merry pranks", "Don Juan" and "Death and Transfiguration" are short works of ultra romanticism, tuneful and brilliantly orchestrated, stretching orchestral resources to their limits. "Also Sprach Zarathustra" has recently become popular because of its association with "2001", its opening four minutes containing a pictorial music representation of sunrise with its tremolo organ and double bass start. Two mammoth tone poems that always make a staggering impact are "Ein Heldenleben", a glorious procession through the hero's life (? Richard Strauss) where he meets critics, fights battles and seeks solace from his loved one whilst he quotes many themes from previous works in the section marked "the hero's works for peace" and "An Alpine Symphony" with its musical representation of the mountains, its extraordinary orchestration with Alpine horns, wind and thunder machines and a demand for 20 horns and trumpets. Perhaps he overshot slightly when he composed a "Domestic symphony" including "baby gurgling", bath water "going down the plug hole" and "night escapades" (all too vividly, if crudely captured by Ken Russell in his Strauss film). "Don Quixote" is the most musically satisfying of all with its beautiful and moving part for solo cello and it perhaps conveys the fantastic knight even more vividly than Cervantes' novel.

From 1902 onwards, there is striking evidence of Strauss preoccupation with the female voice. "Salome" and "Electra" both thrilled and shocked by virtue of their sensuality and power. Both are basically revolting yet musically staggering. The impact is so powerful, as anyone who recently saw the Covent Garden "Elektra" would agree. "Der Rosenkavalier" is his most famous opera with its mixture of Kitch and Viennese pot pourri coupled with some wonderfully sublime moments that somehow make a total entertainment. Other operas include "Ariadne Auf Naxos", "Arabella", "Capriccio", "The Egyptian Helen", "Daphne" and, to my mind, the best "Die Frau ohne Schatten" which Covent Garden produced in 1967.

The late works include the marvellous "Four Last Songs", an astonishing farewell to life by an 81-year-old and the mellow oboe concerto.

Records of Strauss are numerous and some quite remarkable bargains are available. The best of these (only 29 minutes music on two sides!) is a fantastic performance of Don Juan by the NBC orchestra, conductor Toscanini—who else could conduct the opening with such brio, who else could mould the romantic textures so well? This record cannot be judged by money or by recording—it is a total artistic achievement (RCA VIC 1022, 99p). Another beautiful record is of the Berlin Philharmonic at its mellow best under Rudolf Kempe, playing "Don Quixote" with Paul Tortelier as cellist. The characterization of each of the knightly variations is complete. The recording is still excellent and there is "Till Eulenspiegel" as an extra incentive (ST 664 £1.25). Fritz Reiner was a highly experienced Strauss conductor—he was principal in Dresden in the early thirties and conducted premieres of some of the operas. His "Heldenleben" with the Chicago Symphony Orchestra must be recommended as an excellent bargain in genuine stereo (VICS 1042, 99p), although if sound is not too vital, I would prefer the older mono Viennese performance under Clemens Krauss (on Decca Eclipse ECS 584, 90p).

The best Strauss concerto record at any price has Dennis Brain playing the two horn concertos—the legendary Brain showing his great virtuosity—how our London orchestras could do with him still (EMI. HLS 7001, £1.15).

Finally opera and "Der Rosenkavalier"—for just £3.95 you can get the whole work authoritatively conducted by another legendary conductor—Frich Kleiber. In many ways it is still the best set on record—Sena Jurinac's Octavian is outstanding and Ludwig Weber makes the vulgar Ochs believable; if you do buy it, listen to the ravishing playing of the Vienna Philharmonic (4BB 115-8 Decca)

ALLEGRO.

JOURNAL RETIREMENTS

**BOB LE QUESNE HAS RETIRED
AS MANAGER AND
MALCOLM VANDENBURG AS EDITOR
MANY THANKS FOR
THEIR GREAT WORKS.**

Ed.

CRITICISM OF FIDELIO

by CYRIL RAMSEY
Mus. Doc. (Dunedin), FRCO, LRAM, ARCM.

It was a memorable occasion for all at the Central Hall, Westminster, on Thursday, June 8th, when St. Bartholomew's Choral Society and the Australian Music Association together with the Sinfonia of St. Bartholomew's (plus a wind section of Prospero Ensemble) gave a superlative concert performance of Beethoven's Opera Fidelio under the direction of Robert Anderson to an enthusiastic and fairly large audience.

Having been invited to come from the wilds of the North (Yorkshire) by a member of my family (in the chorus), whose glowing accounts of choral activities intrigued me to hear what this ensemble of a mixture of very keen and capable professionals, embryo professionals and amateurs would make of what is, in spite of flaws, an acknowledged masterpiece and landmark in the history of opera.

To present this work in the concert hall rather than on the stage would seem to be detrimental to its complete effect, but Fidelio is not an opera in the Italian sense of continuous musical dialogue, recitative, aria and chorus combined with stage scenery and action, but is a "Singspiel"—a song-play with spoken dialogue in stead of recitative to connect up the musical items.

Beethoven was drawn towards French opera, particularly admiring the works of Cherubini. Many of these were on a subject dear to his heart—resistance to, and rescue from, tyranny—hero or heroine unjustly imprisoned or abducted, rescued by wife, husband or lover, and ending happily with a paean of triumph—Justice over wrong-doing. Indeed, Fidelio was declared to be based on a true story of the Reign of Terror.

The music of Fidelio, however, is so intense and comprehensive—everything is deeply expressed and underlined, that the absence of action and scenery are scarcely missed. With the excellent programme notes by R.D.A. (?Robert Anderson) the unfolding of the plot would be quite clear to the audience.

The principal soloist, Judith Turner (Leonora), by her beautiful singing, was outstanding. Her tonal range, emotional and dramatic power were impressive—a vibrato that disturbed pitch and an over-reduction in power in the lower register were small blemishes, though surprisingly she rose above the full orchestra at the dramatic climax of the whole opera where she threatens to shoot Pizarro, and the trumpet call announces the arrival of the Minister and rescue.

Gregory Dempsey (Florestan) an accomplished tenor, fluent and firm, gave a distinguished and moving performance of the Great Aria at the start of Act II, sensitive and impassioned in the dungeon scene, and subsequently throughout. Raymond Myles (Pizarro) with Hitlerish intensity of hate and bloodthirsty callousness characterises well the rascally Prison Governor. Noel Noble (Rocco) portrayed the gaoler, affable kindly, but with a will of his own—his innate humanity coming through well during the dungeon scene.

Marcellina and Jacquino (Joy Mammen and Clifford Grant), well-sung and characterised in the inconsequent opening of Act I and subsequently. Joy Mammen evinced at times quite a dramatic coloratura in her upper register.

Don Fernando (Robert Lloyd) had just that breadth of tone and rich resonance suited to the Minister in the last scene of the opera.

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Edward Arnold

The Chorus, whether sentries, prisoners or people, were admirable—very precise, good diction, and magnificent breadth of tone. Their necessary inactivity during long stretches of the work, only tended to highlight the effect they made when they came in. The entry of tenors and basses during Pizzaro's aria—dark, subdued, was excellently characterised. Also the end of the prisoners' chorus, where the full despair of their condition is expressed. Another, the tremendous impact of the Finale starts when sopranos and altos join in for the first time—indeed the whole of this section was maintained at a high intensity through to its 9th Symphony-like finish. This is the stuff of which the English choral tradition was made and it is good to hear it still pertains!

The orchestra, at first a little uncertain in attack and intonation (wind department) soon warmed up and quickly met the demands of the music and conductor. String tone was good—smooth and silky—inclusive in attack and well led by Geoffrey Harris. The horns surmounted quite successfully the exacting demands of Beethoven's scoring.

Over all, of course, the architect of this performance was Robert Anderson; conductor, chorusmaster, coach. His stance and red carnation may suggest Sargent (vide "Allegro") but I think he has some of Beecham's ebullience. Unfailing and unflagging in co-ordinating his forces, vital in stimulating all under his baton to musical heights of clarity and expression. May he go from strength to strength! I am glad to have had this opportunity of hearing and commenting on such a very fine show.

Answers to Spot the Lesion (p.276)

1. (a) Hiatus Hernia with Reflux.
(b) This condition may be of the sliding type (75%) or of the rolling type (20%). The remainder are a combination of the two. This patient shows the rolling type.
(c) Reflux oesophagitis associated with this rolling type of lesion results in oesophageal bleeding and associated iron-deficiency anaemia.
2. (a) Achalasia of the Cardia (Cardiospasm).
(b) Carcinoma of the fundus or lower oesophagus (of prime importance in the differential diagnosis).
Benign stricture of the oesophagus (lower end) Chaga's disease (found in S. Americans).
(c) Motor disturbance of the lower end of the oesophagus, probably due to a lesion in the myenteric plexus. There is evidence of absence or disintegration of the myenteric ganglia in the body of the oesophagus in advanced cases of Achalasia. The causes of the nerve lesions are uncertain.
(d) *Operative.* Heller's operation—cardiomyotomy of the lower 7 cms. of the oesophagus and 3 cms. of the cardia.
Historical. In the past, dilation with Hurst's mercury-loaded bougie or Negus' hydrostatic bag or a Mikulicz operation (oesophago-gastrostomy with digital dilation of the cardia from below).

SAINT BARTHOLOMEW'S HOSPITAL JOURNAL

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Editorial

Firstly, let me welcome the freshers, both pre-clinical and clinical, to the Hospital. I hope it lives up to all your expectations. This month sees the start of a new academic year at Bart's. It is a year of change, a year of celebrations, yet perhaps a year of disquiet.

You are fortunate to have come at such a time, with more opportunity than ever before, to determine the quality and content of your course—a privilege in which I hope you will all indulge. As a result of successful feedback by students, many useful improvements were made to last year's course, particularly the introduction of two month firms in the first clinical year.

This year, orthopaedics will become an eight week, second year course, and anaesthetics will be cut to two weeks in the final year. These valuable changes were mediated by the Teaching Committee, composed of both staff and students. Apathy has been almost the watchword of the Bart's student in recent years, especially towards his own education; but as this trend seems to be on the decline, it is up to you to perpetuate the improvement.

You have also come at a time of celebration, 1973 being the 850th anniversary of the foundation of the Hospital. The celebrations next Spring will include a resurrection of Bartholomew's Fair, a concert in the Royal Albert Hall, and a Grand Ball. This will be a Charity Appeal, and its success will depend on your support.

The disquiet I spoke of is multifactorial. Owing to the rearrangement of the National Health Service, Bart's is to lose its Board of Governors, and will be controlled, as will other hospitals, by a Regional Board. This will necessarily involve a good deal of administrative reorganisation... let us hope Bart's is still a recognisable entity at the end of it!

If it is, then perhaps we have a few years grace before we are absorbed into the characterless facades of the medical faculty of Queen Mary College. Either way, we must learn to accept that Bart's will not be recognisable in its present form for much longer, if the proposed new Teaching Hospital in Hackney ever gets off the drawing board.

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ANNOUNCEMENTS

Births

ASHLEY—August 10, to Margaret (née Massey) and Peter Ashley, a second son Tobin Massey Charles, a brother for Rupert.

BOWN—On August 20, to Pauline and Dr. R. Bown, a daughter.

GIBSON—On August 6, to Diana and Dr. David Gibson, a son.

Engagements

BRENNAN—KINSEY—The engagement is announced between Dr. S. R. Brennan and Dr. P. O. Kinsey.

MERRILL—COLLINS—The engagement is announced between Dr. J. F. Merrill and Miss P. J. Collins.

Deaths

ALLEN—On August 22, Dr. W. H. E. Allen, M.R.C.S., L.R.C.P. Qualified 1940.

DYAS—On June 23, Dr. G. E. Dyas, M.C., M.B., B.Ch., D.M.R.E. Qualified 1920.

McKERROW—On July 14, Dr. C. B. McKerrrow, M.D., Cantab., F.R.C.P. Qualified 1955.

Change of Address

From October 4th, the address of Mr. I. G. Williams will be:—

Tanygraig, Pentrefelin, Criccieth, N. Wales.

Correction

In the August Edition of the Journal, we accredited the address of George A. Cowan to J. S. Tobias. George Cowan's address is:

Flowerhill, Enniskerry, Co. Wicklow. Apologies Ed.

Prizes

Ian Howat Prize in Medical Microbiology 1972

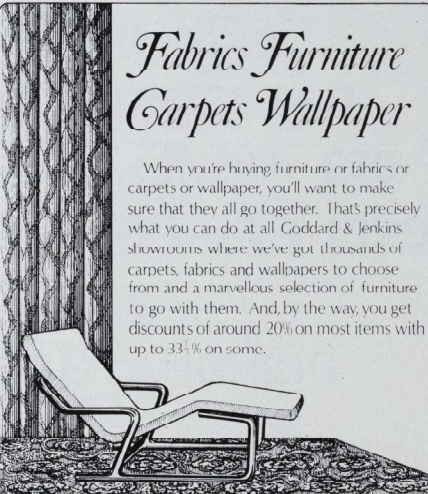
This has been jointly awarded to:—R. While and R. Barrett, for their essay entitled "Methods of Assaying Gentamicin in Serum".

and

D A Pugh and M. Fletcher for their essay entitled "A Comparison Study of the Relative Resistance of Members of the Genus *Micrococcus*, Inside and Outside the Hospital Environment".

BMA MEDICAL STUDENTS PRIZE 1972

J. Watkins, B.Sc., and M. J. Vandenburg, B.Sc., have been awarded a prize in the 1972 "B.M.A. medical students competition" for their paper entitled "A comparative study of two methods of anastomosing small arteries."



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SHOCK - AN HISTORICAL REVIEW

by ASHLEY BROWN F.R.C.S.

Research Registrar in the Dept. of Experimental Pathology.

Celsus in A.D. 20 said "Now when the heart is penetrated much blood issues, the pulse fades away, the colour is extremely pallid, cold and malodorous sweats break out as if the body had been wetted by dew, the extremities become cold and death quickly follows". This description epitomizes what we now consider to be the classical clinical picture of shock. Short of a comment on blood pressure his description could probably not be bettered, although we now recognise a wider and less easily defined spectrum of signs embracing more than the haemorrhagic type of shock described by Celsus.

Celsus draws the parallel between loss of blood and the expiry of life. The importance of blood loss and its association with a violent form of death has been known to man since his earliest existence. The Edwin Smith Papyrus (1600 B.C.) contains references to clinical states after head injury which may have included forms of shock. Dawson (1929) draws attention to the ancient Egyptian custom of placing red charms or amulets on or near mummies to simulate the functions of the blood, or as a magical substitute for its presence. According to Crile (1909), the Egyptians had also given the subject of blood transfusion some thought although they never seriously attempted perfection of the art.

Hippocrates said that war is the only proper school for the surgeon (Blalock 1934), and this unfortunate truism appears to have held good as far as the management of shock and injury is concerned. Few comments and little advance appear to have been made in the ten or eleven centuries after the birth of Christ. Perhaps this

was due to the lack of perfection in the primitive art of making war. However in 1242 Roger Bacon, an Englishman, invented gunpowder which was to prove as fruitful a source of death and injury as the motor car in the twentieth century. Edward III was the first to use cannon when he invaded Scotland in 1327. DeChauliac described shock in terms of swooning (1363) and John of Mirfield (1400) described some of the signs of shock in an account of a child suffering haemorrhage from a neck wound. Mirfield in this paper which was the first to come from St Bartholomew's Hospital, London, laid emphasis on hiccough and spasm after injury, suggesting that these were of bad omen.

Brunschwig a Strassburger wrote the first text on gun shot wounds in 1497. At this time a belief that the musket ball was poisoned by the enemy had gained wide currency. This notion seems reasonable since the symptoms and signs of a generalised nature (i.e. shock), which followed a localised injury must have been puzzling to the early observers. This view persisted for many years (Billroth 1860) since it was put forward by the Italians daVigo (1514) and Fernio (1552), Joubert a Frenchman (1570) and William Clowes (1588) surgeon to Elizabeth I.

Despite so many prominent advocates the poisoned shot theory was rejected by the greatest of all French surgeons Ambroise Paré (1510-1590), surgeon to Charles IX. He advocated ligation of vessels after amputation. Previous to this, cautery with hot irons had been used to arrest haemorrhage from major limb vessels, often resulting in death from subsequent bleeding. Pare points out that the ligation was nothing new since it had

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already been advocated in other situations by Hippocrates, Celsus, Galen and Vesalius. It should be remembered that at this time the tourniquet was not in general use, since it was not until the description of the circulation by Harvey in 1628 that the necessary principles were understood. Pare like deChauliac described shock in terms of swooning. "Swooning is a sudden and pertinacious defect of all the powers but especially the vital. In this the patients lie without motion or sense so that the ancients thought that it differed from death only in the continuance of time. The cause of swooning which happens to those that are wounded is bleeding, which causes a dissipation of the spirits".

A student of shock is immediately impressed by a strange paradox. Blood letting was considered to have an important place in the management of injury even when this included blood loss. A late example comes from the work of John Hunter (1794). "I knew a man who was stabbed in the loins and according to the consequent symptoms was most probably wounded or hurt in some viscus in the abdomen. At first he had no symptoms but simple pain in the part, I therefore bled him as a precaution". Hunter considered shock a form of constitutional irritation and he also recognised the significance of blood loss. The reason why such an original thinker should have accepted a current fashion is not clear. Blood letting only ceased to be used in the treatment of wounds in the middle of the nineteenth century. Tully in 1839 summarised the contemporary scene when he said "The lancet is a weapon that annually slays more than the sword".

In 1665 Richard Lower in Oxford carried out the first blood transfusion using two dogs. He used an intravenous technique devised by Sir Christopher Wren and was assisted by the ubiquitous Dr. Hooke. Wren first suggested to Boyle in 1656 that medications might be given by the intravenous route and to this man we owe the foundations of the modern treatment of shock. Jean Denys (1667) was the first to use blood transfusion although it was not until the problems of agglutinins (1901) anticoagulants (1914) and apparatus (1917) had been overcome that transfusion of blood became an important part of the management of shock (Keynes 1949).

Following Harvey's description of the circulation, Petit & Morand were the first to develop a tourniquet to prevent blood loss on the battlefield and this was first used at the Siege of Besançon in 1674 (Ballingall 1833).

Ledran, surgeon to Louis XV (1737), wrote a treatise on the management of gunshot wounds which was later translated into English. It was in this translation that the word shock was first used in a medical context. The word was already in use in the English language, being used to denote a stook of corn or the collective number of sixty. The word was derived from the Dutch word *shokken*, to jolt. Strangely, the translator of the work of Ledran could have found a more accurate equivalent of the French word *ebriement* than shock. Ledran confirmed the advantages of ligation in heavy bleeding, but added a careful warning to avoid the main trunks lest distal infarction occurred. The word shock appeared in the medical texts of Woolcombe in 1770 and Latta in 1795.

Bell, the Edinburgh surgeon (1795), condemned the widespread resort to magical methods in shock and wound care. He illustrated his argument with reference

to haematites (so named because of its styptic powers) and also the peculiar custom of tying a toad to the bleeding patient in order to arrest haemorrhage. Bell gave an excellent account of the signs of haemorrhagic shock and his polemical description of magical and mystic methods, which hitherto had hindered medical progress, heralded a new era in thought on the subject.

Baron Larrey, surgeon to Napoleon, recognised the need for urgent evacuation of the battle wounded casualty and developed his special lightweight ambulance volante for this purpose. McGrigor, surgeon to Wellington in the Peninsula Wars, requested the same facilities only to be refused by the Iron Duke. Ben Travers (1826), a pupil of Sir Astley Cooper (1826), considered shock a form of functional concussion, in which the influence of the brain over the circulation is impaired. This represented a significant departure from the ideas of Hunter and Cooper. More changes were to come from Travers. He questioned the use of stimulants on the battlefield. "It has been a good turn of fortune for many persons to be left for dead on the battlefield . . . sleep will restore while alcohol destroys". The twentieth century vogue for using stimulants in shock (vaso pressor drugs), has recently been rejected in a similar way when it was found that they too may be responsible for more harm than good (Dietzman et al 1967, Wilson et al 1971). Travers also disagreed with Hunter when he rejected the idea that phlebotomy should be carried out after injury.

At this time shock was described in situations other than haemorrhage and tissue damage. Thus O'Shaughnessy gave an account of shock in cholera (1834). Fagge later described shock in diabetic coma (1874), and Blum (1876) described the syndrome in burns.

Lister (1858), summarised the current views concerning the control of blood vessel tone, describing the work of Claude Bernard (1852), which had shown that division of sympathetic fibres led to turbulence of blood vessels. He also described Waller's experiments (1853), in which it had been shown that galvanic stimulation of the cut end of the sympathetic trunk caused vasoconstriction. These observations formed the basis of many subsequent opinions on the mechanism of shock. Mitchell et al (1864), considered shock due to vasomotor paralysis leading to stagnation of blood flow whilst Le Gros Clark (1870), ascribed shock to the depressant effect of the central nervous system on the cardiovascular system.

Claude Bernard in 1878 introduced another important concept when he said that all the vital mechanisms, however varied they might be, have only one object, that of preserving the conditions of life in the internal environment. This concept of the milieu interieur demonstrated an appreciation of the function of the body as a whole and may serve to emphasize the futility of searching for key factors or target organs in shock, exercises which have prevailed since before the time of Bernard to the present day, with generally unrewarding results.

Mapother in 1879 considered shock to be due to the effects of arterial constriction, a concept which still has many advocates. Seabrook in 1881 ascribed shock to impairment of the vasomotor centre and Fischer (1882), proposed that paralysis of the whole vasomotor system was the cause of shock. Groeningen (1883), and Mansell-Moullin (1894), linked shock with fat embolism.

At the end of the last century interest in shock was increasing. Mammalian experimental work was being

performed by Crile in the USA and by Lockhart Mummery in England. Opinion at that time had polarised in a particular direction, namely that a derangement in the mechanism by which blood vessel tone was controlled was responsible for shock. The reasons were not clear, but the two main postulates were that this derangement was due to a generalised change in the vascular system or to specific alterations in the vasomotor centre.

From the start of the twentieth century, research into shock rapidly dichotomised, assisted by the field studies made in the First World War. The *Index Medicus* now lists about 2,000 papers per year devoted to shock studies and some of the modern concepts will now be considered under separate headings.

SYMPATHETIC OVERACTIVITY & CATECHOLAMINE TOXICITY

Earlier workers had noted the normal physiological response of vasoconstriction following blood loss and Crile and others considered that it was the failure of this mechanism which may account for the development of shock. Mapother in 1897 had already suggested that the vasoconstriction may be harmful and this view was repeated by Malcolm (1905), Erlanger et al (1919) and Freeman (1933). That overactivity of the sympathetic system may be important in shock, was substantiated by Freeman et al (1938) when they demonstrated that thoracolumbar sympathectomy was protective. Spinal anaesthesia and high cord transection were also found to be protective (Eversole et al 1944, Swingle et al 1944). Despite the earlier postulates and the later experimental evidence, clinicians tended to equate perfusion with blood pressure rather than with blood flow and the maintenance of pressure became the first aim in therapy (Bloch et al 1966). The reinforcement of the normal physiological response by the use of pressor drugs as originally proposed by Guthrie (1917), became an established part of shock management (Fremont et al 1954). This was despite the fact that the infusion of catecholamines in doses sufficient to reproduce levels found in clinical shock was known to produce changes that were not distinguishable from shock of other causes (Bainbridge & Trevor 1917, Erlanger & Gasser 1919, Corday & Williams 1960). In the 1960's attempts were made to overcome the possible harmful effects of the overactivity of the sympathetic system and the secretion of catecholamines. Most workers have advocated the use of alpha blocking drugs such as phenoxybenzamine and the administration of this type of drug forms part of the accepted management of refractory shock (Dietzman & Lillehei 1968). Palmerio (1963), suggested that splanchnic sympathectomy might also be used although this proposal has not been accepted clinically. There are some reports concerning the use of beta blocking agents in shock although at present their use has not passed beyond the experimental stage (Berk 1972).

HYPOVOLAEMIA & CAPILLARY PERMEABILITY

Short (1913) stated that shock is due to oligoemia induced by a loss of fluid partly into the injured area and partly through the capillaries all over the body. Robertson et al (1918), suggested that in shock there is a severely reduced blood volume and Keith (1919),

repeated this view. Phemister (1928) and Blalock (1930), both produced evidence that local interstitial fluid loss may lead to shock. Beard & Blalock (1931), commented on the significance of local fluid loss such as that seen in burns. Moon (1938), considered shock a form of giant wheal, in which alterations in capillary permeability occurred in all parts of the body, but this idea did not gain wide acceptance. Current views on shock do not give credence to the idea of an important rise in permeability (Berman & Fulton 1965). Most of the evidence for an alteration in permeability is circumstantial and rests on the commonly reported observation that there is an increase in the flow of lymph from the thoracic duct in shock (Alican 1961, Berman 1969, Nelson 1970).

The problem remains of the conciliation between the observation of apparent hypovolaemia (manifest as a low central venous pressure), an unaltered capillary permeability and no external fluid loss. It is considered that mechanisms in addition to simple external or internal fluid loss may be primarily involved (Griswold 1938). Gower & Henry (1963), described the low pressure side of the vascular system, that is the capillary, venous and pulmonary circulations. A discrepancy between the circulating volume and the capacitance (or low pressure) side of the circulation may just as easily account for relative hypoperfusion of the tissues as blood loss. Modern therapy in shock ignores the actual blood volume in relation to the predicted volume for the normal patient since this takes no account of the volume of the capacitance. Instead efforts are made to fill the capacity side so that the heart may receive sufficient fluid to pump effectively.

MICROCIRCULATORY & RHEOLOGICAL CHANGES

Ultimately shock has to be considered as the failure of the microcirculation to perform its basic task, which is to ensure an adequate supply of nutrients and oxygen to the tissue and also to facilitate the removal of waste products. Lewis & Mellander (1962) proposed that the normal mechanism of capillary blood flow regulation is altered in shock. Assuming that a precapillary sphincter mechanism controls flow they suggested that, due to changes in the local environment, this sphincter may lose its tone. In particular a fall in pH may be responsible for this loss, which may be independent of any autonomic participation. This concept fits with that put forward by Zweifach (1944). He proposed that there are three phases in the behaviour of small vessels in shock. These consist of the compensatory, transitional and decompensatory phases. In the first there is constriction which may severely diminish blood flow, whilst during the second phase overcompensation subsides, followed by decreased sensitivity to catecholamines. As the last phase follows sensitivity is lost. Tone is lost and flow becomes increasingly sluggish and stagnant.

Blood from man and other mammals behaves as a pseudo-Newtonian fluid at high flow rates and as a non-Newtonian fluid or plastic fluid at low rates (Berman & Fulton 1965). Viscosity thus increases at lower rates and as a result of this red cells tend to aggregate to form rouleaux. Knisely (1945), drew attention to this phenomenon since it would be expected to enhance local stasis and anoxia. The phenomenon of sludging or the formation of multiple cellular aggregates

has received widespread attention especially since it can be prevented or decreased with low molecular weight dextrans (Gelin 1956, Berstein 1963, Susuki 1964). Currently it is thought that the function of the microcirculation in shock is impaired for several reasons, namely a decrease in pressure head, a reduction in capillary diameter and a decrease in the fluidity of blood. It should be added, however, that Vejlans (1964), considered that sludging may be a physiological advantage in that aggregation of red cells may orientate them in such a way that they would be kept moving in the centre of the smaller vessels. Nevertheless, most observers agree that the process may have harmful effects and Hardaway (1966), suggests that in these sites of low blood flow transient, clotting of blood may occur. Branemark (1968), however, believes that stasis alone can never lead to the formation of intravascular clot unless associated with some other injurious stimulus. The phenomenon of intravascular coagulation will be considered next.

COAGULATION CHANGES IN SHOCK

Hewson (1772), was the first to point out that blood from an animal undergoing haemorrhage clots at different rates. The blood to issue first clots last. Woodbridge in 1886 described a phasic alteration in the coagulability of the blood and Attar (1966), has described an oscillatory pattern in coagulability, the amplitude of which he relates to the prognosis. Hardaway (1966), defines disseminated intravascular coagulation (DIC), as an acute and transient coagulation occurring in the flowing blood, involving the possible

obstruction of the microcirculation, the transformation of fibrinogen but not necessarily the accumulation of fibrin. The reason why the coagulation properties of the blood should alter in injury is not clear, although the advantage of providing for haemostasis is obvious. Factors which may be responsible are damaged tissue with ADP release, damaged cellular elements of the blood and damaged endothelial surfaces. Endotoxin is known to promote intravascular coagulation (McKay 1966, Nies 1968, Beller 1969). Catecholamine levels are increased in shock and may also provoke coagulation (Hardaway 1965). Serotonin levels and free fatty acids are also increased and may also be responsible (Swank 1964, Born 1962, Michal & Firkin 1969). The acidosis commonly encountered in shock may also be contributory (Hardaway 1970).

Injury, in addition to being associated with an increased tendency of the blood to clot is also associated with a rise in fibrinolytic activity (Bergentz 1961). Flute (1970), considers this to be due to consumption of clotting factors in the process of disseminated intravascular coagulation.

Some authors, notably Hardaway (1966), have considered the phenomenon of intravascular coagulation one of the most important factors in contributing to mortality in shock and many other conditions. This worker proposes that it can account for the exacerbation of several of the more harmful phenomena recognised in the shock syndrome. If sufficient small vessels are blocked by clot then multiple areas of focal tissue necrosis may result. Fibrinolysis may lead to an acute haemorrhagic diathesis due to the so called consumption

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coagulopathy. If sufficient numbers of small vessels are blocked then a state may be reached in which venous return is compromised leading to a further diminution in cardiac output. This description may be an oversimplification. Leandoer (1960), was unable to demonstrate the presence of thrombi in the canine haemorrhagic shock model unless a fibrinolytic inhibitor was given, which suggests that the body may be able to overcome the effects of intravascular coagulation. Attar (1970), and Bergentz (1971), have questioned both the significance and occurrence of the phenomenon and Bergentz considers the use of heparin in patients thought to be possibly suffering from it, to be experimental. It seems that the syndrome of DIC has received considerable attention, some of which may have been inappropriate and that although significant the disease may be less common than previously supposed.

CELLULAR THEORIES

The development of ultrastructural techniques has led to increasing attention to cellular detail in shock aided by the development of histochemistry. Irving (1972) considers that elucidation of cellular alterations in shock may be the most profitable field of research in shock in the coming decade. Alterations in mitochondrial activity are well documented in shock (Strawitz & Hift 1965, Mizock et al 1971). Recently increasing attention has been paid to the possible participation of lysosomal enzymes. These hydrolases are located in discrete cytoplasmic granules particularly in the cells of the reticuloendothelial system (deDüve 1955, 1959). All these enzymes share with acid phosphatase the ability to split biological compounds in a mildly acid medium. There is considerable evidence that these enzymes may be involved in some human diseases such as glomerulonephritis and rheumatoid arthritis (Clein 1972). An increase in the concentration of these enzymes in the blood in states of shock is well known (Berman 1969, Bell 1970), and the proposition initially put forward by Janoff et al in 1962 that the enzymes may play a part in the mediation of host damage in shock, has led to considerable speculation. It has been proposed that the enzymes may participate in the formation of vaso-active split products from ischaemic tissue such as the myocardial depressant substance of Glenn & Lefer (1970). Some of their activities may also alter the coagulation mechanism (Gazzaniga 1970). However, despite this speculation it is by no means certain that lysosomal activity in shock is harmful and it is possible that the enzymes take an important part in the elimination and destruction of harmful materials (Alho 1971).

ORGAN FAILURE IN SHOCK

As has been stated earlier in this review, the concept of target organs in the shock syndrome still receives attention in the modern literature. Howard (1952) and Zweifach (1962) emphasised that shock affects every organ and tissue in the body. It is likely that, the failure of one particular organ rarely contributes to death in its single capacity. The foundation of the concept of a target organ was perhaps laid down when it was found that haemorrhagic intestinal necrosis was a consistent observation in the canine haemorrhagic shock model. It was also found that perfusion of the superior mesen-

teric artery prevented both the gut necrosis and the irreversibility of the injury (Lillehei 1957). However, gut necrosis is rare in man in whom other organs such as the kidney are more often damaged. Currently the lung is receiving considerable attention since it is considered that respiratory complications account for most deaths in otherwise salvageable patients after injury (Eiseman 1968, McNamara & Stremple 1970, Bauc 1972). This does not mean that the lung suffers any more than any other organ but rather that respiratory problems are more resistant to modern resuscitation methods than the failure of other organs such as the kidneys.

TOXIC THEORIES IN SHOCK

The presence of a circulating toxic factor in shock was first postulated by Quenu in 1918. Since that time many suggestions have been made concerning toxins and their possible role in shock. Dale & Laidlaw in 1919 demonstrated that infusion of histamine would produce a state of apparent shock in experimental animals. Moon (1938) implanted muscle tissue into the peritoneal cavity of the dog and found that it produced circulatory collapse. Moon did not know that canine muscle usually contains clostridial organisms and this probably accounted for his observation (Pope et al 1945). Zweifach (1944a, 1944b) and Shore (1945) identified a substance they termed vaso-excitor material (VEM) which was present in the blood of animals early in the shock period. Its significance was never elucidated (Cameron & Spector 1961). Zweifach and Shore also identified another potentially harmful substance in the later stages of shock which they named vasodepressor material (VDM). This was later found to be a derivative of the iron binding substance ferritin (Shore et al 1951). Considerable attention has been paid to the accumulation of lactic acid in shock due to anaerobic metabolism. First pointed out by Seligman et al (1947) the accumulation of lactic acid can have harmful effects on many systems e.g. it causes depression of cardiac function (Clowes et al 1961) and in the lung it has been held responsible for the increase in pulmonary vascular resistance seen in shock (Levine 1971).

Fine et al (1952) have proposed that bacterial products may be the final common channel in determining the outcome after injury induced by a variety of ways. Fine suggests that endotoxin is continually being absorbed from the bowel, and one of the functions of the reticuloendothelial system is to inactivate this endotoxin. In shock the ability of the RES to undertake this role is diminished and the animal is therefore exposed to the harmful effects of a continual unopposed endotoxaemia which may be sufficient to tip the scales towards a fatal outcome. Although attractive, this theory does not meet with wide acceptance at the present time, not least because of others having difficulty in reproducing Fine's work. (Einheber 1961, H. B. Stoner personal communication 1972.) Zweifach also cast doubt on the theory when he showed that germ-free animals develop shock in a way no different from other animals (Zweifach 1958).

Currently the notion that a myocardial depressant factor is released into the circulation as a result of pancreatic lysosomal activation is the fashionable toxic theory. Crowell & Guyton (1962) consider that heart

failure is prominent in accounting for the more severe forms of shock and the identification of this cardiac toxin by Glenn & Lefer (1970) goes some way to vindicating their belief. However, the myocardial depressant factor has yet to stand the test of time.

THE EPIDEMIOLOGY OF SHOCK

The epidemiology of shock is changing. Today the commonest cause is myocardial infarction. Haemorrhagic shock *per se* is a rare cause of death mainly because of the excellence of the blood transfusion service and other resuscitation techniques. Myocardial infarction apart, the most serious problem is the growing threat posed by shock caused by bacterial infection. This type of shock is said to be increasing in frequency (Altemeir et al 1967) and the fact that its mortality may be as high as 80 percent (Shubin & Weil 1963) underlines its significance. The cause of the apparent increase in the incidence of this sort of shock is not known, especially whether it is because of, or in spite of, the use of antibiotics. Corticosteroids, cytotoxic drugs and the increasing age of the hospital in-patient population have been cited as possible causes. The increasing numbers of operations performed, especially those involving the urinary tract, may in part be responsible. Other causes of shock such as soft tissue damage, fractures, burns and immune reactions still cause lethal shock, although their incidence has not changed as alarmingly as that due to heart disease and sepsis.

CONCLUSIONS

Shock is a complex injury involving all organs and tissues within the body. No attempt has been made in this article to define the syndrome since all the qualifications needed would not be applicable to all cases encountered clinically. The description of shock offered by Celsus 1,950 years ago and quoted in the opening paragraph of this article serves as a useful concept, since it conveys a clear clinical impression free of technical jargon which is so often allowed to cause confusion. Emphasis has been laid on the concept of shock affecting all parts of the internal environment. Like the proverbial ship with watertight compartments, in which several need to be damaged before the ship sinks, then so an organism that dies from shock does so as a result of the interplay of many factors. Some of the modern ideas concerning these factors have been presented, although with the emergence of new diagnostic and research aids these ideas will be altered, supplemented and probably superseded.

References. A list of references may be obtained from the author.

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AN INTERESTING PROBLEM

By V. C. MEDVEI



Fig. 1. THE HIRSUTE LADY

THE FACTS:

The young lady, a needlewoman of twenty, was five months pregnant when she presented herself at the hospital. There could be no doubt about it. Besides the usual "and less certain signs, the foetal cardiac sounds were audible". No wonder that she wanted to speed up her wedding arrangements; moreover, she was a stranger from Switzerland in a foreign country, yet the persons who were to perform the marriage ceremony were uncertain in their mind. If one sees her picture (Fig. 1), it seems perhaps not too surprising. She sported a beard and whiskers which were "very abundant, full and strong, exceeding in quality even that of the beard and whiskers of men generally in this country". The upper lip and the hollow under the lower lip were free, but an abundant hair growth covered also the cheek bones under the eyes. The length of the whiskers was from one to four inches, the hair of the beard of the same length, strong, coarse and thickly set. In order to conceal it in public, she used a handkerchief folded three-cornerwise on her head, so that two of the corners passed down over the sides of the face, meeting just below the mouth. The hair on her head was 2 to 2½ feet long and dark brown, but not coarse. On the neck and below the clavicles there was some long coarse hair. On the shoulders and arms down to the wrists, there was a hair growth equal to that of a moderately hairy man. The large breasts and the front of the chest were quite free from hair, nor was there any around the mamillae. A broad line of dark hair descended down the back, mainly in the midline, and on the buttocks and over the hips. The abdomen showed a male escutcheon. The lower limbs were hairy like the arms.

The patient was short of stature, the upper part of the thorax and the pelvis were feminine; the legs heavy but the arms, hands and feet small and feminine. Her manner was gentle, and she had a feminine singing voice.

She was told that at birth she had a "considerable quantity of hair" growing on those parts of her face which now constituted her beard and whiskers. At the age of eight it was 2 inches long. The whole anterior part of the trunk above the umbilicus had always been free from hair. Menarche was at eighteen and had been normal until her pregnancy.

She was first seen at the hospital on the 2nd of September, when the foetal heartbeat was distinctly heard. Confinement was on the 26th December, when she was delivered of a daughter. The child was fair haired and without any peculiarity. The mother nursed the baby and had an abundance of milk, the breasts being more than usually large.

Her family history was completely negative. A grown-up brother was, in fact, almost entirely beardless, two grown sisters were quite normal. So were her parents. Her father was dark, but had not much of a beard or whiskers. Her mother's father had a long beard and whiskers.

DISCUSSION:

The decision that the patient was obviously a female of childbearing age was, therefore, not difficult and permission to proceed with the marriage could be given after the first visit. The physician who observed the

patient, then studied the literature in order to find descriptions of an exactly similar patient, but in vain. His attempt of classification of Hirsuties was as follows:

- 1st Displacement, as prolapsus.
- 2nd Malformation
- 3rd Hermaphroditism, incomplete) lateral or
- 4th Hermaphroditism, complete) transverse"

The observer describing this case, was Dr. W. D. Chowne, Physician to Charing Cross Hospital, it was published in three subsequent numbers of the LANCET under the title "Remarkable Case of Hirsute Growth in a Female", the first parts on pp. 421-422 and 514-516 of 1852, I, the third in the LANCET of 1852, II, pp. 51-53.

In a recent summary of "HIRSUTIES and VIRILISM" by G. M. Besser and C. R. W. Edwards, the author's remark that "certain constitutional types are frequently associated with heavier growth of body hair than others and this is unaccompanied by any signs of virilism. . . . Even within the groups not normally associated with this type of hirsuties, individuals may show a constitutional disposition to excessive hair growth without any other evidence of exposure to excess of androgens and frequently, there is a family history of the condition. Such constitutional hirsuties usually begins at about the time of the menarche."

Dr. Chowne's Swiss patient was in every respect remarkable and worth remembering.

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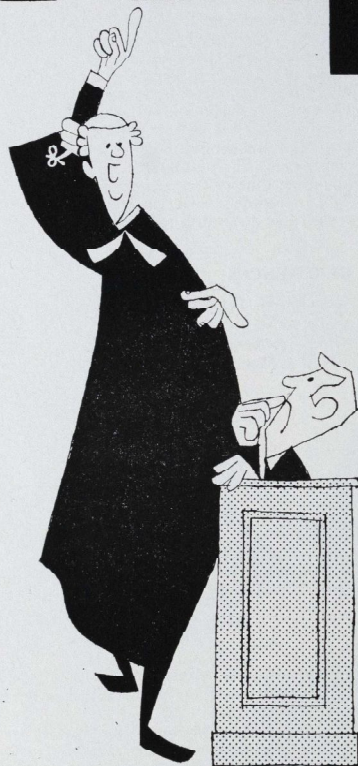
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MEDICINE IN ART

by YVONNE HIBBOTT, A.L.A.

(4) DWARFS AND GIANTS



FIG. 1. DIEGO VELAZQUEZ (1599-1660)
 LAS MENINAS (THE MAIDS OF HONOUR)
 (Prado Museum, Madrid.)

The Princess is accompanied by an achondroplastic dwarf (second figure from the right). Velazquez was court painter to Philip IV of Spain and he painted portraits of several of the dwarfs at court.



FIG. 2. ALFRED EDWARD CHALON (1780-1860)
CAROLINA CRACHAMI, THE SICILIAN DWARF (R.C.S.Eng.)

Carolina Crachami's skeleton and a life-mask can be seen in the Hunterian Museum of the Royal College of Surgeons. She was only 22½ inches in height and weighed six pounds. Carolina died of pulmonary tuberculosis in 1824, shortly before her ninth birthday.

The articulated skeleton, prepared by William Clift, is 19¼ inches in height. The skull is thin and the great fontanel is unossified. Ossification throughout is greatly delayed.

The general state of development of the skeleton is approximately equal to that of a child during its second year but the height of the specimen is nearer that of the normal newborn infant.

Carolina's mother suffered shock during the third month of the pregnancy when she was bitten on the hand by a monkey. She had four other children who were normal.



FIG. 3. ENGLISH SCHOOL—ARTIST UNKNOWN
DANIEL LAMBERT (1770-1809) (R.C.S.Eng.)

Daniel Lambert was reputed to weigh 52 stone. He was of normal size in childhood but from the age of 21 his weight began to increase rapidly and he weighed 32 stone at the age of 23. The obesity was not caused by greed since Lambert ate only one dish at meals, and was also tectotal. His clothes, chair and other portraits can be seen in Leicester Museum.

Acknowledgements

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BARTS MUSIC

Bargain Records—Beethoven Piano Concertos

Up to now I have deliberately avoided Beethoven—to attempt to do justice, in this limited way, to his output is impossible. This article attempts to recommend records only of the piano concertos—at a later date I shall return to the symphonies.

Beethoven wrote five piano concertos, the last three accepted masterpieces of the form. He also composed a violin concerto, a concerto for piano, cello, violin and orchestra which has been strangely neglected by recording companies and concert promoters alike. An early concerto written in 1784 (Beethoven aged 14) revealed no early flowering of genius, although the work is charming in a naive way.

Beethoven was composing largely for his own purposes at the turn of the century (1800). He was rapidly becoming recognised as an exceptional concert pianist and a teacher. The first two published concertos were opus 15 and opus 19. In fact the later opus was composed in 1797 and it contains music that is reminiscent in form and thematic content of Mozart—essentially charming, but only traces of the essential power that was to come. The opus 15 concerto, written in 1800 is a shade more inventive and unorthodox and has a slow movement of great beauty. The rondo is perky with naughty harmonic twists—much more evidence of the change that was to bud and flower.

Cheap label recordings of the first concerto (op 15) are good and plentiful. Katchen's with the LSO and Gamba is a pointed reading, if slightly aggressive. His technique is phenomenal but is never here at the expense of the music—he appreciates the stature. The coupling is the Choral Fantasia, op 80, a foretaste of the Choral Symphony. Decca have provided a marvellously lucid sound (SDD 227) £1.50. At the moment there is no recommendable cheap label recording of the second (opus 19) concerto—Katchen's is too assertive, Brendel's is disfigured by horrid sound, as is the old Backhaus recording.

The third concerto, opus 37, is a great advance—one has only to hear the orchestral exposition—it is full of surprises not least the three final chords before the piano first enters. Another feature is the use of the timpani just after the first movement cadenza to emphasise the rhythmical unity of the work. Again the slow movement is of sublime beauty and the rondo finale, if appearing superficially cheerful has deep profundity. Gabriel Tacchino's recording with the Berlin Philharmonic, conductor Cluytens, if not ideal, is pleasant and well recorded (CFP 135, 82p.).

Many authorities claim that it was Beethoven who first introduced the concept of the piano starting the work rather than an orchestral exposition—in fact Mozart had done so in his concerto, K 271. Beethoven's entry in the fourth concerto, opus 58, is even more dramatic. The fourth concerto is full of the battle between piano and orchestra that was to reach even greater proportions with Brahms. This concerto must rank as the most sublimely beautiful in the concerto literature. Luckily there is a marvellous account of it

from Emil Gilels. He appreciates both the powerful and beautiful side to the work, aided by the Philharmonia and Ludwig. The second side has David Oistrakh in the Mozart violin concerto K 216: recording good if not outstanding (SXI P 30086 £1.35.).

The fifth concerto, op 73 'The Emperor' (although not designated as such by Beethoven) is a work of a colossus. It is rough hewn, full of bluff humour—the way the rondo-finale theme is woven across the individual instruments before it is shaken off by the piano. Yet, there is the gentle stillness of the slow movement, the revolutionary lead into the finale, without a break and the solo timpani leading into the final piano flourish at the end. Bruno Leonardo Gelber gives a fine performance, lacking only the last degree of power and he is beautifully partnered by the New Philharmonia, conducted by Leitner. The recording is admirable for piano tone and balance (SXLP 20104 £1.35.).

ALLEGRO

ST. BARTHOLOMEW'S HOSPITAL JOURNAL

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BOOK REVIEWS

THE TREATMENT OF THE CHILD AT HOME

R. S. Illingworth. £2.75. Blackwell Scientific Publications, 1972.

Professor Illingworth has written a welcome companion to two of his previous books, 'The Normal Child' and 'Common Symptoms of Disease in Children'. This book has been written as a practical guide for the family doctor and excludes treatment which should only be given in hospital. Nevertheless, it will be of value also to paediatric housemen and all hospital doctors dealing with children.

The book is written in two parts. Part I gives general comments on the principles of treatment, common mistakes in treatment, diet, bad rest, infant feeding behavioural problems, drugs, antibiotics and immunisation. Part II deals with the treatment of individual symptoms and diseases in alphabetical order. This format has the advantage that an overall approach is achieved in the first part, which is both informative and interesting, whereas the second part is very useful for family doctors, since it allows them to refer to the specific problem when it presents in their surgery.

Common conditions are discussed; these include physical conditions and behavioural disorders. The treatment suggested is that which can be used in the home and clear indications are stated when the child should be admitted to hospital or referred to a paediatrician or surgeon. Various forms of treatment and drug therapy are discussed and the author clearly states, when indicating his preference, whether his opinion is based on available evidence or on his own clinical impression and experience. A good example of this is his opinion of the value of rest in the treatment of infectious hepatitis. Where explanation and reassurance should be given to the parents and no treatment or drug therapy is necessary, is indicated clearly. References for more detailed information are given throughout.

This book, although primarily intended for the general practitioner, will also be most useful for the medical student. It is both didactic and full of common sense. I would also highly recommend this book to family doctors and to the housemen who often have to deal with similar problems in the Casualty or Out-patient Departments.

MARGUERITE SMITH.

PSYCHIATRIC HOSPITALS VIEWED BY THEIR PATIENTS

W. Raphael & V. Peers. Pp. 48. £1.00. King Edward's Hospital Fund for London 1972.

This is an attempt to ascertain whether useful information can be derived from patients in a mental hospital by means of a simple questionnaire, on their care and attitude towards treatment. Previous attempts to isolate and quantify the infrastructure of psychiatric hospitals have relied on observations of the nurses' and doctors' evaluation of the patients' response to treatment and the 'participant observer' approach of Goff-

man who took a menial post incognito to observe the inter-personal reactions at the patient-patient and patient-nurse level. The former approach is limited by the bias of the staff concerning the results of their treatment, the second by the limited non-quantitative observations. This study shows that of 2,000 responses only 2% were irrational. Most patients were happy with the physical conditions and food, less so about social activities and therapeutic relationships with staff: psychiatric patients being more mobile than others, their 'leisure' and treatment are inseparable. The short stay patients were largely more critical than the long stay, probably accounted for by the institutionalisation of the latter. This short experiment suggests interesting extensions of the technique; what is the correlation between attitude and clinical diagnosis (are depressed patients more or less critical?) and how do patients feel about each other?

ROLAND LITTLEWOOD.

MIDWIFERY

R. G. Iaw and M. Friedman. Pp. 434. Board £5.95. Paper £1.95. Granada Publishing, 1972.

Midwifery is a textbook suitable for pupil midwives in training but might be beneficial to a select few medical students as it gives a comprehensive but concise survey of modern obstetrics. The book is divided into the following parts:—normal pregnancy, abnormal pregnancy; normal labour, abnormal labour; the puerperium; and neonatal paediatrics. Illustrations clear and uncomplicated, accompany the obstetric knowledge in this most recent textbook on the subject.

The chapters on normal and abnormal pregnancy are written in a manner which makes reading a textbook an enjoyable and pleasant occupation but a great omission is the lack of stress in the modern methods of assessing the fetus in utero by the use of ultrasonics, total oestrogen levels, and human placental lactogen levels. Methods of assessing the fetus are important for the ultimate outcome of any single pregnancy, and even if these tests are not available in many units, it is important for the student of midwifery to be aware of recent advances.

The scope of the chapters covering labour and the complications which may occur, have been carefully planned so that with complementary practical management the reader should obtain invaluable information.

Only a small fraction of this book is devoted to the puerperium which surely must be regarded as a very important part of child bearing but appears to be rapidly losing medical interest now that the period of stay in hospital has been greatly reduced.

The refreshingly modern approach to neonatal paediatrics is exemplified in these chapters covering this subject but contains insufficient information.

This is a good textbook; well planned and written with a brief readable text yet maintaining clarity.

MARGARET POLLÖCK.

TEXTBOOK OF SURGERY

Ed. D. A. Macfarlane & L. P. Thomas. 3rd Edition, 796 Pages. £4. Churchill Livingstone (Edinburgh and London) 1972.

The appearance of a third edition of this textbook only eight years after the first edition is adequate proof of its popularity. The basic scope and format remains unchanged, but the material has been brought up to date.

Eight surgeons have combined to contribute the thirty-one chapters which cover such fundamental issues as infection, surgical metabolism, and the management of pain as well as the more usual gastroenterological, endocrine and vascular topics. Chapters on thoracic surgery, urology, neurosurgery and orthopaedics are also included.

The standard of the contributions is uniformly high, the text being lucid and comprehensive. The authors have resisted the temptation to include minutia and controversial material. At the end of each chapter a few relevant references are provided for those who wish to pursue the subject matter in more detail. The book is well illustrated by 222 black and white drawings and diagrams.

The textbook can be unhesitatingly recommended to undergraduate medical students studying surgery.

M. H. IRVING.

ANAESTHESIA FOR MEDICAL STUDENTS

Gordon Ostlere and Roger Bryce-Smith. 7th edition. Pp. vii + 139. £0.90. Churchill Livingstone 1972.

The first edition of this popular little book for medical students was published in 1949. It is once again apparent, even from a cursory inspection of the Seventh edition, that none could know better the desires and requirements of medical students (literary or otherwise) than the ex-Cambridge and Barts anaesthetist author of the classic 'Doctor in the House' and a senior consultant and medical editor from the teaching hospital of our oldest university.

It must be remembered that this is a book for medical students; it is not, and does not claim to be, a cookery-book text of anaesthesia. An individual is no longer expected to be a callow student one day and to be able to practice medicine independently the next, as was often the case in the past. The medical curriculum is, or should be, directed towards putting the general possibilities before the student in order that he can decide to which specialty (including general practice) he will devote his life; detailed technique in any field should be left to post-graduate education. If it is considered in this light this volume has always succeeded admirably and the amazing feat has been achieved of bringing the present edition up-to-date without making it too bulky or costly for the pocket of the student.

It is well known that the style of this work is colloquial but it is not written in slovenly English or modern slang. The delightful little anecdotes which characterise it continue to pursue their way in and out of Harley

Street and the shrubberies of Country Houses; they have, perhaps, the flavour of medicine before the N.H.S. but they are of the Wodehouse tradition of British humour, which permeates the whole book and to which Richard Gordon is so worthy an heir. The descriptive writing is in fact so clear, readable and concise that one scarcely realises that there are no illustrations.

Wodehouse is also invoked to give instruction on the art of being an anaesthetist as well as the science of giving anaesthetics. The advice to the young aspirant to the specialty to be an unobtrusive Jeeves to the surgeon's Bertie Wooster in the operating theatre is apt; not in any servile sense but in that of being 'a kind of keeper', as that eminent psychiatrist Sir Richard Glossop once described it.

T. B. ROUITON

HUMAN BEHAVIOUR IN ILLNESS—Psychology and Interpersonal Relationships

Gillis and Biesheuvel. Second Edition. Pp. 217. £0.90. Faber and Faber—1972.

At first reading, this appeared to be a harmless and not unuseful book to recommend to nurses as a gentle introduction to human psychology, flirting with the lighter aspects of psycho-dynamic and behavioural theory. Some of us might be surprised to learn that the South African Nursing Council have an examination course in Human Relations for which this is a textbook. My eye was then caught by certain sentences—'People may be intellectually convinced that there are no mental or moral differences between black and white races, yet find physical proximity to a member of the other race distasteful'. The normal world conjured up reverberates with 'dressing for dinner', 'tennis on Sundays' and 'helping father with the car.' There is mention of the Japanese fear of 'losing face' and a habit of 'Bantu' children which would be considered greedy if done by a white child. We may be forgiven for querying the relevance of this book to a country where the vast majority of the population are not members of the ruling race. The Algerian psychiatrist Frantz Fanon has described (1) the double-think of applying post-Vienna Circle and Popperian empiricism to a racist society by the medical profession, in the interests of a liberal humanism. Psychological behaviour and diagnosis differ enormously in different cultures (not races—German has shown that Ugandan students have similar patterns of psychiatric disturbance as British students as against the general Ugandan population (2)). African culture in relation to psychopathology is presumably included in 'quacks, faith healers, hypnotists, mind readers and half-baked charlatans.' This book is at best superficial, at worst dangerous precisely because of the authoritarianism under the liberal cloak.

(1) Les damnés de la terre, 1961.

(2) Psychiatric morbidity amongst a Ugandan Student Population—B. J. Psychiat. 115, 1323-29.

ROLAND LITTLEWOOD.

SAILING CLUB REPORT

Friday, June 28th did not prove to be the most popular day for our second regatta of the year. Only twenty folk turned up at the Welsh Harp Reservoir during the afternoon. We were able, however, to hold several single handed and crewed races. We managed to rig five fireflies which provided plenty of entertainment. It was an overcast day, but a wind of 1-2 helped to propel the craft around the course.

Tony Williams dominated the sailing, but he was given a few challenges by some intrepid sailors. Nobody capsized or sank which was rather exceptional! Unfortunately the cups belonging to the club have been mislaid and they will not be presented until October when we shall hold our next regatta.

This is an ideal opportunity to have an early dig at any freshers who would like to hear about our club's activities. We have two sailing haunts i.e. the Welsh

Harp Reservoir where we sail our firefly dinghies; and Burnham on Crouch, Essex, where we sail our two Enterprises. We have team racing from October to May against other University clubs. This year we hope to enter two teams. We sail at Burnham throughout the year, but especially during the summer with the other London Hospitals, when we have access to many boats. Next year, we look forward to new barge accommodation at Burnham, which will make life much more comfortable there at weekends.

During October we shall be holding a one day regatta in London, where we would like to meet anybody interested in sailing, whether experienced or just keen to learn. We look forward to seeing you then. If you want to know any details, please contact me at College Hall, Charterhouse Square.

RICHARD WELLS.



SAINT BARTHOLOMEW'S HOSPITAL JOURNAL

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Editorial

On September 28th, Action on Smoking and Health Ltd. (ASH) launched a fund-raising appeal to denounce smoking as a socially unacceptable and unfashionable habit.

ASH, a unit of the Royal College of Physicians, already has a string of achievements to its credit, including the improvement of non-smoking facilities on London Transport, British Rail and certain Airlines.

But now they have a formidable task ahead of them, because this is a problem about which nearly everyone is aware, but with which very few sympathise.

It is the Government who have to take the initiative to introduce anti-smoking legislation, but this controversial issue is one that has been shelved on previous occasions, because the Party in power could not afford any unpopularity near a General Election, bearing in mind that around 50 per cent. of the adult male population in this country are smokers.

Despite the Royal College of Physicians' report on Smoking and Health, the extent of legislation so far has been the "Health Warnings" on cigarette packets, and the banning of television advertising. The first has had virtually no impact, because of the mere cautious pessimism of its content, and the latter has been completely overcome, by the now prominent advertising hoardings to be seen around the stadium of any televised sports event.

And yet the fact that advertising does influence consumption is well shown by the Russians, who do not allow any form of tobacco advertising, with the result that only 30 per cent. of the adult male populus, and hardly any women, are smokers!

Some of these advertisers have also managed to carry off the public relations job of the Century, by getting "By Appointment To Her Majesty" on the packets, when neither the Queen, nor any of the Immediate Royal Family smokes!

Indeed, one well known manufacturer actually had the wording changed to "By Appointment To His Late Majesty" following the death of King George VI. A doubtful boast!

If you sympathise with their cause, donations for this £250,000 appeal should be sent to:—

Action on Smoking and Health Ltd.,
11, St. Andrew's Place, London, N.W.1.

LETTERS

Dear Sir,

As I wrote in my last letter to the *Journal* in September, this continues to be a slack period of the year. On the business side, there are two developments regarding the Student/Staff Committee.

At a recent meeting, the question of two-week electives in General Surgery (and possibly General Medicine) at peripheral hospitals during the first year clinical was raised. The Academic Staff of the College are very much opposed to these, while the students are very much in favour. Such electives give students a chance to attend Ward rounds, Clinics and theatre lists individually and not as a group of a dozen or so. This allows closer contact with both patients and medical staff and gives the student more chance to learn ward routines. A teaching hospital such as Bart's certainly has a greater number of good teachers than any peripheral hospital can hope to have and the suggestion of electives is not intended as a direct criticism of these teachers, but I think most teachers and students at Bart's would agree that the relationships between staff, students, nurses and patients are bound to be affected by the large number of students on each General firm. It is for this reason that the Students' Union will continue to press for official acceptance of first year elective periods.

The other development is a questionnaire on the Obstetrics and Gynaecology course at Bart's to provide a factual basis for discussion on improvement of the course. The questionnaire will be circulated to all students who have finished their "Obs and Gobs" and we hope for a good response. The questionnaire was compiled by representatives of the Students' Union Teaching Committee in consultation with Mr. C. Hudson.

As the 850th Anniversary of the Hospital approaches and plans for celebration to mark the occasion become clearer, the Union is intending to play its part, and I would therefore like to echo Mr. J. O. Robinson's request for people to help with the plans for this occasion.

Finally, I would like to take this opportunity to thank Dr. J. Malpas and Mr. I Hill for the great amount of help they have been to the Union in their offices as Dean and Sub-Dean. I think the discussions that they have made possible between themselves and the Union have considerably improved Student/Staff co-operation in dealing with matters of mutual interest. I would also like to welcome Professor R. Shooter and Mr. A. Fuller, who replace them, with the hope that such discussion will continue and expand.

Yours sincerely,
GUY ROUTH,
Chairman, Students' Union.

Dear Sir,

BARTSFILM started its "season" again on October 3rd, and will be showing films on most Tuesday nights during the coming Academic Year. I would like to take this opportunity to tell your readers about the Society, which has now been running (on and off!) for several years.

The object of Bartsfilm is to provide a good selection of popular films for the members of the Medical College and Hospital. We are entirely non-profit making and receive no Students' Union grant, having to pay for films and projectionists from takings at the door.

This year's films are advertised on the notice boards of the Hospital and Charterhouse Square, and include many recent Box-Office successes. Entry is 20p to all students, medical staff, nurses, and their guests. The details of each film will be publicised in the week before it's showing.

We hope that the support of all will allow us to keep this popular service going in future years. If anybody has any queries or suggestions we would be glad to hear from them.

PHILIP MORRISON
JON FULLER
ALLAN HOUSE
(Clinical students).

24, St. Mary's Street,
Ely, Cambs.

Sir,

In your *Journal* for September, Vol. LXXVI No. 9, there was no report of any game played by students. Is this a record of non reporting, or do students not play cricket, tennis, golf, etc., etc., during the summer? Not only do I deplore this omission, but also the suggestion in your editorial that students should be taught by professional teachers, instead of clinicians who have risen to the top of the medical profession by their ability and integrity.

Yours faithfully,
Dr. J. B. BAMFORD.

COMMENT: Secretaries of sports clubs please note!

In reply to the latter statement, may I suggest that any clinician who aspires to reach the top of his profession would not be much hindered by a short course in teaching techniques, if that was all that precluded his success as a good teacher as well.

Journal Christmas Card 1972

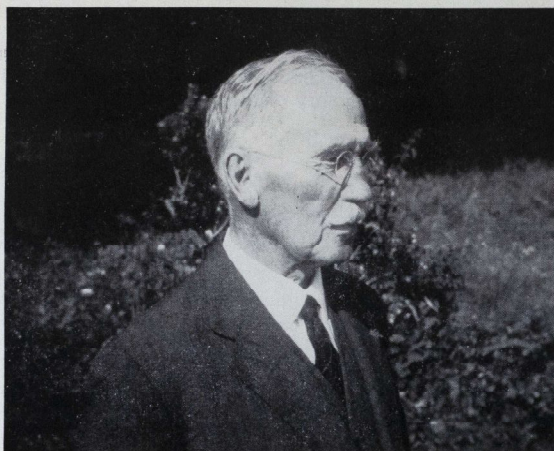
The cover of this year's Christmas Card is a colour reproduction of a print of St. Bartholomew's Fair (below). The Fair is to be revived in 1973 to commemorate the 850th anniversary of the Hospital's foundation.



Priced at 6p, the card will be available throughout the Hospital. Overprinting of names and addresses can be arranged at £2.55 per order; these orders should be placed NOW

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 should be clearly marked "CHRISTMAS CARD"

IN MEMORIAM - GEORGE GRAHAM



Dr. George Graham, consulting physician to St. Bartholomew's Hospital, died on November 12th, 1971, in his 90th year. Born on February 27th, 1882, at St. Andrew's Place, close to the present site of the Royal College of Physicians of London, he went to St. Paul's School where a quality of resolution already showed when he rejected the prospect of a safe career in the family business to pursue an interest in science which endured to the end of his life. He won an exhibition to Trinity College, Cambridge, and living there on a shoe-string, as he used to say, bred frugal habits which he never shed.

After taking a first in the natural sciences tripos at Cambridge he was awarded a senior open scholarship to Bart's and, completing the M.B. in 1908, he became house physician to Dr. Herringham and Dr. Drysdale. He proceeded M.D. in 1912 and worked for two years as an Otto Beit memorial fellow in Munich studying the protein-sparing action of carbohydrates. Then came a period of service in the army during the 1914-18 war after which he was appointed physician to the Royal Northern Hospital.

In 1920 he was elected F.R.C.P. and started work on the newly established medical professorial unit at Bart's, coming under the influence of Dr. Hurlley and Sir Archibald Garrod. There he embarked on his life-long interest in the chemistry of diabetes, describing renal glycosuria and being first in Britain to show that the blood sugar increases after food. In 1924, soon after his appointment as assistant physician, he established a clinic for diabetics in which he insisted on the need for accurate physiological control, a view which has come to be widely accepted.

As Dr. Wilfrid Oakley has pointed out, Graham was the last important link in this country with the pre-insulin era and he did more than anyone else in England to advance the treatment of diabetes in the years

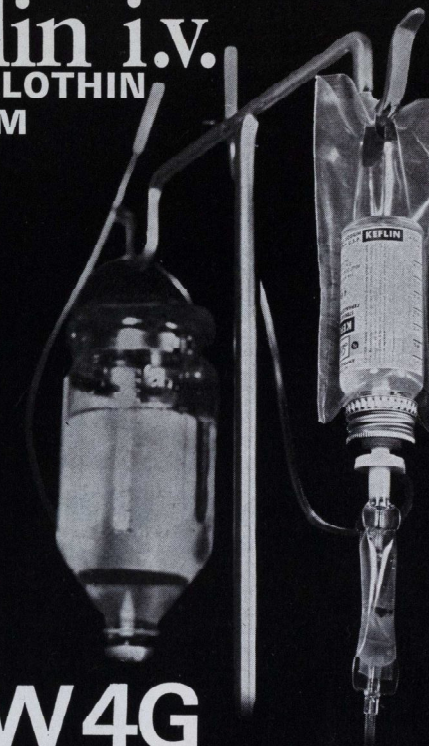
immediately preceding the discovery of insulin. His ladder diet, a regime of gradually increasing carbohydrate intake, was a notable advance corresponding with the work of Allen in America. With Miss Margery Abrahams he founded the department of dietetics at Bart's in 1928. On the retirement of Sir Percival Horton Smith Hartly in 1932 he became a full physician. In the second war evacuation of patients to Friern Emergency Hospital brought fresh responsibilities which he shouldered with characteristic energy.

After 22 years on the staff Dr. Graham left Bart's on February 27th, 1946, for an active retirement. He served as a member of the North-East Regional Metropolitan Hospital Board and was chairman of the Central Hospital Management Committee. He was elected Master of the Worshipful Company of Barbers and was instrumental in restoring the company's Holbein painting of "Henry VIII with the Barber Surgeons". Among many honours he was Goulstonian and Croonian lecturer, Harveian orator and senior censor of the Royal College of Physicians. He also delivered the Lettsomian lectures at the Medical Society of London and the Harben lectures. He had many interests outside medicine, particularly in history and archaeology, played bridge and golf regularly and was still watching rugby and cricket in the last year of his life.

He was a careful and kindly physician and a conscientious teacher who was among the pioneers in teaching scientific medicine to students and applying physiology to clinical problems. The great interest he took in those who had worked on his firm inspired an affection and loyalty that was reflected in the large gathering which assembled to celebrate his 85th birthday and shortly before his last illness he was planning a dinner at the new Barbers' Hall for his past housemen and chief assistants.

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ANNOUNCEMENTS

Engagements

ROSSER—COURTNEY—The engagement is announced between Dr. E. M. Rosser and Miss H. A. Courtney.

Marriage

LETCHWORTH—FLETCHER-RANDALL—The marriage took place between Dr. A. T. Letchworth and Miss G. M. Fletcher-Randall.

Deaths

BOATMAN—On September 14th, Andrew Francis Boatman, Flight-Lt. RAF Med. Branch, M.B.B.S., M.R.C.S.Eng., L.R.C.P.Lond., M.P.S. Qualified 1969.

GWILLIM—On September 2nd, Calvert Merton Gwillim, M.D., F.R.C.P., F.R.C.S., F.R.C.O.G. Qualified 1935.

DEVIN—On September 23rd, Dr. Conrad Hurley Devin, M.R.C.S., L.R.C.P. Qualified 1930.

RUGG-GUNN—On September 1st, Andrew Rugg Gunn, M.B., Ch.B.Ed., F.R.C.S. Qualified 1907.

WILSON—On August 28th, John Dennis Wilson, F.R.C.S. Ed. Qualified 1935.

Changes of Address

Dr. and Mrs. D. H. Cockell have moved to 376, Firs Lane, Palmers Green, London, N.13.

K. W. Leech, Esq., has moved to 10, Cambridge Road, Sandy, Beds.

DAY NURSERY AT BART'S

As the result of a survey held in May, 1972, the planning department has suggested that there is not enough demand for a day nursery at Bart's and that costs would be high.

Yet we are already 18 parents in number with 25 children ready to start.

Do you need day care facilities for your child?

Would your wife be able to return to work in this hospital?

We need your support and ideas.

CAROLE HUDSON, Ext. 384.

SUSAN DANDRE, Ext. 458.

This edition contains a monograph on diabetes mellitus, compiled as an up to date review article on those aspects which are amenable to investigation and treatment. I should like to thank all those concerned in its preparation.—Fditor

(1) THE CARE OF DIABETICS

by K. O. Black and P. I. Adritt

The introduction of so many new insulins and tablets has made the treatment of diabetes seem rather complicated but with a working knowledge of the basic principles it is not really difficult to make the correct choice of diet and to decide whether oral agents or insulin should be prescribed for a particular patient. The two most important guideposts are body weight and evidence of absolute insulin deficiency. Patients presenting with extreme thirst, polyuria, weight loss and ketonuria are insulin deficient and they will consequently need insulin. For obese diabetics, often women with pruritus vulvae but without symptoms of insulin deficiency, the treatment is by a diet so restricted in calories as to produce a gradual fall in body weight. Between the two extremes there is a place for carbohydrate restriction and if necessary oral hypoglycaemic agents or insulin. Separate sections are devoted to oral therapy and diet.

Insulin

Indications. Insulin is essential in the treatment of diabetic ketosis. It should also be given in childhood and throughout the growth period. Children may improve after stabilisation but it is better to continue insulin even if the dose is very small rather than risk a check in growth and development. Adults who have lost weight before treatment or who are much underweight should have insulin. As a rule underweight patients will not put on weight without insulin and overweight patients will not reduce weight while having insulin.

Insulin is also required in cases where diet and oral agents have failed and to tide over acute complications.

Soluble insulin is given twice daily because of its short action. The ordinary preparation (insulin injection, B.P.) is very acid but neutral insulin is now available with a pH around 7. Patients already on soluble insulin and doing well should be allowed to continue. Because it has a short action and the dose can be adjusted up or down quickly it is particularly effective in acute episodes such as severe infections, surgery and pregnancy. The term brittle diabetes is used to describe an unstable form in which the diabetic state fluctuates unpredictably and is difficult to stabilise. It responds best to two daily injections of soluble insulin. In some cases the insulin action wears off before the next injection allowing heavy glycosuria and high blood sugar levels. When this happens some intermediate acting insulin such as isophane may be added to each injection of soluble.

Modified insulins. In response to the demand for an insulin that needs to be given in only a single daily injection a number of modifications have been produced with a prolonged action. The action of insulin can be prolonged either by adding protein or by altering the physical characteristics so as to produce an amorphous or crystalline suspension which is absorbed more slowly than soluble insulin.

An example of the former is Protamine Zinc Insulin. A small morning injection works well in many cases but with larger doses some soluble insulin must usually be added to cover the daytime carbohydrate. Some of the soluble combines with free protamine so the ratio of S.I. to P.Z.I. should be high, say 2:1. Isophane insulin acts very much like this 2:1 mixture and may

be given as a single morning injection with the addition of a little S.I. if necessary.

Insulin zinc suspension is a 3:7 mixture of amorphous and crystalline insulin, the action of which may be shortened by the addition of I.Z.S. amorphous or lengthened by I.Z.S. crystalline. Biphasic insulin (Rapitard) is a suspension of bovine insulin crystals in a solution of porcine insulin. It may be given as a single morning injection or twice daily as an alternative to the soluble and isophane mixture in brittle diabetes.

Education and Surveillance.

A diabetic unit provides a co-ordinated program to teach the new diabetic the simple physiology of diabetes, how and when to do urine tests, how to manage diet and insulin and what to do in case of hypoglycaemia, intercurrent illness and other contingencies. Such instruction is best given by a short stay as an in-patient during which the patient should learn how to recognize and treat the earliest symptoms of hypoglycaemia. Sound training pays dividends in improving the standard of treatment and reducing unnecessary hospitalization.

Obviously the most careful plan of treatment is fruitless unless it is actually carried out. In a study at Leeds home visits showed that in more than a third of patients what they actually ate bore no relation to the diet prescribed. Initial training is apt to be forgotten and errors creep in over the years so some form of surveillance is essential. This is usually provided by visits to a diabetic clinic or doctor at intervals of 1-3 months, sometimes longer. Such consultations are of necessity brief and confined mainly to enquiry about urine tests and hypoglycaemia with advice on adjustment of insulin dosage, diet etc. Valuable as this is there is also the need for continued education which means giving time to listen to what patients have to say, to questions which may seem irrelevant and time for patient explanation which may have to be repeated more than once. Though scarcely possible in the short time available to each patient in a busy clinic, this can be accomplished by the grouping of patients for teaching so that the time of the doctor, medical social worker and dietitian may be spread over 6-10 patients at once. An added advantage is that patients gain confidence in a group to speak more freely of problems and errors than they would in the more conventional atmosphere of the consulting room. For instance, someone admits forgetting the morning injection of insulin, others follow suit and it becomes clear that this is by no means a rare misadventure. By comparing their experiences under professional supervision patients learn how to solve their problems more effectively than by formal instruction which is apt to fall on deaf ears. With a little experience it is possible to combine free discussion with a program of formal instruction in urine testing, diet, technique of insulin injection, precautions for the diabetic driver etc. in which physician, dietitian and medical social worker all participate.

Aims of Treatment

There can be no doubt that treatment is efficacious in relieving symptoms such as thirst, wasting and pruritus and in preventing early death from ketoacidosis. More controversial is the influence of accurate control of blood sugar on vascular disease in the eyes, kidneys, heart and limbs. There is some evidence that vascular changes can

occur in early cases even when the blood sugar is normal but even if this is true there is still the question whether treatment can influence the rate of progress of degenerative changes; in other words whether bad control may make the inevitable worse. Even if vascular changes can arise without hyperglycaemia it may be possible to retard their progress by accurate metabolic control. On this crucial issue the evidence is conflicting. Of 85 publications reviewed by Knowles, 51 thought that bad control hastens vascular degeneration, 26 thought it had no influence and 8 were undecided. One source of confusion is that many of the studies were retrospective, taking no account of deaths and drop-outs which could materially affect the conclusions drawn. Other workers have used a prospective approach, following up a group of patients as completely as possible over a period of years. 320 patients followed up at Barts from 1950 to 1959 were submitted to statistical analysis. Control was categorized bad, fair or good according to blood sugar levels, glycosuria and ketosis. At intervals over the 10 year period patients were examined for evidence of diabetic complications in the eyes, kidneys and heart and for lesions of the feet and nervous system.

Diabetic Control and Complications

Diabetic control	Retinopathy	Nephropathy	Coronary disease	Foot lesions
Bad (46 patients)	20%	22%	37%	20%
Fair (175 patients)	18	15	23	6
Good (99 patients)	14	8	16	3

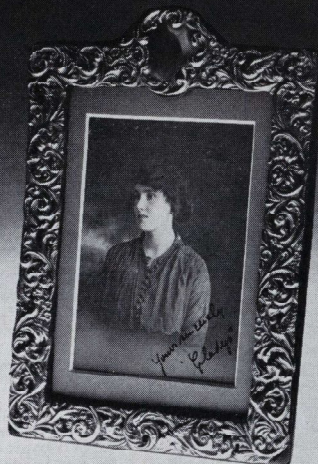
There is a decrease in the rate of complications as we move from bad to good control, the gradient being most noticeable in the case of diabetic foot. Although the differences are not great, they are remarkably uniform. Thus it appears that in this group of 320 patients followed for 10 years those with good control fared somewhat better than those whose diabetic control was bad. It seems that no treatment now available can entirely prevent complications but these results support the view that careful diabetic control does have some effect in restricting the progress of degenerative complications.

Oral hypoglycaemic agents

Although a variety of drugs including monoamine oxidase inhibitors and beta blocking agents for example reduce blood glucose under some circumstances, a therapeutically useful hypoglycaemic action is provided only by the sulphonylurea or the diuretic group of drugs.

Loubatières first recognised hypoglycaemia produced in typhoid patients during treatment with an antibacterial sulphonamide (para amino benzenesulphamidopropylthiadiazole), and many thousand related compounds have been screened subsequently. The sulphonylureas in common use however are few, namely tolbutamide, chlorpropamide, and the more recent glibenclamide. The toxicity of all these compounds is low and the most significant difference between them is their length of action. Chlorpropamide is long acting, being excreted unchanged and with a half life of some 36 hours.

Glibenclamide and tolbutamide are metabolised with shorter half lives of 6 hours and 4 hours respectively. All these drugs will produce symptomatic hypoglycaemia. This can be particularly dangerous with chlorpropamide which should be used with caution



Original photograph circa 1920

This could have been Gladys Pearson's last picture

Fifty five years ago Gladys Pearson was diagnosed as a diabetic. Gladys was condemned to a life of almost impossibly rigid diet, with many spells of hospitalisation. The outlook for Miss Pearson was bleak.

But in 1921 Banting and Best made a discovery of tremendous importance: they demonstrated the vital rôle of insulin.

Soon after this discovery Burroughs Wellcome commenced manufacture of the essential hormone in the UK. Consequently, Gladys and other diabetics were soon able to benefit from this breakthrough. Except for brief non-insulin periods of treatment in the early days, Miss Pearson

has been prescribed Wellcome* Insulins since they were first manufactured.

The use of crystalline insulin was pioneered by Wellcome whose considerable pharmaceutical experience, expertise and extensive production facilities have contributed fully to the comprehensive range of insulins that are the lifeline of diabetics today.



(Recent photograph)

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especially in elderly patients living alone when hypoglycaemic coma might last for some days with a possible fatal outcome.

Sulphonylureas stimulate insulin secretion from the pancreas but the long-accepted view that this is the sole mechanism of action of these drugs has been questioned from time to time. It is often difficult to demonstrate increased levels of circulating insulin in diabetics on long-term treatment and it has been suggested that increased peripheral glucose utilisation or decreased glucagon levels may contribute to the hypoglycaemia. These drugs certainly have a variety of effects including a therapeutically useful antidiuretic action and a sometimes troublesome antabuse effect.

The disappointing aspect of sulphonylurea treatment has been the large number of secondary failures in patients initially well controlled on these agents with perhaps 5-10% of patients failing each year of treatment.

The diguanides in use in this country are metformin and phenformin. Metformin is excreted unchanged whereas phenformin is mainly hydroxylated. Both are prone to cause gastrointestinal upset but more seriously, a number of cases of fatal lactic acidosis have been reported with phenformin. Most of these patients have been ill for other reasons, often with renal disease and diabetics may show lactic acidosis on other treatments. Nevertheless there must be reservations about administration of diguanides to patients with significant renal failure, or to patients who are shocked or hypotensive or those undergoing major surgery.

The way in which the diguanides reduce blood glucose level is uncertain. It is remarkable that they have little effect on blood glucose of non-diabetic patients and that even in maximum therapeutic doses they never produce hypoglycaemia. Their most important actions are probably to increase muscle glucose uptake and to decrease gluconeogenesis. Impairment of intestinal glucose absorption is described but this seems unlikely to be important in producing a hypoglycaemic effect since there is a reduction of the fasting blood glucose level.

The question which remains is when the oral hypoglycaemic agents should be used. This is all-important since the suggestion that both tolbutamide and phenformin are associated with an increased mortality with an excess number of deaths from cardiovascular disease. This finding has been questioned and some workers have found tolbutamide to have a significantly beneficial effect on cardiovascular disease. Whatever the truth, it would seem best to prescribe oral hypoglycaemics only when a thorough trial of dietary treatment has failed to control the diabetes. The choice between sulphonylurea and diguanide is governed mainly by the patient's body weight. The diguanides tend to promote weight loss when compared with the sulphonylureas and should therefore be the drug of choice in the obese diabetic whilst at the same time being contraindicated in the underweight patient. The explanation for the weight reducing action of the diguanides is not clear. They may interfere with intestinal absorption, they certainly promote glucose entry into muscle cells rather than adipose tissue and this is not simply an anorectic effect.

(2) DIETARY MANAGEMENT OF DIABETES MELLITUS

by Miss A. E. Lace, S.R.D.

The aim of the diabetic diet is to keep the blood sugar level within normal limits, to control glycosuria and to achieve and maintain the individual's ideal weight (or preferably slightly under) for his height and sex.

The method of achieving this varies with the type of diabetes. The maturity onset diabetic is often overweight and weight reduction is the crux of the control of these diabetics. A dietary Assessment is made of the current food intake so that an appropriate level of Calorie restriction may be introduced.

There are two schools of thought about the prescription of reducing diets. Some physicians favour a strict diet, say 750 KCalories in the hope that over-indulgence will not increase the K Calorie consumption above 1,000 K Calories daily. Dietitians on the whole believe that a less severe regime of 1,000 K Calories is less likely to predispose to intermittent "binges".

Patients themselves often want a menu planned for them week by week and find that this is the only way they will stick to a diet, but this is a time consuming exercise. Chronic obesity amongst diabetics is a problem where motivation is hard to achieve until some of the complications of diabetes set in. Continued support from dietitians and physicians is essential.

It must be remembered that three nutrients provide energy as KCalories.

Atwater Factors are used to determine the energy value of a given weight of these nutrients.

1gm. Protein yields — 4 KCal.
1gm Fat yields — 9 KCal.
1gm Carbohydrate yields — 4 KCal.

	Factor	KCals
Thus: 200mls milk contains 7g Protein	4	28
(1 glass full)		
7g Fat	9	63
10g CHO	4	40
		131

Whereas: 1 average apple contains
10g CHO 4 40

In effect the feasible carbohydrate content of Low Calorie diets decreases with more severe Calorie restriction if protein containing foods are to be given in reasonable quantities.

750 KCal	50g CHO
1,000 KCal	70g CHO
1,200 KCal	100g CHO
1,500 KCal	150g CHO
1,800-2,000 KCal	200g CHO

The above is not rule of thumb and is only a guide. Economic situations will affect food choice so that the low income family is unlikely to achieve more than 1,500 Calories on 200gm CHO, whereas where there is no financial worry 200gm CHO may yield up to 3,000 Calories and more if alcohol is consumed.

In patients of normal weight on carbohydrate restriction, distribution of CHO, whether control is by diet

alone or diet and oral hypoglycaemic agents, should be relatively even throughout the day. Obviously the main emphasis will be on breakfast, mid-day meal and evening meal with in-between small snacks if appropriate.

Insulin-dependent diabetics will have their carbohydrate regulated to balance the peak of insulin activity which varies from one insulin to another.

As a general rule, most diabetics on insulin have been unable to maintain a reasonable weight in the absence of injected insulin and will normally have at least 120g CHO daily. A general guide to a child's requirements is a basic 100g CHO + 10g CHO for every year of age, e.g. a 15-year-old boy during the growth spurt will have 250g CHO daily. Equally an active man may require 250g CHO to achieve a reasonable energy intake.

For these patients on fixed carbohydrate intake, carbohydrate exchanges are used provided their I.Q. is sufficient to understand the system. Recently at Bart's we have introduced "Exchanges" in preference to gms. of CHO in anticipation of confusion at the time of metrication as applied to weights of food, e.g.,

- 10g CHO = 10gm sugar or glucose
- 10g CHO = 20gm bread
- 10g CHO = 100gm apple

One CHO exchange is therefore defined as the amount of a given food which will yield 10gm CHO. For most purposes a handy measure will suffice.

Thus the following is a brief list of the quantities of basic foodstuffs which yield 1 Exchange (10g CHO).

Food	Weight	Handy Measures
Apple, raw	4 oz.	1 medium
Baked Beans	2 oz.	1 tsp.
Bread	3/4 oz.	1 small thin slice
Breakfast cereals	3/4 oz.	3 level tbsp.
Banana	2 oz.	1 small
Biscuits, plain	3/4 oz.	2 biscuits
Flour	1/4 oz.	1 tsp.
Grapes	2 oz.	10 medium
Ice Cream, vanilla	2 oz.	1 tub
Milk	7 oz.	1 glass full
Orange	4 oz.	1 medium
Fresh orange juice	4 oz.	1/2 glass (tumbler)
Peach	4 oz.	1 medium
Porridge, cooked	4 oz.	4 level tbsps.
Porridge, raw	3/4 oz.	1 tsp.

In the absence of a need for Calorie restriction, foods to eat as desired are as follows:—

- Meat of all kinds, including poultry and offal—cooked without unknown quantities of flour, bread-crumbs, etc.
- Eggs, fish, cheese.
- Butter, margarine, oil, double cream, cooking fats.
- Salads, green vegetables.
- Tea, coffee (within milk allocation for day).
- Soda Water, Diabetic Fruit Squash and Diabetic minerals.
- Any liquid or tablet synthetic sweetener, sorbitol in moderation (excess Sorbitol may cause osmotic diarrhoea).
- Salt and sugar free spices, herbs and flavourings.
- Diabetic jams and marmalade.

FOODS TO AVOID

- (1) Sugar, sweets and chocolate except in emergencies. These can cause abnormal peaks of

blood sugar with subsequent hypoglycaemia on long acting insulin.

- (2) Cakes, pastries, and puddings of unknown CHO value.
- (3) Ordinary fruit squash, ordinary minerals, coca cola.
- (4) Jam, marmalade, honey, syrup.
- (5) Other CHO over and above quota.

CHO Distribution on different insulins using
150g CHO = 15 exchanges

	Soluble b.d. or Soluble & ISP b.d.	Lente	Sol. & PZI	Sol. & ISP mane
Breakfast	4	3	4	4
Mid a.m.	1	1	1	1
Lunch	3	3	3	3
Tea	1	2	1	2
Supper	4	3	3	3
Bedtime	1	2	2	1
Milk for tea through day	1	1	1	1
	15	15	15	15

An understanding of activity of insulin is important since some manipulation may be necessary if meal times are flexible although Diabetics should be encouraged to have regular meals.

Diabetics on insulin must always carry on them an easily assimilable form of CHO for use in the event of abnormal physical activity or delayed food consumption.

GENERAL POINTS

Diabetics should avoid excessive consumption of alcohol as this has been shown to cause difficulty in blood sugar control, with hypoglycaemic attacks if food is not taken with the alcohol.

Spirits contain no CHO, but Diabetic Minerals or soda water only must be used.

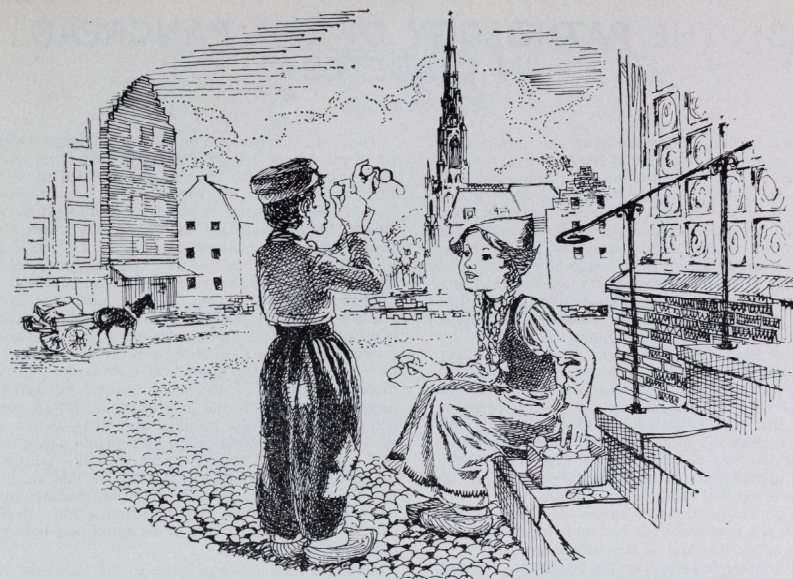
Dry wine contains little CHO but sweet wines or sherry and liqueurs contain a lot of CHO.

Draught bitter, Guinness and Pale Ale contain 1 exchange/half pt.

Fructose is an interesting sugar in that it does not require insulin for its metabolism, but ultimately will of course affect blood sugar levels. Schools of thought are divided relating to the desirability of the free use of fructose.

Diabetic foods tend to be expensive and are not an essential part of treatment. Some are free of CHO, others have a CHO content lower than their normal counterparts. In any event Diabetics should be advised to look for the available CHO indicated on the package and where the amount consumed exceeds 5g CHO this should be counted in their daily CHO intake.

It is of paramount importance that diabetics understand their condition and the need in every case to follow a diet. Some diabetics are better than others. Where possible, advice should be given so that the prescribed regime is compatible with the patient's domestic and work situations. This is more likely to be successful than a standard regime for every patient. Unfortunately the availability of Dietitians in certain parts of the country is restricted and time prevents many doctors from explaining the basic principles and tailor-making the diet to each patient.



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The search for knowledge... The telescope was an accidental discovery. The children of a Dutch spectacle maker named Lippershey were playing outside his shop with some of their father's glasses. As they peeped through them for fun, a chance accidental arrangement of the lenses surprised them with an unexpected close up view of a distant church spire. The spectacle maker, on being shown the new

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(3) THE PATHOLOGY OF THE PANCREAS IN DIABETES

by D. J. Galton

The major interest in the study of the pancreas in diabetes is not the histological features that develop during the course of the condition, such as loss of β -cell granules, hyalinization and fibrosis of the islets, but is centred around the dynamics of insulin secretion. Part of this surge of interest depended on the discovery of a specific and sensitive immunoassay for insulin which allowed a detailed record to be made of the output of insulin from a variety of pancreatic preparations. These pancreatic preparations vary from a collection of islets dissected from the pancreas and incubated in vitro, a perfusion apparatus for continuous flow over an assembly of islets, and a perfusion apparatus in which afferent and efferent vessels of the pancreas are cannulated. Alternatively the dynamics of insulin secretion can be followed in the intact organism. Tissue preparations of this sort have been used to elucidate the mechanism of insulin secretion and to define the factors which regulate this process. We will first describe this aspect of the subject and then describe the disorders of insulin secretion that occur in the diabetic.

If the pancreas, stomach, spleen and part of the duodenum are removed from rats and transferred to a perfusion apparatus, and if the coeliac artery is perfused with a phosphate-bicarbonate buffer and the total effluent from the portal vein is collected at 30- to 60-second intervals after a single passage through the pancreas, the characteristics of insulin secretion can be studied by introducing a bolus of glucose into the perfusion medium. When this is done there is an initial surge of insulin appearing in the effluent which is over by about 5 minutes.¹ Thereafter there is a slower output of hormone which can continue for up to 60 minutes, and which depends on the length of time of administration of the glucose load (Fig. 1). This biphasic response in secretion of insulin can be interpreted in the following way. It is assumed that there is a storage pool of insulin in the β -cell which is immediately released when glucose arrives at the islets. The slower phase of insulin release (which can be inhibited by agents such as puromycin which inhibit protein synthesis) is assumed to be due to synthesis and discharge of newly made insulin, either from amino-acid precursors or perhaps from a pro-hormone pool. The perfused pancreatic preparation reveals how sensitive the β -cell is to changes in glucose concentrations. Thus perfusion of the system with different types of glucose loads, including constant square-waves, step square-waves and increasing gradients, produce an immediate release of insulin mirroring the shape of the glucose load.

During the course of glucose perfusion of the excised pancreas it is possible to collect tissue for examination by the scanning electron microscope. This allows a three-dimensional picture of the β -cell surface to be built up before and after stimulation with glucose.² During pancreatic stimulation the β -cell surface resembles the pictures of the moon's surface obtained by the Apollo space-crafts; that is, there are a series of craters of varying sizes, some of which are occupied by granules. Thus insulin appears to be secreted as intact

Thus insulin appears to be secreted as intact granules, by a process of reverse pinocytosis. Electron microscope pictures of the interior of the β -cell show that the β -cell granules are aligned along a microtubular system which is probably part of the endoplasmic reticulum. During secretion the β -granules travel along the microtubules which run at right angles to the plasma membrane. At the cell surface the membrane of the granule fuses with the outer cell membrane and the granule is discharged (Fig. 2). The movement of the granule in the cell probably depends on the contractile properties of actin-myosin filaments which line the microtubules. This part of the process is dependent on Ca^{2+} ions, and in the absence of Ca^{2+} in the perfusion medium, secretion of insulin is impaired. Furthermore, agents such as colchicine and vincristine which inhibit contraction of mitotic spindles and microtubules, and agents such as hexylene-glycol and ethanol which stabilize microtubules, both interfere with the release of insulin induced by glucose.³ This suggests that the coupling of glucose to extrusion of insulin granules might be analogous to the excitation-contraction coupling process in muscle and it is to be noted that both processes require Ca^{2+} ions.

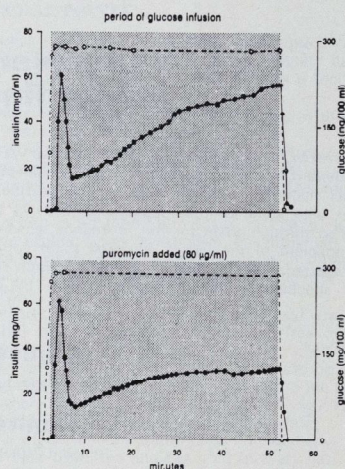


Fig. 1 (modified from Grodsky *et al* 1969)

Effect of constant infusion of glucose in the presence or absence of puromycin. Glucose was introduced at 2 mins.; puromycin at time 0. Protein synthesis as measured by the incorporation of valine C into TCA precipitable pancreatic protein was more than 95% inhibited.

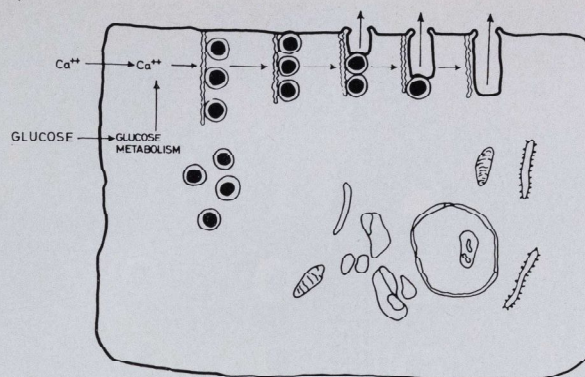


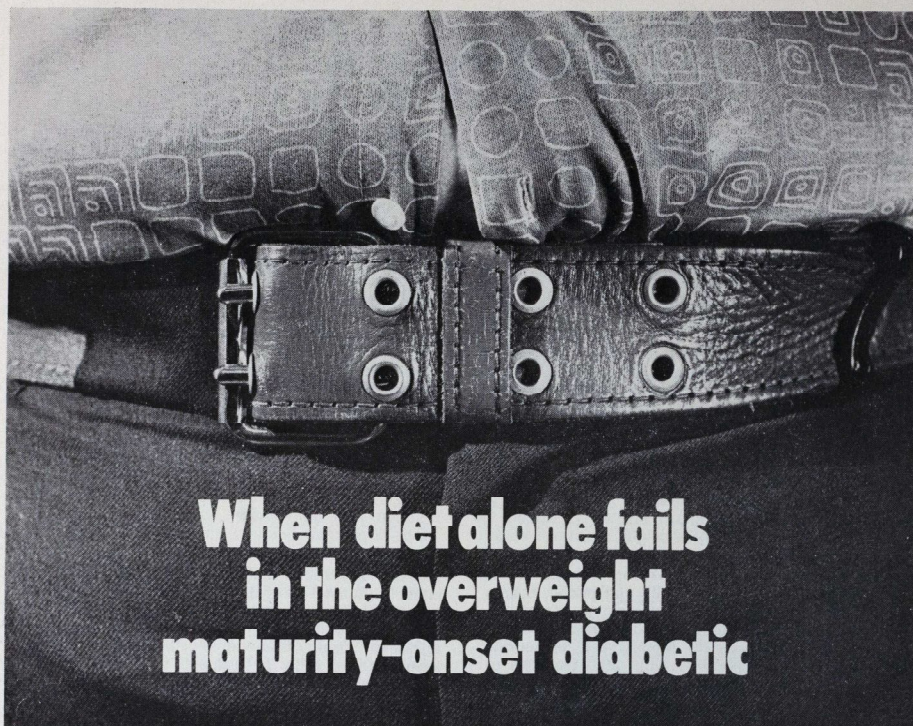
Fig. 2 Proposed model of insulin secretion. Intracellular glucose metabolism initiates the entry of calcium ions which trigger contraction or change in physical conformation of the microtubules with a resultant displacement of a linear array of beta granules to the cell surface. Release of beta granules in tandem would produce concavities on the cell surface with intervening cytoplasmic projections.

The details of how glucose links up with the secretion of insulin granules is not fully understood. Sugars such as mannoheptulose and glucosamine are potent inhibitors of insulin release and also interfere with glucose oxidation in the β -cell. Agents such as fluoride and iodoacetate that interfere with later reactions of glycolysis do not abolish the release of insulin induced by glucose. Thus it is reasonable to conclude that an early step in the metabolism of glucose is required for release of insulin. A likely metabolite signal is glucose-6-phosphate and in fact the islet concentration of glucose-6-phosphate correlates well with the rate of insulin release from the pancreas. However, another sugar, mannose, is an almost equally potent stimulus for the release of glucose and yet it is not metabolised via glucose-6-phosphate. So glucose-6-phosphate is unlikely to be an obligatory signal. If one tests other sugars for their ability to stimulate insulin release, a very peculiar specificity of the sugar receptor emerges. Thus glucose and mannose stimulate release of insulin whereas galactose, 2-deoxyglucose, 3-O-methylglucose and fructose do not. Such a pattern of specificity for a hexose receptor is unusual and has no counterpart amongst the glucose transporting systems or enzymes in other tissues.⁴

It is possible that glucose and mannose may activate the entry of Ca^{2+} ions, either directly or by causing a transmembrane flux of Na^+ which, via counter-transport, may lead to uptake of Ca^{2+} ions. In fact, an increased influx of $^{45}Ca^{2+}$ into islets can be demonstrated which correlates linearly with an increase in external glucose concentration. The increased Ca^{2+} ion content may stimulate contraction of the actin-myosin filaments of the microtubules in β -cells and result in extrusion of insulin granules. One further intracellular factor must, however, be discussed.

It has been found that cyclic-AMP and agents which either stimulate its synthesis, such as glucagon and entero-glucagon, or agents which inhibit its breakdown, such as theophylline or caffeine, also potentiate the release of insulin from the β -cell. However, all these agents fail to cause a sustained release of insulin in the absence of glucose. They may simply operate by accelerating the intracellular metabolism of glucose and, therefore, augmenting the production of the metabolite signal that couples to microtubular contraction. It is also conceivable that cyclic-AMP alone may affect the contractility of the microtubule protein and aid expulsion of the insulin granule. A summary of the factors involved in secretion of insulin is shown in Fig. 3.

Having considered the mechanism of insulin secretion it is interesting to consider if this process is impaired in early diabetes. During an oral GTT, it has been found in patients with mildly impaired glucose tolerance that the early phase in the secretion of insulin is reduced. Thereafter, the second phase of insulin secretion is often normal or slightly in excess.⁵ The delay in early secretion of insulin may well account for the initial hyperglycaemia during the GTT in the diabetic, and may contribute to the hyperglycaemia at 2 hours, when the second phase of insulin secretion is normally occurring, but is out of phase with changes in the blood glucose. The impairment in the first phase of insulin release is likely to be an early change in the development of diabetes, since it occurs in prediabetics. It has been found in the non-diabetic twin of a monozygotic pair of whom the other suffers from diabetes; also in the off-spring of parents, both of whom are diabetic; and also in prediabetics whose glucose tolerance test only becomes abnormal if they are pretreated with corticosteroids.



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Ibid

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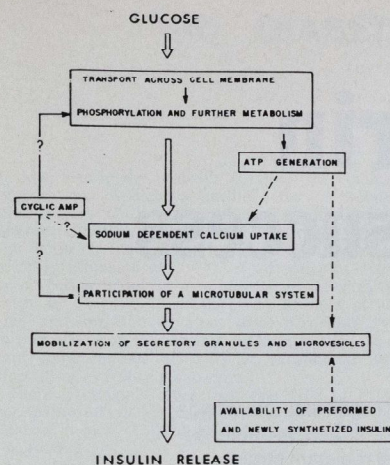


Fig. 3.

Hypothetical model for the stimulus-secretion coupling of glucose induced insulin release. The main pathway of glucose induced secretion is indicated by double arrows. Broken arrows refer to permissive factors. Also shown are the possible sites of action of cyclic AMP.

All this suggests there is a disorder in the rapid discharge of insulin from the β -cell in early diabetics. It is of great interest that this disorder can be reversed by prior treatment of the patient with theophylline.⁶ Theophylline, in common with other methylxanthines, is a powerful inhibitor of cyclic-3'-5' AMP phosphodiesterase. This enzyme is responsible for the destruction of intracellular cyclic-AMP. Inhibition of this enzyme by theophylline would therefore be expected to raise intracellular levels of cyclic-AMP. In prediabetics it is possible that cyclic-AMP is produced at reduced rates in the β -cell and that boosting the nucleotide level with theophylline restores the mechanism for release of insulin to normal. It should be recalled that cyclic-AMP is believed to be involved in the secretion of insulin by either augmenting the production of the metabolite signal from glucose, or by directly stimulating contraction of the microtubules.

The view that a pancreatic β -cell that is deficient in cyclic-AMP is less able to secrete insulin is supported by the following observation in healthy subjects. Propranolol (which is a β -adrenergic blocking agent and lowers intracellular levels of cyclic-AMP) impairs the initial phase of insulin release in healthy subjects. This inhibition can be reversed by theophylline at a dose that restores to normal the pancreatic secretion of insulin in prediabetics.⁷ Propranolol thus modifies the mechanism for insulin secretion, perhaps in the same manner as the genetic component does in prediabetics by interfering with the cyclase system. The cyclase system consists of adenylyl-cyclase, an enzyme which con-

verts ATP into cyclic-AMP and the phosphodiesterase which converts cyclic-AMP into 5'-AMP. The defect in prediabetics is unlikely to lie at the level of adenylyl-cyclase, since glucagon, a known activator of adenylyl-cyclase of the β -cell, has been shown to induce a normal discharge of insulin in diabetic subjects. It is possible, therefore, that the phosphodiesterase is overactive in the pancreatic β -cell of diabetics, and this may account for the effect of theophylline on discharge of insulin.

A final possibility which must be considered for the delay in discharge of insulin in diabetes is that the glucose receptor is defective and that the β -cell can no longer recognise hyperglycaemia as a signal for the activation of adenylyl-cyclase and discharge of insulin. As noted before, the glucose receptor on the β -cell is peculiar in that it reacts with mannose, but is not affected by galactose or fructose. However, if the glucose receptor were abnormal, the insulin release should be abnormal only if stimulated by glucose or mannose in the diabetic. This is not the case, and when tolbutamide or arginine is used as a stimulus, the initial discharge of insulin is still impaired in the early diabetic. The mechanism whereby amino-acids and tolbutamide stimulate release of insulin is not understood, but they do not operate via the glucose receptor of the β -cell. So a primary defect in the glucose receptor cannot be invoked alone for the delay in secretion of insulin in diabetes.

The simple facts that glucose is a highly specific stimulus for the release of insulin by the β -cell, and that in the new diabetic the rapid discharge of insulin is impaired, cannot be completely explained at the present stage of our information. This is because the exact details of the mechanism for release of insulin have not been fully elucidated. Several factors involved in the release of insulin (such as glucose receptors, an unidentified glycolytic metabolite, Ca^{2+} ions, cyclic-AMP and micro-tubules) have been described but the sequence of events leading to the discharge of insulin remains obscure. Until this information is available it will be difficult to pin-point the primary defect occurring in the β -cell in the pancreas of the diabetic.

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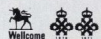
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(4) DIABETIC NEUROPATHY

by Anthony Hopkins

Dept. of Neurology, St. Bartholomew's Hospital

Diabetic neuropathy probably is one of the commoner complications of diabetes mellitus, but its frequency depends very much on clinical definition. Goodman, Baumel, Fränkel, Marcus and Wasserman (1953) in their book on the subject found the incidence to be variously estimated at 0-93% of all diabetics. Part of the confusion is due to ignoring the neurological signs which are 'normal' in people over 70—loss of ankle jerks, and impaired vibratory sense (Critchley, 1932). Further confusion is generated by the inclusion, as diabetic complications, of transient paraesthesiae which affect all of us from time to time.

There is certainly more than one type of diabetic neuropathy, and the pathological substratum is probably different in each. A useful way of subdividing the types is as follows:

CLASSIFICATION

1. *Symmetrical peripheral neuropathy*, usually with predominantly sensory symptoms and signs.
 - (a) cranial nerves
 - (b) isolated peripheral nerves.
 2. *Isolated nerve lesions* affecting either
 3. *Diabetic amyotrophy*—now believed to be due to lesions affecting simultaneously several peripheral nerves or nerve roots.
 4. *Autonomic neuropathy*.
- I shall discuss each of these groups in turn, considering clinical features, results of investigations and pathology, before finally considering the relationship of the onset and relief of these complications to diabetic control.

1. *Symmetrical peripheral neuropathy*. This type usually begins insidiously with painful burning, paraesthesiae and numbness in the toes, feet and lower legs. Occasionally the pains may be described as lightning pains. The hands are similarly affected by tingling and numbness in about 15% of this group. Examination shows absent ankle tendon reflexes and loss of vibration sense. In the more severely affected patients, light touch and sensation over the distal part of the lower limbs and joint position sense may also be involved. Distal weakness, particularly of dorsiflexion of the toes and feet, occurs in about 10-15% of this group. Occasionally this type of neuropathy may present acutely, and this seems to be particularly likely at the onset of diabetes, or after a period of lax control.

This type of neuropathy does not seem to be produced by any vascular complications of diabetes. It is virtually impossible to produce an experimental neuropathy by general ischaemia of a limb (Adams, 1943). There is no correlation between known diabetic gangrene and neuropathy (Martin, 1953), and subjects with non-diabetic atheroma do not develop neuropathy of any

significance (Hutchinson and Liversedge, 1956). Although some workers have put forward the ischaemic hypothesis, the current feeling now is that this type of neuropathy is caused by a metabolic disturbance. In support of this is the finding of widespread demyelination in peripheral nerves of affected patients. This is shown by teasing out single nerve fibres from osmium stained nerves.

On each fibre, up to 20 consecutive internodes can be studied. The myelin of each internode is the compacted cell membrane of a single Schwann cell, which begins forming myelin before birth. As the limb grows in length, the Schwann cells are stretched out. If the axon becomes demyelinated it will become remyelinated by Schwann cells which are recognisable by their short, primitive length. Consequently, even if active demyelination is not seen, evidence of remyelination is evident from a greater than normal variation in internodal length (Thomas and Lascelles, 1965). Such demyelination can be produced in the alloxan diabetic rat (Preston, 1967) and by known toxins such as diphtheria.

Demyelination produces slowing of conduction velocity (McDonald, 1963), and such slowing can be easily detected in clinical studies of diabetic patients (e.g. Gilliat and Willison, 1962). The method depends upon recording a muscle action potential from, for example, the extensor digitorum brevis muscle, and stimulating the supplying branch from the lateral popliteal nerve at the ankle and at the knee. The difference in distance between the two points, and the difference in latency of the response allows the calculation of a conduction velocity. Using much higher amplification, nerve action potentials can be recorded in normal subjects, but in diabetic neuropathy they are reduced in size or are absent.

2. *Isolated nerve lesions*.

(a) *Cranial nerves*. Cranial nerves III, VI and VII are those affected. Classically the III nerve palsy of diabetes spares the pupil, an important clinical point which may save the patient arteriography. The VII cranial nerve certainly is affected. A report from Israel (Korczyn, 1971) suggests that 66% of all patients with Bell's palsy are found to have impaired glucose tolerance, but this is far higher than the experience of English neurologists.

(b) *Peripheral nerves*. The peripheral nerves most commonly affected clinically are the lateral popliteal, ulnar and radial. More than one nerve may be involved at the same time, so that a mononeuritis multiplex results. The onset of the palsy may be rapid or slow. The relationship to trauma is discussed below.

In contrast to the pathology of symmetrical distal diabetic neuropathy, it is thought that isolated nerve lesions are caused by diabetic vascular disease. The best analogy is the mononeuritis (multiplex) of periarteritis nodosa, which may present to the neurologist as an

isolated nerve palsy. Nerve biopsy may show arteritic occlusion of a vasum nervorum. Pathological material from diabetics has not, curiously enough, been plentiful, but an important case has been analysed in detail by Raff, Sangalang and Asbury (1968). Their patient died of a pulmonary embolus shortly after the onset of a mononeuritis multiplex, and autopsy showed numerous small infarcts in peripheral nerves. In one nerve an occluded vessel was found, and its branches supplied three separate areas of infarction.

(c) Pressure palsies.

Pressure palsies are more common in diabetic patients than in the general population. Moreover, in an electrophysiological study of 103 unselected diabetics, Mulder, Lambert, Bastron and Sprague (1961) showed that conduction was slowed in the nerves of 9 subjects at a point where the nerve is commonly known to be liable to entrapment—e.g. the median nerve at the wrist. It appears that the diabetic nerve is in some way especially sensitive to pressure. This clearly weakens the strict division proposed above between a metabolic Schwann cell distal neuropathy, and a mononeuritis caused by infarction. The predisposition to pressure palsies of nerves damaged by toxin has been shown in another situation (Hopkins and Morgan Hughes, 1967). In these experiments, diphtheria toxin was used to produce a neuropathy in guineapigs. Electrophysiologically and histologically the neuropathy was much more severe in the soles of the feet, exposed to pressure from the floor of the cage, than in the limb nerves. If the animals were suspended for a short period, even before they developed the neuropathy, the changes in the plantar nerves were no more severe than in the limb nerves.

3. Diabetic amyotrophy.

This is the name given to a relatively uncommon neurological complication of diabetes in which there is weakness of pelvic girdle muscles and quadriceps associated with pain in the paretic muscles, and often also in the back. Occasionally a similar syndrome may affect the deltoid and biceps muscles of the upper limbs. The affected muscles atrophy and fasciculate. There may be some sensory loss, but usually in this type motor symptoms and signs predominate. This variant of neuropathy was first described by Bruns, in 1890, and in more detail by Garland (1955). Garland originally suggested that the amyotrophy was caused by a myelopathy, as he reported extensor plantar responses in some of his patients. This is no longer believed to be the case. Pathological studies are absent, as this is a type of diabetic complication which improves, but electrodiagnostic studies suggest that the affected muscles are at least partially denervated. Some of the patients probably have an isolated nerve palsy—e.g. the femoral neuropathy described by Calverley and Mulder (1960), but in other patients the pattern of widespread involvement of many muscles suggests a radicular pathology.

4. Autonomic neuropathy.

Diabetic diarrhoea, impaired sweating, postural hypotension and impaired response to the Valsalva manoeuvre are all believed to be due to autonomic dysfunction associated with diabetes. Careful clinical studies suggest that the lesion responsible for the anhidrosis is a lesion of autonomic efferents (Barany and Cooper, 1956). It is not quite so clear whether the postural hypotension

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*Redhill General Hospital. Applicants must telephone Mr. Ridley (Redhill 65030) not later than **Monday, 20th November 1972** in order to arrange an appointment to see the consultants concerned.

and impaired Valsalva response is due to impaired baroreceptor afferent supply or impaired efferent outflow to peripheral arterioles. The pathology of autonomic neuropathy has not been adequately studied, though changes have been reported in the ganglia. Unmyelinated fibres cannot be shown to be affected in the experimental diabetic or toxic neuropathies so far studied (Hopkins and Lambert, 1972).

Treatment

The question of the importance of good diabetic control in the treatment of neuropathy was answered by the careful study of Fry, Hardwick and Scott (1962). For the common distal sensory type of neuropathy they conclude that a period of poor control is related to the onset, and that . . . only about one third of the patients with symmetrical neuropathy showed satisfactory improvement. While not all patients whose diabetes was well controlled improved, no patient showed any significant improvement without good diabetic control²². The peripheral or cranial mononeuritic lesions recover reasonably well, presumably in most cases by regeneration.

If a patient has a treatable compressive lesion, such as a carpal tunnel syndrome, the nerve should be decompressed in addition to controlling the diabetes.

Diabetic diarrhoea is often helped, for unknown reasons, by a small dose of tetracycline. Trophic lesions can only be treated by local measures, and, in particular, rest.

Future research into diabetic neuropathy

Further histological and electronmicroscopic studies have probably only a limited part to play in the future, although the work of Fagerberg and Asbury in the United States and Thomas in this country has certainly clarified our ideas on the role of the Schwann cells and vascular supply of nerve.

There is already at least one pointer to a biochemical difference between diabetic and normal nerves, and that is their perverse resistance to acute ischaemia (Castaigne, Cathala, Dry and Mastropalo, 1966; Seneviratne and Peiris, 1968). Both these groups of works showed that, after a pneumatic cuff has been applied to the upper arm, conduction in nerves distal to the occlusion persists for longer in the diabetic patient than the normal. This work should now be extended on isolated nerves, and a source of supply, though biased, could be obtained from amputated limbs.

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(5) DIABETIC RETINOPATHY CLINICAL FEATURES & TREATMENT

by Enid Taylor

10,000 people are registered blind each year in England and Wales, and of these, the cause in 7% is diabetic retinopathy i.e. 670 cases.¹ This number has increased by one third in succeeding five year periods, and consequently considerable effort is devoted to research in this field. The retinopathy, which is essentially a disorder of retinal blood vessels, can occur at any age, may occur in a mild form giving no visual symptoms or progress to severe visual disability.

CLINICAL FEATURES AND CLASSIFICATION:—

Eight elements can be recognized in diabetic retinopathy, namely microaneurysms, haemorrhages, soft exudates, hard exudates, venous abnormalities, vitreous body changes, new vessel formation and glial proliferation.

(i) *Microaneurysms*—occur as small red dots scattered haphazardly over the posterior fundus. If isolated groups of microaneurysms are observed over a period of months, it is found that they may remain unchanged, disappear completely, or be replaced by an opaque white dot, soft exudate or small retinal haemorrhage. In fluorescein angiography studies, the microaneurysms fill with dye and are seen in far greater profusion than when viewed with the ophthalmoscope. (Fig. 1).

(ii) *Haemorrhages*—may be either retinal, pre-retinal or vitreal.

(a) *Retinal*—haemorrhages are small and round, slightly larger than microaneurysms, but otherwise sometimes difficult to distinguish from them on clinical appearance. In the classical description of 'dot' and 'blot' retinopathy, the microaneurysms represent the 'dots' and the small retinal haemorrhages the 'blots'. Haemorrhages unlike microaneurysms, do not fill with fluorescein, but obscure the underlying pattern.

(b) *Pre-retinal* haemorrhages, lying in the potential space between the retina and the posterior vitreous face, may take the form of the characteristic 'swallow's nest' haemorrhage with a concave upper and a convex lower border. If the haemorrhage is large and the subhyaloid space increased with shrinkage of the vitreous body the configuration of the haemorrhage will vary as the blood flows freely in the space with alteration of head posture. Subhyaloid haemorrhages may clear completely in a few weeks, or be followed by permanent thickening and opacity of the posterior vitreous face overlying the haemorrhage.

(c) *Vitreous* haemorrhages are seen when the posterior vitreous face ruptures and blood spreads throughout the vitreous gel. Such haemorrhages may take many months or even years to clear and can permanently affect vision by leaving vitreous strands or opacities.

(iii) *Soft exudates*—are whitish grey in colour, are $\frac{1}{4}$ – $\frac{1}{2}$ disc diameters in area and have blurred edges. They persist for some months and then gradually fade. Fluorescein angiography shows that these exudates are infarcts, representing areas of capillary closure, and are often surrounded by a ring of abnormal retinal capillaries and microaneurysms.

(iv) *Hard exudates*—are discrete, shiny, yellow, lipid lesions, which lie in and replace retinal tissue in the outer plexiform layer.² The deposits are found as small clusters, as rings of exudate or as large lipid plaques, most commonly at the posterior pole. Groups of microaneurysms or areas of microangiopathy and associated retinal oedema are found in close relationship to hard exudates, lying in the centre of well-defined rings or adjacent to other forms of exudate.⁴ (Fig. 2). Hard exudates are constantly deposited and reabsorbed and the resulting alteration in exudate shape and position can be assessed from serial fundal photography. The rate of absorption varies from a few months in the case of small deposits to several years with large lipid plaques.

(v) *Venous abnormalities*—consist of localized or generalized venous dilatation, irregular segments of venous constriction and increased venous tortuosity. The changes in calibre give the characteristic 'beaded' appearance to the veins. Generalized venous dilatation may regress spontaneously or following improved diabetic control.⁵

(vi) *Vitreous body*—changes were described in detail by Davis.⁶ He found attachments of the posterior vitreous face to areas of retinal neovascularisation, which were followed by thickening of the face over these areas. The posterior vitreous face then became detached, beginning at the posterior pole and spreading within hours or weeks to the periphery of the retina. This retraction of the posterior vitreous face passively pulls new vessels and glial tissues forward, and the traction exerted may cause the haemorrhages seen at this time.

(vii) *New vessels and*

(viii) *Glial proliferation*—These two features are best considered together. Groups of new vessels may arise from the optic disc (Fig. 3) or lie more peripherally in the retina in association with the retinal veins (Fig. 4). In Stage I⁷ the vessels lie flat in the plane of the retina and there is no visible surrounding connective tissue. These early changes may persist for up to 3 years. Rarely spontaneous regression of these new vessels may occur, but normally the retinopathy passes into Stage II with a rapid progression of neovascularisation and the deposition of glial tissue around the new vessels. Initially this is seen as fine translucent veils, but it soon thickens, extends around all the proliferating vessels and becomes dense and opaque. At this stage of rapid

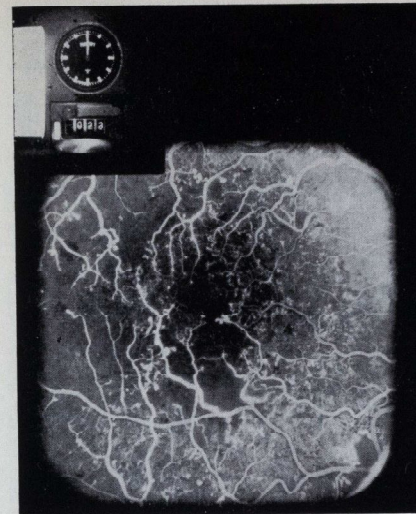


Fig. 1. Fluorescein angiogram showing numerous microaneurysms and areas of capillary closure (arrowed).

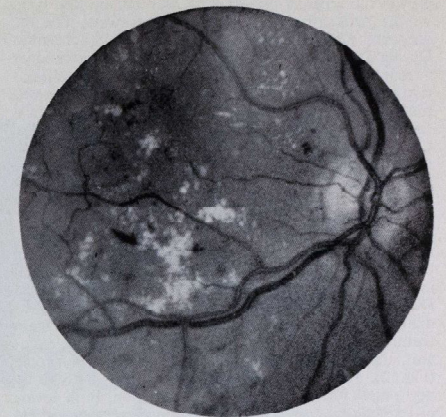


Fig. 2. Simple diabetic retinopathy with microaneurysms, haemorrhages and hard exudates.

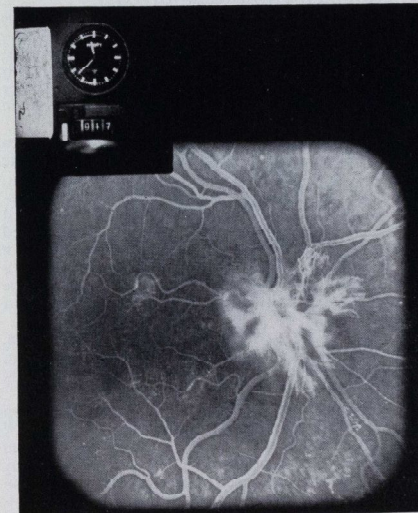


Fig. 3. Fluorescein angiogram in early venous phase showing leakage of dye from new vessels on the optic disc.

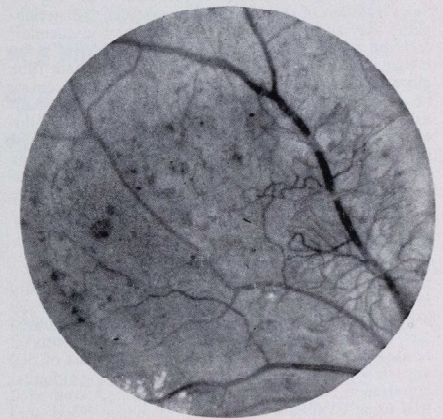


Fig. 4. Proliferative diabetic retinopathy—retinal new vessels in association with retinal veins.

growth the areas of proliferation may remain flat, lying on the plane of the retina or grow forward into the deepened subhyaloid space with retino-vitreous adhesions. During Stages I and II the risk of either preretinal or vitreous haemorrhage is greatest. This florid proliferation lasts 1-2 years and then passes to Stage III. At this time, the new vessels regress and the normal anatomical retinal vessels show generalized narrowing. The glial tissue becomes whiter and denser. It is now the main feature in the fundus, and may take the form of extensive opaque sheets or retino-vitreous bands. In Stage III, traction by the glial tissue may lead to retinoschisis or retinal detachment.

These eight features may occur singly or more commonly grouped together in recognisable pathological patterns. These groups are the basis of the classification into "Simple Diabetic Retinopathy" and "Proliferative Diabetic Retinopathy". The latter is also known as malignant retinopathy. In simple retinopathy, the main features are microaneurysms, haemorrhages and exudates, these lesions lying mainly at the posterior pole (Fig. 2). Proliferative retinopathy is characterised by new vessel formation or glial proliferation. Both forms of retinopathy can occur in the same eye, but simple retinopathy predominates in the elderly diabetic and proliferative changes in the juvenile-onset diabetic.

FACTORS INFLUENCING DIABETIC RETINOPATHY:—

There are many studies which demonstrate that the incidence of diabetic retinopathy depends on multiple factors. In juvenile diabetics, there is an increase in the incidence of retinopathy with increase in duration of the disease, with a frequency of 10 per cent. after 10 years rising to 80-90 per cent. after 25 years or more of diabetes.^{8,9} A similar relationship between incidence of retinopathy and duration is found when diabetes develops between the ages of 15-30 years. In contrast, when diabetes develops over the age of 40 years, retinopathy may be seen at the time of diagnosis with the incidence rising rapidly to 50 per cent. after only 10 years duration of diabetes.^{8,10} The prevalence of retinopathy may also be related to the degree of glycaemia¹¹ and the amount of glycosuria,¹⁰ the incidence being higher with persistently high levels of blood and urine glucose. It is doubtful if the degree of diabetic control has a similar effect upon the natural history of established retinopathy.^{12,13} In addition, retinopathy is influenced by some local ocular factors, hypertension¹⁴ and ocular hypotony¹⁵ exerting a deleterious effect, while carotid artery stenosis,¹⁶ central retinal artery occlusion,¹⁷ glaucoma¹⁸ and myopia¹⁹ may have a protective effect.

TREATMENT

(A) SIMPLE RETINOPATHY

(i) *Alteration of serum lipids:* Hard exudates are fatty in nature and attempts have been made to reduce the exudates by diet, replacing saturated by unsaturated fats. A controlled trial by King et al.³ using a corn oil replacement diet showed an increase in the rate of disappearance of hard exudates, an improvement in fundal appearance, but no improvement in vision. A controlled trial using Clofibrate (Atromid)²⁰ to reduce blood lipid concentration again showed a significant increase in the rate of reabsorption of exudates, but no improvement in

visual acuity. This absence of visual improvement in the presence of improved ophthalmoscopic appearance is not surprising, since histologically the hard exudates are replacing retinal layers and are a consequence of retinal damage.

(ii) *Photocoagulation:* The earliest lesion causing loss of macular function in retinal oedema. It has been shown that retinal oedema and later hard exudate formation⁴ are caused by leakage from pathological retinal capillaries and microaneurysms. The aim of photocoagulation (produced by xenon arc or argon laser) is to destroy such areas of microangiopathy by a small choroido-retinal burn. Existing retinal oedema then clears, followed by a slower reabsorption of hard exudates.

As oedema clears, there is an improvement in visual acuity, as there is no permanent damage to retinal tissue in contrast to hard exudates which actually replace retinal tissue.

Results from series of eyes with simple retinopathy treated by photocoagulation are not conclusive. In a small controlled series Irvine and Norton²¹ found no significant difference in visual acuity in treated and untreated eyes, whereas Rubinstein and Myska²² reported improvement in visual acuity in over 25 per cent. of treated eyes, and Spalter²³ improvement in 50 per cent. of treated eyes. Reports all suggest that as retinopathy develops slowly, prolonged observation is required and only when lesions develop which encroach on the macula should photocoagulation be considered. Best results can then be obtained with preoperative assessment with fluorescein angiography and limited photocoagulation to demonstrated areas of microangiopathy.

(B) PROLIFERATIVE RETINOPATHY

(i) *Pituitary ablation.* In 1953 Poulsen described his famous case of advanced proliferative diabetic retinopathy in a pregnant patient which regressed after post-partum necrosis of the pituitary led to pituitary insufficiency. In an attempt to repeat this regression, pituitary ablation has been advocated as empirical treatment in some cases of proliferative retinopathy.

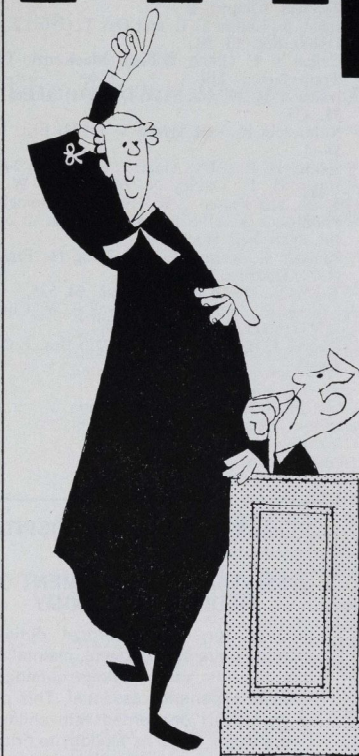
Indications for pituitary ablation have varied between groups, but generally older patients have tolerated the operation less well with a higher incidence of complications. Pre-existing severe renal or ischaemic heart disease are definite contraindications and all patients must be of sufficient intelligence to manage a complicated postoperative hormonal regime. Ocular indications are that there is a recorded progression of retinopathy over some months, consisting of new vessel formation in one or both eyes, but with good macular function in at least one eye.

Pituitary destruction may be produced by irradiation, either external or interstitial with Yttrium 90 implant, or surgically by hypophysectomy or pituitary stalk section.

Results of pituitary ablation have been assessed on both visual acuity and retinal appearance. Joplin et al.²⁴ found that there was a clear correlation between response and degree of ablation, the retinal angiography regressing more rapidly and completely with total ablation. In a controlled trial reported by Lundbaeck²⁵ it was found that one-third of the patients had visual improvement. Panisset et al.²⁶ reported a significant reduction in new vessels arising from the optic disc fol-

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lowing total ablation, although actual complete disappearance of disc new vessels occurred in only 11 out of 28 eyes at 2 years. No series has reported any improvement in glial or exudative lesions. The significant fluorescein changes following ablation appear to be an improvement in capillary abnormalities. At the present time, pituitary ablation is rarely justified. In selected cases it may halt the progress of some aspects of retinopathy but the improvement produced must be set against the considerable systemic effects suffered by the patient.

(ii) *Photocoagulation*: The obliteration of new vessels by photocoagulation has two aims. Firstly the prevention of haemorrhage by directly obliterating the potential bleeding points, and secondly the reduction of traction effects on the retina by eradication of new vessels before fibrous tissue is laid down, i.e. progressed to Stage III. These aims may be achieved by:—

- direct coagulation on groups of new vessels.
- coagulation of groups of new vessels and all areas of haemorrhage and microaneurysm formation.
- scattered coagulation burns over the whole fundus to reduce the total area of retina and hence its metabolic needs.

In all cases, direct coagulation on the optic disc and macular area is avoided.

If photocoagulation is successful, the observed effects are that flat groups of retinal new vessels disappear in 4-6 weeks. Forward groups of new vessels do not show the same response, but do become more tenuous and atrophy, while still maintaining some circulation. Following extensive retinal photocoagulation regression has been observed in small groups of new vessels lying nearer to the disc than the coagulations, as well as depression of some flat unsupported new vessels on the optic disc itself.²⁷ There is also a generalized reduction in venous calibre and a reduction in the number of small retinal haemorrhages and microaneurysms.

The reported results of visual acuity are less consistent. In 56 patients followed for up to 4 years, Krill et al.²⁸ found that 22 patients (39 per cent.) had visual acuity the same or better than before photocoagulation. Dobree and Taylor²⁹ found a retention of original visual acuity in 107 out of 174 eyes (i.e. 61.5 per cent.), whereas Irvine and Norton²¹ found no significant difference between treated and untreated eyes.

In conclusion, local coagulation of new vessels seems to be logical and improves the retinal appearance. It is without systemic effects unlike pituitary ablation. It is most effective in Stage I and II lesions, although long-term studies are still to be reported. It is hoped that this deficiency may be filled by the controlled collaborative studies at present being undertaken both in this country and abroad, in which untreated eyes act as a control in the same patient.

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The *Journal* wishes all its readers a Happy Christmas

Editorial

It has always been an enigma to me that a student can qualify as a doctor one week, and then fail to qualify as a doctor two weeks later. Yet this situation, or its antithesis, is a fairly common occurrence amongst those students who elect to take both "Conjoint" and the final M.B. examinations.

In effect, this means that one group of examiners decide the student is competent to practice medicine, and another group do not. Even more enigmatic is the fact that some clinicians are examiners for *both* these examining bodies.

Why then is there a need for two means of qualifying? (Or indeed three, including the Licence from the Society of Apothecaries.)

For an assessment of their relative merits, I would refer you to M. J. Vandenburg's article in the September issue of the *Journal*. But my main point is why have two Boards at all, if they are both fulfilling virtually the same function? Would it not be much more profitable, since so many students sit two exams anyway, to institute two compulsory examinations, one at a University level and one, perhaps Conjoint, at a National level, thereby standardising the graduates of all the British Medical Schools? After all, this is a practice which the British Nursing Profession has successfully adopted, and recently the American Medical Schools too.

In the USA, "State Boards" have been replaced by "National Boards", and all American medical students now take these National Boards, in three parts, (after pre-clinical training, clinical training, and internship) in addition to their university degree.

Such a National Examination in this country would serve to abolish any local prejudices against graduates from Provincial Teaching Hospitals, and make the standard of a British qualification much simpler for Foreign countries to assess, particularly within the Common Market. Perhaps even more important, this National examination would provide a perfect model on which to assess the medical and linguistic competence of immigrant doctors wishing to practice in this country.

Any objections to this scheme, on the grounds that the second chance at qualifying would be lost, could be overcome by increasing the number of times the final examinations were held per annum.

LETTERS

STUDENTS' UNION LETTER

Abernethian Room.

Dear Sir,

The Students' Union Council has now had its first meeting of the academic year, the main purpose being to elect the new executive of the Union and to prepare for the Annual General Meeting. The following gentlemen were elected:

Secretary: Paul Taylor
Assistant Secretary: John Morgan
Social Secretary: Tim Finnegan

I remain as Chairman for the present. The year representatives will be elected either at lectures before the AGM or at the AGM, as will the Teaching Committee and the Wine Committee. It is hoped that this year the pre-clinical Teaching Committee will be more active than it has been in the past, as this part of the course is still in very drastic need of change.

Following on from my letter of last month concerning the first year clinical, the clinical intake this year was 157. It is gratifying to know that the academic staff of the Hospital do at least realise that the problem has now reached crisis point, but this offers no satisfaction for the new intake, Bart's as a College simply cannot cope with these numbers and this situation should never have arisen; the only possible way to improve it is to allow first year students to visit other hospitals as an official part of the course to ease the overloading here. Considerable re-organisation of the lecture programme and Pathology course will be needed in the very near future, if Bart's is to retain any sort of reputation which it has at present.

I now meet the Dean once a week to discuss matters of common interest. He has suggested I bring other students along to these meetings, so if any clinical students have any matters they feel they would like to discuss with the Dean, they should contact me and I will arrange for them to come along. The Dean also intends to lunch regularly at College Hall, sometimes with the pre-clinical staff and sometimes with the students; and therefore if there are any pre-clinical students wishing to meet and talk with the Dean, will they please also contact me.

Yours sincerely,
GUY ROUTH,
Chairman, S.U.

Apology

In the November issue, we mis-spelt Dr. P. I. Adnitt's name in his article, "The Care of Diabetics."

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October 26th, 1972.

Dear Sir,

The Cambridge intake and some of the Oxford students take Part I final MB in December. This is an important examination and although an individual gets another chance next June, it is obviously to his advantage to pass it first time around.

Cambridge students have been around for some time now, but there seems to be a block in communication with respect to this little test! The mere mention of the word "Cambridge" can produce a withdrawal response in some members of staff, or be met with such phrases as "Gosh, well, you're going to have to work for that one, then," or "Of course, you're out of phase, aren't you?" and the whole affair is dismissed as rapidly as possible.

There is no doubt that the course of lectures in Therapeutics is very good, and there has also been a considerable effort in previous years to consolidate them by tuition from individual members of staff. Unfortunately, our exam, in five weeks' time, and by then only half a dozen lectures will have taken place. There is little opportunity to attend these in the second year, as for a large part of that time we are in residence in other hospitals.

We also have a paper in Pathology. Some of us are fortunate enough to have been allocated a revision month in November to find out what the Pathology exam entails, whilst others, less fortunate, have to attend the ENT department or one of the Surgery Revision courses, unlikely to be of use at this time, as people are far too worried about Part I to take much interest in clinical work.

Wouldn't it be better to admit that in this final year our courses do not coincide? The month of November could be a most profitable period if organised to our advantage. If only four mornings a week were made use of there could be a one to two hour teach-in on both subjects followed by a chance to look at pots and slides in the Pathology department, with supervision. This leaves all of, say, Wednesday and each afternoon free for us to develop our individual panic states in the library or elsewhere.

Yours sincerely,
A. G. McCULLAGH.

October 3rd, 1972

Dear Sir,

The clever and amusing article by Arnold Barnsley, who must be a relation of my old friend General Barnsley, RAMC, has brought to mind an amusing incident when I was the house Physician to the late Sir Norman Moore, Bt., PRCP. At that time a Mr. Bruce Clark was one of the surgeons at the Hospital and during his time of office he turned to one of his house surgeons and said, "Neme' you suffer from diarrhoea of words and constipation of thought." This has been a family quotation ever since.

Yours faithfully,
C. B. HEALD,
CBE, MD, FRCP.

ANNOUNCEMENTS

Births

TATHAM—On September 27th 1972, to Prudence and Dr. Peter Tatham a daughter.

CASSIDY—On October 20th, 1972, to Barry and Frankie (née Seccombe), a son, Richard Finbar.

Engagements

GILLARD—STONE—The engagement is announced between Dr. Malcolm George Gillard and Miss Karen J. Stone.

GILSENIAN CAHAN—The engagement is announced between Dr. Kevin Gilseanian and Miss S. F. Cahan.

Deaths

PIERCY-FOX—On October 11th, 1972, Erik Vaughn Piercy-Fox M.A., M.R.C.S., L.R.C.P. Qualified 1930.

SHARER—On September 15th, 1972, P. Sharer M.B.B.S. Qualified 1955.

Appointments

Dr. N. C. Oswald has been appointed honorary consultant in diseases of the Chest, to the Army.

Mr. J. A. McKinna has been appointed consultant surgeon at the Royal Marsden Hospital (Fulham Road and Sutton).

Changes of Address

Surgeon Rear Admiral G. A. BINNS has moved to No. 8 Residence, Royal Naval Hospital, Plymouth PL1 3JY. Tel. Plymouth 53740 Ext. RN Hospital 315.

J. BARNARD has moved to The Homestead, Billingford, Dereham, Norfolk Tel. Elmham 367.

JOURNAL RETIREMENTS

DEIDRE LUCAS AND MIKE WHITE HAVE RETIRED FROM THEIR POSTS ON THE JOURNAL AFTER LONG TERMS OF OFFICE IN VARIOUS POSTS. WE WISH TO THANK THEM BOTH FOR THEIR MANY SERVICES TO THE JOURNAL.

RUGBY CLUB BALL

Due to a variety of reasons, mostly financial, the traditional pre-Christmas Rugby Club Ball will this year be replaced by a BEGGARS' BANQUET. The emphasis will be to keep the ticket price to a minimum with dress to be appropriate to the soup kitchen and clubbank at 2 a.m. style. Things will begin to start from 10 p.m., so it is hoped that beggars can have a meal to their taste beforehand. There will of course be continuous feeding supplied throughout the evening by courtesy of our own voluntary 'relief to the poor' organisation. Rumours that this will be a college hall supper are strongly denied.

All star no-expenses spared group of entertainers are now being lined up, including live busker, more details on the mass publicity about the hospital. All that is left is for you to turn up at College Hall, Friday, December 8th being the date.

Ticket enquiries from }
JOHN HOLMES } Clinical
PAUL TAYLOR }
GRAHAM AITKEN }
STEVEN MANN, Pre-clinical

BIG STONE CLEANING PROGRAMME AT 'BART'S'

Scaffolding is now erected around the north wing of St. Bartholomew's Hospital for a three-months' cleaning and restoration programme, due for completion in January.

The building preservation and restoration company are to clean the Portland stone fabric and at the same time will restore portions of cornice and balustrading which have eroded through years of exposure.

Specialists from Peter Cox will clean the stonework by wet grit blasting under carefully controlled air pressure to ensure there is no damage to the stone.

Special attention is being given to reducing noise to an absolute minimum, and equally rigorous precautions are being taken to avoid spreading dirt and grit.

It is the first time that the north wing has been cleaned—but it is not the original 1730 stonework. Owing to earlier damage by London's atmosphere (before modern stone cleaning techniques were developed) the entire wing of Gibb's building had to be refaced with new stone.

The work is being carried out under the supervision of Mr. James Knowles, F.R.I.B.A., A.R.I.C.S., A.M.T.P.I., architect to St. Bartholomew's Hospital.

(A full report on the cleaning programme, by Mr. Goody, will be appearing soon.)

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PRIZES & SCHOLARSHIPS

Entrance Scholarships 1972-73

RAHERE STUDENTSHIP	Shepherd, H. A.
ENTRANCE SCHOLARSHIP IN SCIENCE	...	...	...	...	Smith, Miss B. C.
BORLAND SCHOLARSHIP	...	...	...	...	Not Awarded.
HELFEN CAVE MEMORIAL SCHOLARSHIP	...	...	...	...	Not Awarded.
EPSOM SCHOLARSHIP	...	...	...	...	MacKay, P. M.
ENTRANCE SCHOLARSHIP IN ARTS	...	...	...	...	Rainford, P. J.
JEAFFRESON EXHIBITION	...	...	...	...	Ashby, M. A.
SHUTER SCHOLARSHIP	...	...	...	...	Redfearn, A.

Internal Scholarships 1971-72

BRACKENBURY SCHOLARSHIP IN MEDICINE	...	...	...	...	Bramwell, Miss V. H. C.
BRACKENBURY SCHOLARSHIP IN SURGERY	...	...	...	...	Bramwell, Miss V. H. C.
Prox. Access	...	...	...	...	Davies, G.
MATTHEWS DUNCAN PRIZE (Gold Medal NOT Awarded)	...	...	...	...	Gillard, M. G.
Prox. Access	...	...	...	...	Clement, A.
WITHERS PRIZE IN OPHTHALMOLOGY	...	...	...	...	Noble, B. A.
	...	...	Clinical	...	Mogg, G. A. G.
	...	...	Theory	...	Dymond, D. S.
WEITZMAN MEMORIAL PRIZE	...	...	...	...	Oh, V. M. S.
Prox. Access	...	...	...	...	Davies, G.
JACKSON BURROWS PRIZE	...	...	...	...	Horton, M. A.
WALSHAM PRIZE	...	...	...	...	Hanning, C. D.
WILLETT MEDAL	...	...	...	...	Davies, G.
Prox. Access	...	...	...	...	Bramwell, Miss V. H. C.
SKYNNER PRIZE	...	...	...	...	Pihlens, Mrs. L. P.
Prox. Access	...	...	...	...	Erith, M. J.
ROXBURGH PRIZE	...	...	...	...	Gundry, D. R. T.
SYDNEY SCOTT PRIZE	...	...	...	...	Knowland, M.
KIRKES SCHOLARSHIP AND GOLD MEDAL	...	...	...	...	(to be awarded)
BENTLEY PRIZE	...	...	...	...	(to be awarded)
WIX PRIZE	...	...	...	...	Stoy, N. S.
Prox. Access	...	...	...	...	Lewis, C. A.
HICHENS PRIZE	...	...	...	...	Not Awarded.
KNOTT SURGICAL PRIZE	...	...	...	...	(to be awarded)
SENIOR SCHOLARSHIPS IN ANATOMY, PHYSIOLOGY AND BIOCHEMISTRY	...	...	...	(1st)	Cockcroft, Miss A. E.
	...	...	...	(2nd)	Boddy, Miss S.
FOSTER PRIZE	...	...	...	...	Cockcroft, Miss A. E.
HARVEY PRIZE	...	...	...	...	Boddy, Miss S. M.
HERBERT PATERSON MEDAL IN BIOCHEMISTRY	...	...	...	...	Wilson-Sharp, Miss R. C.
HERBERT PATERSON MEDAL IN PHYSIOLOGY	...	...	...	...	Moore, Miss J. M.
JUNIOR SCHOLARSHIPS IN ANATOMY AND PHYSIOLOGY	...	...	...	(1st)	Glading, Miss J. A.
	...	...	...	(2nd)	Love, Miss S. V.
TREASURER'S PRIZE	...	...	...	...	Not Awarded.
JUNIOR SCHOLARSHIPS IN CHEMISTRY, PHYSICS AND BIOLOGY	...	...	...	...	Gatoni, F. E. (1st)
PRIZE IN PHARMACOLOGY	...	...	...	...	Sutton, J.
PRIZE IN HISTOLOGY	...	...	...	...	(to be awarded)
SIR GEORGE BURROWS PRIZE IN PATHOLOGY	...	...	...	...	Cooke, D. R. M.
Prox. Access	...	...	...	...	Bramwell, Miss V. H. C.
STRAUSS PRIZE IN PSYCHOLOGICAL MEDICINE	...	...	...	...	Horton, M. A.
IAN HOWAT PRIZE (jointly)	...	...	...	...	(to be awarded)
	...	...	...	...	M. Fletcher and D. A. Pugh
	...	...	...	...	R. While and R. Barrett

MEDICINE CABINET RESHUFFLE!

Dr. J. S. Malpas was appointed Dean in November 1969 in succession to Dr. Arthur Jones. He came to the Deanery from the Medical Unit and has now returned to full-time Medicine with particular interest in the new subject of Oncology.

One of the first administrative actions of the new Dean was to divide and delegate the responsibilities of the Deanery. To do this, Dr. Malpas brought in Mr. I. McColl as Assistant Dean with responsibility for admissions. Following Mr. McColl's departure to take up the Chair of Surgery at Guy's in October 1971, I was appointed to this post for one year and found it very demanding and exciting. In 1971 Dr. I. Kelsey Fry was appointed Postgraduate Assistant Dean. This post is concerned with the organisation of the postgraduate courses available at this hospital and the in-course training of house physicians and surgeons. This continuing care in the needs of the graduate indicates recognition of the importance of training and teaching after qualification.

All Deans, as part of their duty, take a close look at the curriculum. Dr. Malpas was no exception. He personally revised all three years of the clinical course and the proposals were accepted by the Curriculum Committee, the Students' Union Teaching Committee and the College Committee. The adoption of the two-month module has given the curriculum a new look and, particularly in the first year, allows all to be long enough at Bart's to receive the stamp of the hospital. Dr. Malpas also compiled a very comprehensive Elective Curriculum for final-year students; this provides a wide selection of electives, both at Bart's and at other hospitals. Another popular development in teaching, instigated a year ago, has been the creation of the College Audio Visual Teaching Department. This transformation of the former students' refectory in the basement has been well received.

An innovation during Dr. Malpas' term of office was the constitution of the Staff/Student Committee when Paul Millard was Chairman of the Students' Union. In this Committee, as at any other time, all found easy access to the new Dean. All who have approached him have found his mind to be very receptive and open to new ideas, which have always received fair consideration.

Another committee instituted by Dr. Malpas was the Committee on the Ethics of Experiments on Students. This committee, with student representation, ensures that the protocol of any proposed experiment is carefully considered by members of the committee before approval is given to an experiment being carried out.

In the postgraduate field Dr. Malpas, assisted by the Postgraduate Assistant Dean and the Adviser in General Practice, inaugurated a 3-year vocational training scheme in general practice. This scheme, which started last July, is thought to be the first in the country in which a teaching hospital is linked with the Region.

No appraisal of the past 3 years would be complete without a reference to the Royal Commission on Medical Education. The recommendations emanating from the Todd Report have been the background to Dr. Malpas' period of administration. A large part of his work has been planning, through the Joint Policy Committee set up between St. Bartholomew's and The London Hospital Medical Colleges and Queen Mary College, for the implementation of these recommendations, particularly in relation to the multi-faculty complex to be built at Queen Mary College. Dr. Malpas had the job of explaining the implications of the Todd Report to the staff and to the students.

I am sure Dr. Malpas must have gained great satisfaction from the successful outcome of the negotiations with which he was directly involved for the Joint Chair and Academic Unit of Child Health which has now been established between St. Bartholomew's and The London Hospital Medical Colleges, and which is sited at Queen Elizabeth Hospital, Hackney. This manifestation of Todd was begun and completed during his term of office.

In addition to all this, Dr. Malpas has been a very active Vice-President of the Hockey Club, which he encouraged to win the Inter-Hospitals Cup this last season! He was also a very active President of Sports Day this summer.

In case this short appreciation should be mistaken as a premature obituary or retirement notice, I must point out that, having completed his three-year term of appointment, Dr. Malpas will now return full-time, and I am sure at full speed, to clinical work as a Senior Lecturer in the Medical Unit, with all our thanks and best wishes.

Dr. Malpas is succeeded by Professor Shooter. Professor Shooter was first appointed to the Consultant staff 26 years ago and there can be few who can rival his experience in college, hospital and university. It is a pleasure to welcome him as new Dean; I know we shall find him approachable and will come to relish his wit and benefit from his logic.

Another change this October has been the termination of nine years' service as Sub-Dean by Mr. I. M. Hill. This, again, is no premature retirement but preparation for taking over as head of his department of Cardio-Thoracic Surgery. Mr. Hill has accumulated an immense expertise in dealing with the varied duties of his office as Sub-Dean. The Sub-Dean deals with prizes, grants, curriculum details, elective and overseas clerkships, house appointments, and attends all the college academic committees, to name but a few. Individual advice and interviews are a particular feature of the office at this College and there are many students who can testify to Mr. Hill's expertise in that field. We can all wish him well.

THE 850th ANNIVERSARY

In January St. Bartholomew's Hospital will enter its 850th Anniversary Year. The Hospital's 800th Anniversary is still remembered by those who participated in it, and we hope that 1973 will be equally memorable.

Although final arrangements have still to be made and City permission obtained for some of the events which are listed, the following will give some idea of progress which has been made.

March 28th—ANNIVERSARY BALL. The City of London, whose history has been closely bound with our Hospital, has granted permission for us to open our celebrations with a Ball in Guildhall. We hope that this occasion, in a setting of great splendour will mark the long association and partnership with the City within whose walls our Hospital has stood through 850 years.

April 30th and May 1st—MEDIEVAL FEASTING will return to Bart's and the clatter of spoon, knife and pewter goblet will once again resound through the Great Hall under the eyes of Henry VIII. Minstrels will play, ballads will be sung, and boar's head, suckling pig and fish pie, from which fishheads will survey the scene from their pastry home, may be served. The guests?—from the Hospital, the City, and friends from home and overseas—with "gold" to spare.

May 5th—Bart's will "go to town". There are few places in London sufficiently large to house so many people. Our ideal was a building of great size, small price and comparative freedom—the answer, by great courtesy, Smithfield Market—absolutely clean, with a dance floor laid on the Grand Avenue, the best band we can find, the best food (much already offered as gifts), drink flowing from drays and decorations to satisfy the wildest dreams.

MISS LONDON 1972

By Jane Hackworth

The "Miss London" contest was organised by the *Evening Standard* in early October. The entry requirements were that one should be over eighteen, single, have a reasonable educational background, be a resident of London, and have a good working knowledge of the same. The contest was also to be judged on "personality and general appeal". From the thousand entries, four girls from each Borough were chosen to go through to the Semi-Finals—132 girls in all. I entered on a mad impulse, the main attraction being the first prize of a Jensen Healey. Also, because I was entering for the City Borough, which has the smallest resident population of them all, I reckoned on having statistically less opposition from other hopeful Jensen Healey owners!

(See facing page.)

May 8th, 9th, 10th, 11th and 12th—"WILLIAM HARVEY REVOLUTIONARY CIRCUS—80 Years of History of Bart's and Britain"—at the Henry VIII gate where so much of the story to be enacted must really have taken place—a viewing stand to be erected before the gate, with City permission. But more before 1973.

May 9th or 16th—VIEW DAY. SERVICE OF THANKSGIVING in St. Paul's Cathedral.

May 12th—BARTHOLOMEW FAIR—the greatest Medieval Fair in London re-presented from its inception in the 12th century to its decline in the 19th. Its size dependent upon the City—its content upon us. Ideas are pouring in. The Garter Stall is reserved—mead is being brewed—Bartholomew Babies (the origin of the doll) dressed. The Tinker is collecting his pans, the Gingerbread seller her recipes. Every idea is welcome in the Anniversary Office—Extension 7361—and plans will get off the ground as soon as it is known exactly how much of Smithfield will be made available.

ANNIVERSARY CONCERT—by the Bart's Choral Society under its conductor, Robert Anderson, will take place during the year at a date to be announced.

TICKETS for all events will be on sale by early 1973.

If you would like to know more about the Anniversary and the various commemorative items being commissioned for the occasion, among them a Commemorative Plate, Medals, Pewter Tankards, Medieval Goblets and Jewellery, please send a stamped addressed envelope to the Anniversary Office.

St. Bartholomew's Hospital,
57, West Smithfield,
London, E.C.1.
Telephone 01-606 7777, Ext. 7361.



JANE HACKWORTH AT THE FINAL OF
MISS LONDON 1972

A HISTORY OF THE ROYAL COLLEGE OF PHYSICIANS IN LONDON

By L. M. PAYNE

(The first of a series on the Royal Colleges associated with Medicine)

When in 1518 Henry VIII, at the suggestion of Cardinal Wolsey, granted to Thomas Linacre and five other physicians a charter founding the College of Physicians, his was not the first attempt that had been made to impart some organisation to the medical profession. In the year 1421 the parliament of Henry V took up the question of irregular practitioners of medicine and the House of Commons sent forward to the King a petition, sometimes called the Physicians' Petition, which premised that all except university graduates should be excluded from the practice of physic, and asked that a warrant should be sent to all sheriffs and to every practitioner of physic ordering that all those who intended to practise from that time were to present themselves within one of the English universities by a stated date to be examined and to receive a degree. Those who did not pass the examination were to be forbidden under penalty to continue in practise or to intermeddle with it until they were qualified. Although the petition received a favourable answer, and the lords of the council were to see that its recommendations were carried out, no action seems to have been taken. Two years later, in 1423, three physicians and two surgeons petitioned the mayor and aldermen of London, for authority to found a college for the better education and control of physicians and surgeons practising in the City of London and its liberties. The choice of the word 'college,' which in ordinary speech could be used for any company or assemblage of persons, may have been intended to make some distinction between the new conjoint body and the City companies. At least the College came into existence but lasted only two years. Its dissolution may have been hastened by the desire on the part of the surgeons to prevent the barbers from practising surgery—a view that is supported by the action of the physicians who a few years later assisted the barbers to obtain a charter (1462), while the surgeons were left unincorporated. This marked enmity between physicians and surgeons existed for several centuries.

The first parliamentary enactment about medical affairs was in the parliament of 1511/12 and it remained on the statute book until 1948. This Act which was directed against "a great multitude of ignorant persons" who daily within this realm exercised "the Science and cunning of Physick and Surgery," provided that no person within the City of London and a radius of seven miles should practise unless and until he had been first examined, appointed and admitted by the Bishop of London or Dean of St. Paul's with the advice of four doctors of physic. Outside the City this power was given to the bishop of the diocese or his vicar general. That this duty came under ecclesiastical control is in no way surprising as only the Church had a developed administration covering the whole country and capable of carrying out this function.

Nevertheless it would seem that this Act was insufficient and was superseded as far as London was concerned by the College charter. The authority it conferred was similar to that previously given to the bishops, namely to grant licences to practise within the City and a radius of seven miles and to punish those not so licensed by imprisonment or a fine of £5 for every month of unlicensed practise, half to go to the King and half to the College. Four years later the powers of the College were in theory extended to cover the whole country; in practice, however, it was not yet equipped to carry out this added responsibility, but in 1559 we find Walter Hawgh, physician of Norwich and Hugh Glynn, physician of Chester commissioned by the College to take proceedings against empirics in their own district.

The first officers of the College were a President, eight Elects from whom and by whom were chosen a President, and four Censors who exercised discipline over all physicians and the medicines and prescriptions they used, and on whom soon fell the duty of visiting apothecaries' shops and destroying unsound drugs. These visitations were generally followed by a dinner in a local tavern. Records of such visitations exist for the years 1724 to 1858. For example on 1st July 1751 the Censors went to a Mr. Santell in Newgate Street, whom they found "confined with the Gout and no Body to show Medecines." On this occasion they "met at the College at ten, [and] dined at the Kings-arms in Cornhill at four." The last volume in this series (1856-8) is of interest for its reference to weights and measures, implying an extension of the College's supervision.

The first President was not unnaturally Thomas Linacre (fig. 1), who was the first Englishman to gain a European reputation as a humanist. Elected a Fellow of All Souls College, Oxford, in 1494, he travelled to Italy and took his degree as doctor of medicine at Padua in 1496. Returning soon after, probably to London, his time seems to have been fully occupied by his professional pursuits. The only books he wrote were on Latin grammar. The first was originally intended for St. Paul's school, but it was rejected by Colet as too advanced for schoolboys. The second was much more important (*De emendata structura Latini libri sex*, 1524), being a systematic syntax with many examples of the construction and figures of speech from the best authors. It was accepted as an authority and reprinted many times. More important perhaps were his translations of Galen into Latin. During Linacre's lifetime no one directly impugned Galen's authority, and indeed the restoration of his authentic text was the first step to subverting it. Early in the reign of Henry VIII Linacre was established at court and became physician to the King. Apart from founding the College he was its first benefactor in that books from his library formed the nucleus of the

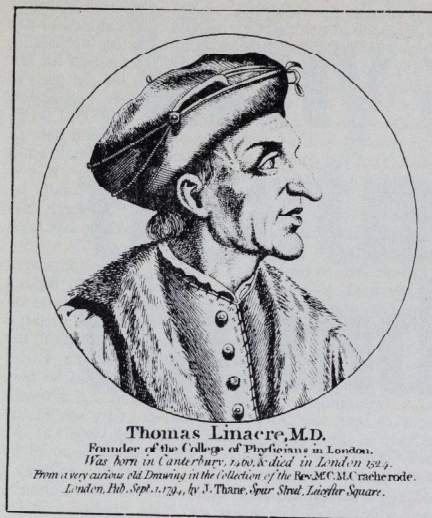


Fig. 1 (above). Thomas Linacre (from a print in the Library of the Royal College of Physicians of London).

College library, and his house in Knight-riding Street, the Stone House between St. Paul's Cathedral and the river, not far from the Times building, provided the College with its first meeting place.

To begin with the College was a very small body consisting only of the six Fellows named in its charter, with six more admitted within the next five years, so that when Linacre died in 1524 there were barely enough Fellows to fill the various offices. No record was kept of those early years, if indeed there was anything to record. It was left to John Caius (fig. 2), the most eminent President after Linacre, to compile from scattered papers the *Annals* of the College, a series which has remained intact and is continued to the present day. John Caius had studied at Cambridge and Padua, and lived for eight months in the same house as Vesalius. When he returned to this country he was admitted a Fellow of the College in 1547, and not long after came to live within St. Bartholomew's Hospital and was there a tenant until his death. He was first elected President in 1556 and served in all on nine occasions until 1571. Besides starting the *Annals*, he codified the statutes of the College; the original manuscript of the statutes is lost, but the College possesses the covers of the original volume, and a copy of the original text made from a manuscript in the Bodleian Library. The gift of the silver caduceus with four serpents at its head, a cushion for it to repose on, and the first College seal are all due to Caius. The caduceus is still borne by the President preceded by the Bedell bearing the College mace, which, however, was not given to the College until 1683.



Fig. 2 (above right). John Caius (from a print in the Library of the Royal College of Physicians of London).

John Caius lectured on anatomy at Barber Surgeons Hall for many years, and it is likely that it was he who obtained from Elizabeth I a charter for anatomies by which the College could obtain the bodies of four condemned criminals from Tyburn for dissection. From this began the anatomical lectures which were probably merged in the Goulstonian lectures by the end of the next century. At least one of the series survives in manuscript; these are the lectures of George Ent, delivered as plague began to threaten the City in 1665. The King was present at the third and final lecture and knighted Ent on the spot. From this beginning grew the great work of postgraduate teaching. The successive endowments of the Lumleian (1581), the Goulstonian (1632), and the Croonian (1749) lectures provided for specialised or at least definite fields. As late as 1810 the College provided from its own resources what was known to be much needed then—lectures on materia medica. Even if for the most part the lectures only transmitted what was known for a long period they provided the best medical instruction that was to be had in London; moreover some announced original research. One has only to instance the anatomical lectures of Thomas Wharton and more particularly the Lumleian lectures of William Harvey (fig. 3).

In 1587 the College, on its own initiative, started a garden in which to grow the rarer herbs, and put it in charge of John Gerard, surgeon and author of the famous *Herbal*. Two years earlier the College had appointed a committee to prepare a pharmacopoeia; but, although their discussions were spread over ten years,

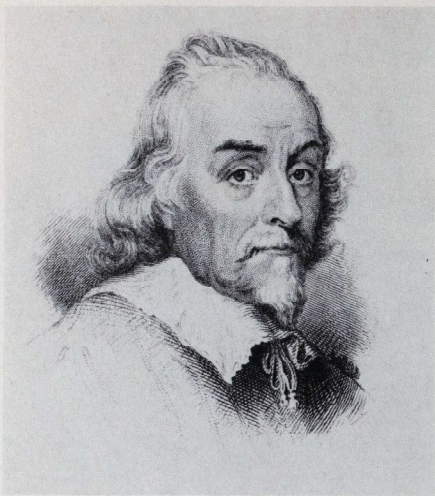


Fig. 3. William Harvey (from a print in the Library of the Royal College of Physicians of London).

they were unproductive. The plan to publish a pharmacopoeia was resurrected in 1614. By this time the College had moved from Knight-riders Street to its second home in Amen Corner. The first edition of the *Pharmacopoeia Londinensis* was published in 1618 and a Royal proclamation made its use compulsory for the whole of England and Wales; altogether the College published ten editions down to 1851, until the Medical Act of 1858 transferred the duty of its revision to the British Pharmacopoeia commission of the GMC.

There was never any lack of criticism of the College's *Pharmacopoeia*, but notwithstanding, its publication satisfied the fundamental need for a national standard in pharmacy.

The earliest statutes show what the first examinations were like. They consisted of four parts taken at three monthly intervals. It is impossible to go into detail, but basically on each occasion the candidate was given three different groups of questions chosen at random by the President from the set books of Galen and Hippocrates. He was shut in a room with these books without an index and required to prepare answers. When the time (not stated) had expired he would return and read out his identification of the passages to the assembled Fellows, who would cross-examine him to assess his understanding of what he read. Sir Norman Moore, in a lecture on the principles and practice of medicine (*St. Bari's Hosp. J.*, 1899, 7, 17-22) gives an account of the examination of James Yonge, a Plymouth surgeon who had applied to be examined as an Extra-Licentiate in 1702. As time went on the examination for the licence was in three parts, physiology, pathology and therapeutics. This pattern continued until the examination for the Membership was introduced in 1859. In fact the first examinations for the Membership followed the pat-

tern of that for the old licence. Licentiate, who had been admitted before 1859, on application automatically became Members of the College. Following the passing of the Medical Act of 1858, a new examination for the licence was instituted as a qualification for the general practitioner, and eventually after much negotiation agreement on the conjoint examination (MRCS, LRCP) was reached in 1884, and the first examination held in 1885. That the conduct and content of the Membership examination is kept continually under review is evidenced by the fact that it is now conducted jointly by the three Royal Colleges of London, Edinburgh and Glasgow, and that only recently a new pattern has been introduced.

From time to time the national and provincial as well as the medical press has given prominence to reports issued by the College. The most notable are those on smoking and health, and more recently on the geriatric services, and the general practitioner in the hospital, the last-named being produced jointly with the Royal College of General Practitioners. These should be seen as a development from the time when in the sixteenth century both the Government and the City sought the advice of the College, which for a long time was the only expert body to which medical questions could be referred. At first such advice was sought when epidemics of plague threatened the country, and later when cholera was widespread. The Army and Navy applied to it for the names of physicians to serve with the Forces and for advice on suitable medicines for tropical diseases; the Colonial Office sought its assistance in connection with the design of hospitals and the nature and treatment of leprosy. It was also inevitably concerned in turn with inoculation and vaccination. The College strongly recommended the practice of vaccination, and at the request of the Privy Council, set up a central institution in Leicester Square for conducting under their own immediate superintendence the practice of vaccination and for distributing vaccine lymph to every part of the United Kingdom and British dominions. The most notable intervention of the College in public affairs was its petition to the House of Commons in January 1725/6 against the pernicious use of strong spirituous liquors. The College had "observed with concern for some years the fatal effects of several sorts of distilled spirits upon great numbers of both sexes." The College was joined by the County Sessions of Magistrates, who gave witness to the destruction and crimes for which the gin trade was responsible, and eventually their representations had the desired effect.

Throughout the first three hundred years and more of its existence until the GMC was established the College with varying degrees of success and enthusiasm instituted proceedings against those who practised without its licence, mainly in London. Another way in which its concern for the maintenance of standards was expressed was in its concern to control the quality of medical literature. A number of medical works of the seventeenth and eighteenth century carry the imprimatur of the College, Sydenham's among them; but it was only for a short period towards the end of the seventeenth century that the College had any legal right to approve or disapprove of any medical books. Then in the second half of the eighteenth century at the instigation of William Heberden the College began to publish its own

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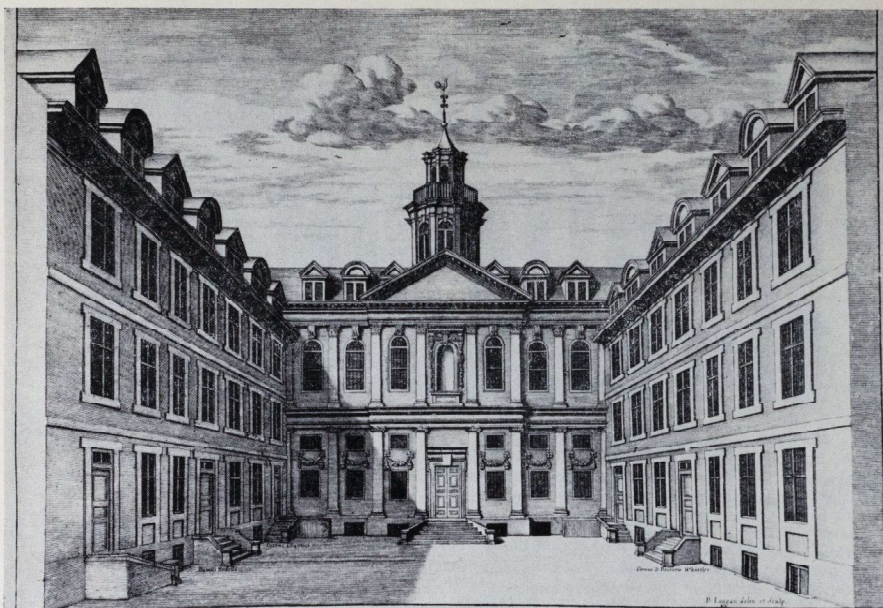


Fig. 4 (above) R.C.P. in Warwick Lane (from a print in the Library of the Royal College of Physicians of London).

Fig. 5 (below), R.C.P. in Pall Mall East (from a print, by kind permission of Dr. J. W. Aldren Turner).

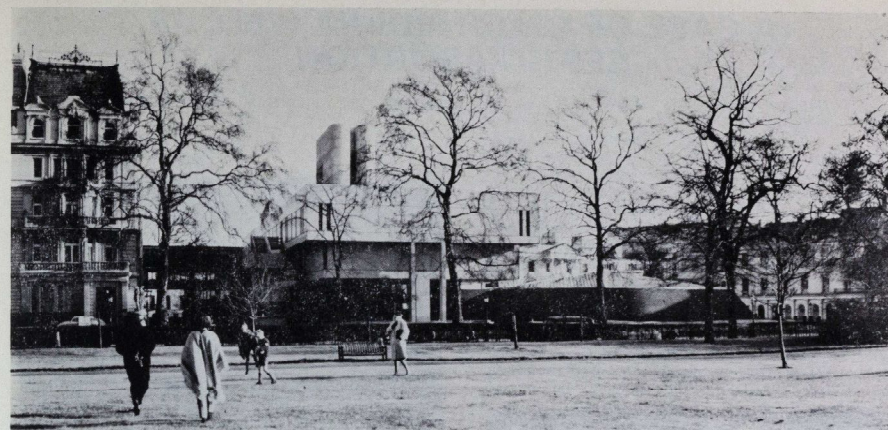


Fig. 6. The College in St. Andrew's Place. Photograph by John Donat.

Medical Transactions. Six volumes appeared between 1768 and 1820 consisting of a selection of papers read in the theatre. The success of the series is shown by the fact that three editions of the first volume were called for and that within five years of the publication of the second volume in 1772, 900 copies of it had been sold. Among the classic papers it contains are two by Heberden, on the pulse and on a disorder of the breast [angina pectoris], and one by Sir George Baker on the cause of the endemial colic of Devonshire. The *Journal of the Royal College of Physicians of London* which began in 1966 may justly be regarded as the lineal descendant of the *Medical Transactions*.

When the Great Fire destroyed its premises at Amen Corner in 1666 the College would have been well advised to seek a home outside the city as the tide of fashion and public life had by then turned westward. Nevertheless a new building in Warwick Lane (fig. 4) on the site of what is now the Cutlers' Hall was begun, was in use for the first time in 1674, and completed with the erection of an anatomical theatre in 1679. One of the first and most controversial questions discussed here was the provision of free medical advice for the sick poor, and the establishment of a dispensary. Notwithstanding the opposition of the Society of Apothecaries and some of the Fellows, a dispensary was set up and was so successful that branches were opened in St. Martin's Lane, Westminster and in Gracechurch Street. The Dispensary lasted for about thirty years until 1725, when the foundation of Guy's and Westminster Hospitals perhaps made it superfluous. Whatever the reason for its closure, one writer has discerned in the College dispensary the origin of modern dispensary practice and of hospital out-door relief. The appearance of the Warwick Lane building is familiar from the many prints that survive, and some of its furnishings, notably the Spanish oak wainscoting, adorned the building in Pall Mall East which the College occupied from 1825 to 1963,

(fig. 5) and survive in the Censors' room of the new building in St. Andrew's Place (fig. 6) which was opened by Her Majesty the Queen in 1964. "With each removal to new quarters, a period of renewal has started. The modern College really started with Lord Dawson and the inclusion of all the specialities in the fellowship, which rapidly increased in numbers and influence. With the removal from Trafalgar Square to the greatly enlarged modern building in Regent's Park the process of adaptation to modern conditions has continued." (Newman, 1968).

No account of the College would be complete without some reference to its fine library—now confined to the history and biography of medicine. Begun, as we have already seen, with a gift of books from Linacre, successive benefactors have included William Harvey (1653/4), the Marquis of Dorchester (1680), Matthew Baillie (1823), Arthur Farre (1887), Lloyd Roberts (1921), Herbert Spencer (1941) and more recently Dr. Evan Bedford, who presented his magnificent library of cardiological literature to the College in 1971. One way in which the library supports the work of the College is by arranging historical exhibits in connection with the various series of "Teach-ins" for junior hospital doctors. By conducting what has been whimsically called ward rounds at the College it is seeking to relate medical history to clinical teaching.

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For fuller information about the history of the College consult:—

CLARK, Sir George, and COOKE, A.M. (1964-72) A History of the Royal College of Physicians of London. 3 vols. Oxford, Clarendon Press.

A CASE OF CLOSTRIDIUM WELCHII SEPTIC ABORTION

By A. J. SEARLE

SUMMARY:

A fatal case of Clostridium Welchii septic abortion is described, in which radical surgery and intensive antibiotic therapy failed to overcome overwhelming secondary infection, despite well sustained renal function and the absence of haemolysis.

INTRODUCTION:

Septic abortion has fortunately become rarer, due to better education, readily available contraception, and easily obtainable legal abortion. In this case, the patient was a recent immigrant and probably lacked this knowledge.

CASE HISTORY:

A 15 year old Jamaican girl, who had arrived in this country at the end of March, 1972, was admitted to Hackney Hospital on May 30th, with a history that 3 days previously, she had fallen and started to bleed per vaginam. Since then she had continued to bleed per vaginam, but not heavily, and had developed severe abdominal pain. Her last menstrual period had been approximately 10 weeks previously. She had attended her family doctor the week preceding admission and he had confirmed her pregnancy by urine test. There was no significant past medical history.

On examination:

At the time of admission she appeared very ill and "toxic." The pulse rate was 140, Blood Pressure 110/70, and temperature, 100.4°F. Respiration was shallow and rapid, with flaring of the nostrils. The abdomen was grossly distended, and there was generalised tenderness, guarding and rigidity; only occasional bowel sounds were heard.

On vaginal examination:

The pelvic organs were so acutely tender that the uterine size could not be determined. Speculum examination revealed that the cervical os was open, and dark necrotic products of conception were being extruded from the os.

A diagnosis of septic, incomplete abortion, with peritonitis was made, and the following investigations performed:

Hb:	14.6 g
WBC:	38,000
Sickle Test:	Positive (electrophoresis—HbAS)
Blood urea:	42
Na:	133
K:	4.0
Cl:	107

Methaemalbumen detected in serum

Blood Group—A Positive

Uterine Swab, blood culture and mid-stream specimen of urine were sent for bacteriological examination.

X-ray chest and abdomen, erect and supine.

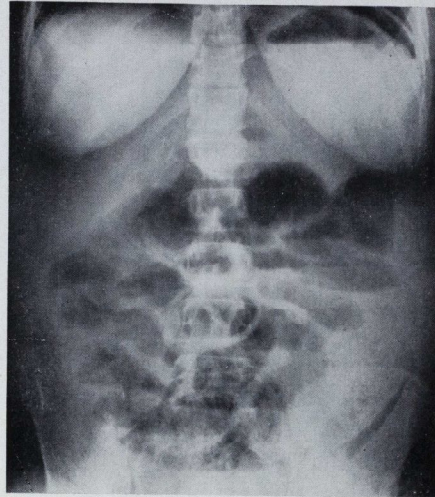


Fig. 1. Erect A-P abdominal X-ray taken on admission showing gas bubbles in the uterus, and air under the left hemidiaphragm.

MANAGEMENT:

The X-ray appearance of gas bubbles in the uterus made the diagnosis of Clostridial septic abortion highly likely, and the presence of gas under the diaphragm suggested uterine perforation (see Fig. 1).

An intravenous infusion was immediately set up and treatment with large doses of intravenous Ampicillin, Penicillin, and intramuscular Streptomycin instituted pending bacteriological results. A naso-gastric tube was passed, and hourly gastric aspiration performed. The bladder was catheterised and the urine output monitored.

The following day her general condition remained the same; the uterine swabs and blood culture showed a heavy growth of Clostridium Welchii sensitive to Penicillin, Ampicillin and Kanamycin; the Streptomycin was replaced by Kanamycin, and the Ampicillin and Penicillin continued. There was a transient fall in blood pressure that night, and a central venous pressure monitor was set up, and two units of blood transfused.

After 3 days of intensive antibiotic therapy the patient's condition remained unaltered; a swinging

pyrexia persisted, and the abdomen remained distended and tender. The urine output and serum electrolytes remained very satisfactory, but there was slight jaundice (serum bilirubin 2.5 mg./100 ml.). In view of the poor response to conservative therapy it was decided to perform an EUA, and possibly laparotomy, the following day.

OPERATIVE FINDINGS:

EUA

Examination of the introitus and posterior vaginal wall revealed abrasions suggestive of traumatic instrumentation.

The uterus was anteverted, about 10-12 week size, and the os was open. There was marked thickening of both parametria.

Gangrenous products of conception were obtained with ovum forceps, and insertion of a spoon curette resulted in an efflux of foul watery pus. Further exploration revealed that the uterus was perforated and it was therefore decided to proceed to laparotomy, through a midline subumbilical incision.

Laparotomy Findings:

The small bowel was distended and matted together by a thick green exudate. There was free pus and necrotic products of conception in the peritoneum. The fundus of the uterus was black and gangrenous, and there was a large fundal perforation. The left ovary and most of the left tube were gangrenous. The bladder peritoneum was green and necrotic-looking.

Operative Procedure:

A sub-total hysterectomy was performed with removal of both tubes and the left ovary. No attempt was made to remove the cervix because the bladder was so adherent; nor to peritonealise the floor of the pelvis. A large rubber drain was left in the vault to drain vaginally.

POST-OPERATIVE PROGRESS:

Following operation, there was an initial improvement in her condition. The temperature settled at around 100°F, she looked brighter and less "toxic" and the white count, which had been falling pre-operatively, rose again indicating a response to the infection.

However, on the third post-operative day the abdominal wound began to discharge copious watery pus, which grew E.Coli and Strep. faecalis, sensitive to the antibiotics which she was already receiving. The pus from the vaginal drainage tube grew the same organisms. The jaundice also increased, the serum bilirubin was conjugated and had risen to 10.0 mg./100 ml. by this time.

On the fourth day, the temperature again rose to 103°F-104°F and she developed some subcostal pain and localised areas of basal consolidation, X-ray and screening suggested a left sub-phrenic abscess. In consultation with the Surgical Consultant, it was felt that drainage of the abscess was not indicated at the present time, as her general condition was poor due to widespread sepsis.

By the 7th post-operative day she began to show some improvement, in that her appetite was increasing, and the bowels had opened. The electrolytes were maintained within normal limits by intravenous fluids, but there was some difficulty in preventing hypokalaemia.

(See graph.) Biochemical examination of the wound discharge showed that large amounts of Potassium were being lost in this fluid. The jaundice persisted, and liver function tests suggested that this was predominantly obstructive rather than hepatocellular. About this time, the wound and vaginal swabs, (and subsequently blood cultures) began to grow Bacteroides, and appropriate adjustments in antibiotics were made.

The condition remained much the same, with increasing jaundice, but good urine output, until 14 days post-operatively, when she developed pleuritic left sided chest pain, and had a small haemoptysis. Clinically there was a fairly large left pleural effusion. It was thought she might have had a pulmonary embolus, but ECG and Chest X-ray confirmed the pleural effusion only. The chest was aspirated and one litre of foul-smelling, frothy, purulent fluid was obtained. Following this, her respiration became easier. The next day, however, she became much more dyspnoeic, and a chest X-ray showed an enormous increase in the size of the empyema (See Fig. 2.). By this time she was in extremis

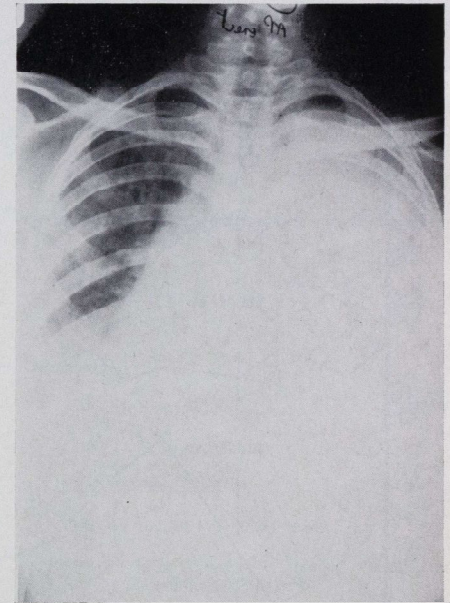


Fig. 2. Chest X-ray on day of death showing a large left empyema with gross mediastinal shift.

and a further chest aspiration was performed with an Argyle cannula and this was connected to an underwater drain. Shortly after this procedure she died.

Coroner's Post-Mortem Findings:

There was pus throughout the peritoneal cavity, partly undergoing localisation. There were bilateral subphrenic abscesses, and a diaphragmatic perforation

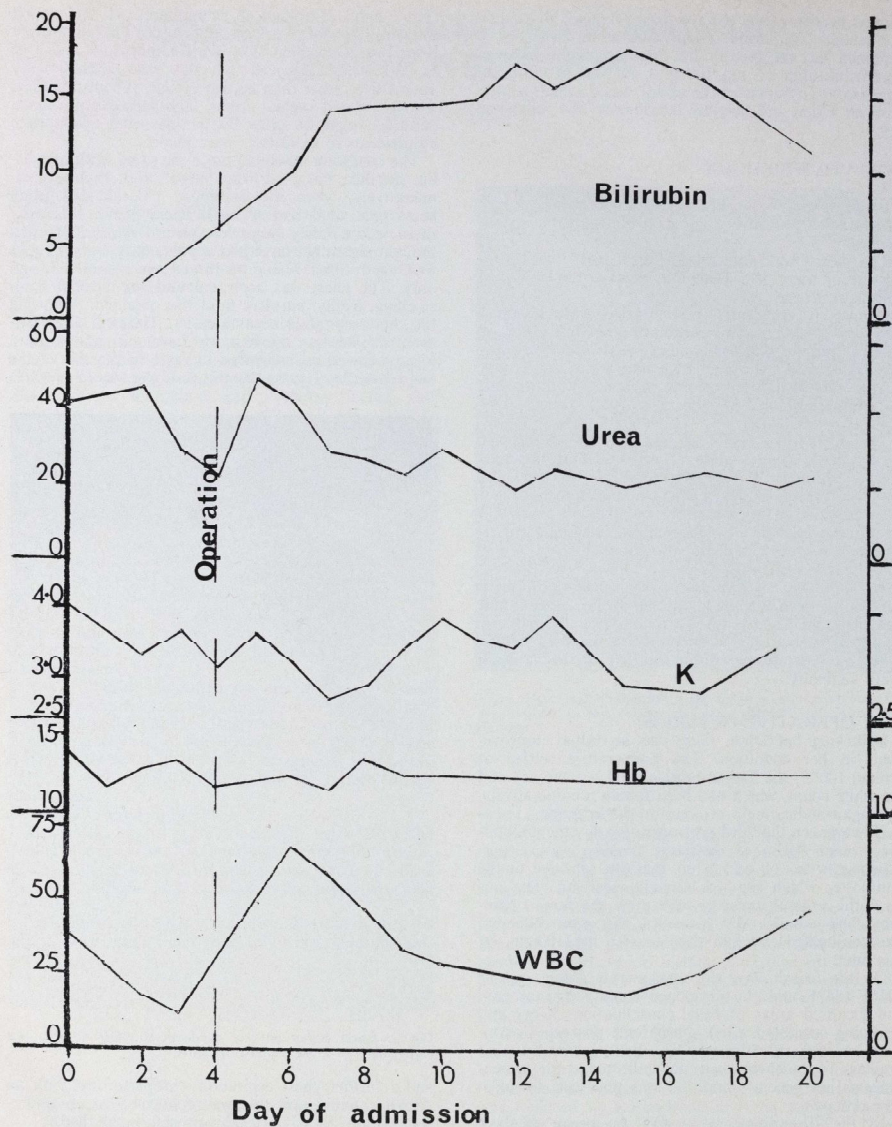


Fig 3 Graph showing Bilirubin (mg./100ml.), Urea (mg./100ml.), Potassium (mEq./100ml.), Haemoglobin (g/100ml.), and White Blood Cell count (x10⁹ per cu. mm.).

on the left. There was a left sided pyo-haemo-thorax, showing some loculation of pus. There was loculated pus in the lesser sac obstructing the common bile duct. The intestine was intact and there were no liver, lung or brain abscesses.

DISCUSSION:

The most important toxin produced by *Clostridium Welchii* is an alpha lecithinase which is mainly responsible for the profound toxæmia leading to renal failure, which is the usual cause of death in gas gangrene. This toxin is also haemolytic, but neither severe haemolysis nor renal failure were a problem in this case. This was probably due to the initial intensive antibiotic therapy which rapidly destroyed the Clostridial organisms. The subsequent secondary infection with *E.Coli*, *Strep. faecalis*, and *Bacteroides* (the latter was also grown from the empyema fluid), suggests that this was really a mixed infection all along, and that the antibiotics could not penetrate the pockets of pus.

The jaundice, apparently mildly haemolytic at first, became obstructive due to the abscess in the lesser sac.

The sub-phrenic abscess presumably pointed up through the diaphragm to cause an empyema.

Retrospectively, it is easy to speculate that earlier surgical intervention might have produced better results. Some authorities regard failure to improve after 12-24 hours as an indication for surgery, but there is usually

oliguria in such cases. The excellent renal function in this case encouraged the pursuit of a conservative course.

Anti-gas gangrene serum was formerly a popular therapy, but its importance seems to have been superseded by antibiotics. Its value in company with antibiotics is doubtful, and its dangers considerable.

Hyperbaric oxygen has been advocated; it apparently inhibits the growth of Clostridia and prevents production of the alpha-toxin. It must, however, be given early (within 48 hours), and so its use depends on geographical proximity to a hyperbaric unit, and early referral. Whether it has any benefit in anaerobic *Bacteroides* infections (which was presumably the "fatal" organism in this case) is doubtful.

Post-script:

At the Coroner's Inquest, the Police stated that they had been unable to unearth any evidence that the patient had visited a criminal abortionist. The Pathologist found the cause of death to be overwhelming infection from a septic abortion. In view of these findings, the Coroner felt that it was likely that the abortion had been self-induced, and the jury therefore returned a verdict of Death by Misadventure.

Acknowledgements:

I wish to thank Mr. A. J. Woolf for permission to describe this case, and Mr. M. E. Setchell for his very helpful advice in preparation of this report.

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CALENDAR OF EVENTS

December:

- 5th : Film: Willard
- 8th : Beggars Banquet
- 12th : Film: If . . .
- 13th : End of Preclinical term
- 14th : Music Society: Christmas Oratorio at Westminster Hall
- 25th) : Ward Shows
- 26th)
- 28th-30th : Pot Pourri
- 30th : Party

THE WIX PRIZE ESSAY

(To be published in three parts)

The Life and Works of Sir James Young Simpson (1811-1870)

By N. SIOY

part 1 : CHLOROFORM

Though from a humble stock, undoubtedly
Was fashion'd to much honour from his cradle.
He was a scholar, and a ripe and good one;
Exceeding wise, fair-spoken, and persuading;
Lofty and sour to them that lov'd him not;
But, to those men that sought him sweet as summer,
Shakespeare.

If ever time and place shaped a man's career, it was true of James Young Simpson. His birthplace was within 20 miles of Edinburgh and not surprisingly this thriving city became his stamping ground. The stimulating intellectual and cultural climate enjoyed by Edinburgh in the early part of the 19th century was due in part to an influx of Jacobinist refugees from France and in part to the standing of the university, which attracted more than a few famous Englishmen across the border to enrol amongst its students. On the medical front Simpson lived through a period which saw the rise to world-wide fame of the Edinburgh medical school; indeed, such was Edinburgh's pre-eminence that the Edinburgh qualifying degree (MD) came to carry more status than the MRCS of the London College.

Medicine in the 19th century underwent nothing less than a renaissance. The invention of the stethoscope, the ophthalmoscope, the laryngoscope, and hypodermic syringe. Virchow's elucidation of the cellular changes in disease, the advent of antiseptics and the introduction of urine testing all occurred within Simpson's lifetime. The full potential of the ear as a diagnostic tool was recognised in 1836 when Latham began teaching auscultation and percussion at Bart's. New diseases were described including leukemia, amyloid, locomotor ataxia and meningitis, and amongst new specialisations were those of aural and orthopedic surgery, ophthalmology, laryngology and endoscopy.

Simpson was drawn into this great movement and his contribution was impressive. He laid the foundations of modern obstetrics and gynaecology and played a leading role in the establishment of anaesthesia in surgical and obstetric practice. Never parochial in his outlook, he became a pathologist of repute, attempted to pioneer a new surgical technique and voiced loudly the need for hospital reform. As if this were not enough, papers of lasting value on archaeological and antiquarian subjects emanated from his pen.

The discovery of the anaesthetic properties of chloroform is undoubtedly the most widely known of Simpson's achievements and is commemorated in the inscription beneath the marble bust in Westminster Abbey:

"To whose genius and benevolence

The world owes the blessings derived

From the use of chloroform for
The relief of suffering.

Laus Deo."

Chloroform was in fact one of three anaesthetic agents originally introduced into surgical practice during an epoch-making 5 year period from 1842 to 1847. It followed close on the heels of nitrous oxide and ether. Since much has been written about the rival claims and merits of the early workers in the anaesthetics field, it is probably best to introduce Simpson's contribution in its historical context.

The anaesthetic effects of nitrous oxide were first mentioned in 1776 by Joseph Priestley who, although he was aware of the pleasurable sensations attendant on its inhalation, did not report on its analgesic properties. In 1800 Sir Humphrey Davy, working at Thomas Beddoes' Pneumatic Institute for the treatment of disease by inhalation, found that by breathing nitrous oxide he could relieve toothache and other pains. His suggestion that nitrous oxide might be used to deaden pain in surgical operations was not taken up until Horace Wells, a dentist of Hartford, Connecticut, came across the gas in 1844; on December 10th an itinerant lecturer, Colton, visited Hartford and gave a public demonstration of "laughing gas" for an admission charge of 25 cents. At this meeting Wells saw its analgesic effects fortuitously demonstrated during a brawl in the crowd and the next day had one of his own teeth painlessly removed while Colton himself administered the gas. The event ushered in what Wells described as a "new era in tooth pulling." Unfortunately a demonstration given in the Massachusetts General Hospital was a dismal failure (due mainly to the difficulties of administering nitrous oxide from a bag!).

The first use of ether in surgery is attributed to Crawford W. Long of Jefferson, Georgia, who in March 1842 removed a small tumour from the neck of a friend who inhaled the gas and felt no pain. The soporific effects of ether had been pointed out as early as 1818 by Faraday. Its effects he thought comparable to those of nitrous oxide inhalation. However, it was not until October 16th 1846 that Morton, a former associate of Wells, earned for himself the epitaph of the "Inventor

and Revealer of Anaesthetic Inhalation" by a dramatic demonstration in the Massachusetts General Hospital of the pain annulling powers of ether during a surgical operation.

One of the earliest users of ether in Britain was the surgeon, Robert Liston, who was Simpson's first surgical teacher in Edinburgh. Ironically Simpson, when a raw medical student of 17 years of age, was so upset at seeing Liston remove the breast of a Highland woman that he nearly gave up his studies altogether and started to look for an opening in the legal profession. From these earliest days came Simpson's concern with the alleviation of suffering during surgery. When he took up obstetrics he became equally familiar with the agonies which could attend childbirth. It is difficult to imagine what surgery was like before anaesthesia. The patients had to be held down bodily unless they fainted from pain or loss of blood. Surgery was necessarily quick so that suffering should be kept to a minimum, and careful dissection and identification of tissue planes was an art confined to the dissecting rooms. Masters like Liston were able to perform amputations in a few seconds.

Even before ether Simpson was always on the lookout for ways of reducing pain. When Mesmerism became fashionable in 1837 he hoped that he might be able to obtain a "sleeping" patient prior to operation. During his trials he discovered that he had remarkable hypnotic powers, but he abandoned the method when he realised that it was unreliable and open to abuse by quacks and charlatans. Simpson was a great believer in Aristotle's dictum that, "Probably all art and all wisdom have often already been fully explored, and again quite forgotten." Thus in his search for analgesics (as in other researches) he made it his business to find out how the problem had been tackled in former times. Among the substances ingested for the relief of pain were Indian hemp (probably the "nepenthe" of Homer), mandagora referred to in Shakespeare and elsewhere, opium and alcohol. In the 16th century Valverde tried to deaden pain by compression of the carotid arteries, and in 1784 a Dr. Moore proposed the use of tourniquets to compress nerves. Simpson knew of all these methods but, as in the case of Mesmerism, considered them unsuitable for regular clinical use.

With the arrival of ether, Simpson on January 9th 1847 became the first to use anaesthetics in obstetric practice when he employed it during the version and extraction of an 8 lb. foetus from a woman with grossly contracted pelvis. Incidentally, about this time he was also made one of Her Majesty's Physicians for Scotland and his attitude towards this honour is illuminating. "Flattery from the Queen is perhaps not common flattery, but I am far less interested in it than in having delivered a woman this week without any pain while inhaling sulphuric ether. I can think of naught else."

From this time on he used ether constantly in his obstetric practice. In contradiction to earlier beliefs he showed that it could be tolerated for long periods. In March 1847 he published a paper, widely circulated both at home and abroad, containing a record of cases of parturition in which ether had been used with success. Nevertheless, he recognised that ether had a number of disadvantages for his purposes, chiefly that it was irritating to the respiratory passages, it was rather difficult

to administer and large quantities were required, it was explosive and not easily portable. He therefore set about finding an alternative.

His research method was now the well tried one of "inhale the vapour and see what happens." Obviously crude and courageous by modern-day standards, it suggests a compelling urgency to arrive at a solution. From the early summer of 1847, either alone or with his colleagues Dr. George Keith and Dr. Matthews Duncan, he would inhale from saucers or tumblers the vapours of any volatile liquid he could obtain. The venue for these experiments was the dining room of his home at 57 Queen Street in Edinburgh and they took place in the evening and often ran on late into the night.

The breakthrough came on November 4th 1847. According to a colleague, Professor Miller, who took an anxious but non-participant interest in the proceedings (he used to drop in every morning probably to reassure himself that his friends were still alive), the trio had already tried several substances with no success when "it occurred to Dr. Simpson to try a ponderous material which he had formally set aside on a lumber table and which on account of its great weight he had hitherto regarded as of no likelihood whatever; that happened to be a small bottle of chloroform. It was searched for and recovered from beneath a heap of waste paper." The party soon became "switched on," judging by their jocularity and unusually animated conversation. Soon afterwards there were several crashes, then silence. Simpson awoke staring at the underside of the mahogany table with the realisation that "this is far stronger and better than ether," an opinion with which Keith and Duncan readily concurred. The inhalation of the new agent was "repeated many times that night." Mrs. Simpson's niece, Miss Petric, was persuaded to inhale the vapour, upon which she passed out with the words, "I'm an angel! Oh, I'm an angel!"—she later became addicted to chloroform for her insomnia until she married a clergyman who managed to break her of the habit.

Chloroform possessed all the advantages that Simpson hoped for, and it soon rivalled ether as the agent of first choice. It was especially well suited to midwifery as it gave substantial pain relief before interrupting consciousness. Within days of the discovery chloroform was used during childbirth (a girl christened "Anaesthesia"), and on November 10th it was demonstrated to the Medico Chirurgical Society of Edinburgh at a meeting which by all accounts developed into an orgy of euphoria and intoxication. It is a tribute to Simpson's unflagging energy that in two short weeks from its discovery he had already administered the new agent to about 50 individuals without ill effects, including both midwifery patients and the first surgical patients (on November 15th), and had published the results. 4,000 copies of this paper were sold in a few days.

For the next 7 years or so Simpson campaigned energetically for the acceptance of anaesthesia in surgical and obstetric practice. In particular, he promoted chloroform as the best anaesthetic available and eloquently defended it when it was attacked from various quarters. The healthy scepticism of the medical profession encompassed beliefs that anaesthesia caused haemorrhage, pneumonia, convulsions and insanity, and enhanced the danger of major surgical procedures. There was the esoteric notion that pain in labour was



52, Queen Street, Edinburgh.

beneficial to, or even essential to, the birth process, and from less reputable sources came reports that chloroform aroused erotic sensations.

Simpson rebutted most of these claims. Far from causing convulsions, chloroform was effective in their treatment. The success of Simpson's obstetric practice and a number of well written articles indicated that uterine contractions did not depend on painful stimuli. As for the detrimental effects of anaesthesia in major surgery, he set about disproving this by martialling statistics for amputations performed before ether was available and comparing them with the results of amputations performed under anaesthesia. Although the statistical methods were not entirely above reproach, this immense project (published in April 1848) did show that anaesthesia tended if anything to make operations safer.

The most critical objection to chloroform was that it had been the direct cause of death in some patients. The first fatality was reported from Cincinnati in February 1848 and was soon followed by one near Newcastle in this country. Simpson believed that poor technique of administration was responsible for such deaths and made sure that graduates who left Edinburgh were well instructed in the correct use of the agent. Just before Simpson's death the BMJ carried an interesting résumé of the recommended precautions when using chloroform.

Four "preliminaries" were detailed—a 3-hour fast before inhalation, brandy 10 minutes before inhalation (one teaspoonful for a child and up to two tablepoons for an adult), removal of all tight clothing, and recumbency of the patient. The inhalation was to be begun boldly, from a piece of lint, handkerchief or Skinner inhaler, and the patient instructed to "draw full breaths." When the effects of inhalation became apparent more caution was necessary, with observation of the respiration, colour of face and eye changes to monitor progress. Danger signs were a livid face, stertorous or irregular respiration and death-like pallor, the last condition requiring the maintenance of an airway and inflation if necessary.

Chloroform is now out of vogue as an anaesthetic. It has gained a bad reputation for liver toxicity although according to Waters this may not be entirely justified. The traditional signs of the depth of anaesthesia are unreliable, it may precipitate cardiac arrhythmias, and as noted by even the earliest users sudden death may occur from cardiac arrest. However, the work of Waters has indicated that with proper safeguards chloroform is by no means as dangerous as its critics have made out. In domestic midwifery its excellent analgesic properties and portability have endeared it to the heart of many a general practitioner, midwife and mother.

Of the three original anaesthetic agents nitrous oxide now holds pride of place both as a basic ingredient of general anaesthetics and as a 50:50 mixture with oxygen ("Entonox") for analgesia during parturition. Ether has enjoyed a steady popularity since its inception. Its versatility and safety have given it a role in paediatric anaesthesia, and its irritant effects are an advantage where spontaneous respiration is to be encouraged. Despite these reversals, chloroform was for about 50 years the most commonly used anaesthetic, and if any official seal of approval was needed it came early on, in 1853, when Queen Victoria was brought under its influence for the birth of her 9th child, Prince Leopold. The Queen's Physician, Sir James Clark, wrote to Simpson on April 19th that "It acted admirably. It was not at any time given so strongly as to render the Queen insensible, and an ounce of chloroform was scarcely consumed during the whole time. Her Majesty was greatly pleased with the effect, and she certainly never has had a better recovery."

It is with some trepidation that one assigns Simpson to his place of honour in the history of anaesthesia. When his obituary came to be written in the BMJ in 1870, caution was felt to be necessary: "In respect of the discovery of chloroform Sir James has, as is well known, received from the public a far higher award than he claimed. The word chloroform has become to be considered synonymous with anaesthetics. The real honour of the application of anaesthetics (suggested by Davy and others) belongs of course to America, and not to England, and to the dental branch of our profession." Nevertheless two important "firsts" belong unquestionably to Simpson—the introduction in January 1847 of anaesthesia (ether) into obstetric practice, and the introduction in November 1847 of chloroform into both obstetric and surgical practice. With chloroform he gave the medical profession an agent which became the mainstay of anaesthesia for half a century. These are no mean achievements by any standards.

BARGAIN RECORDS-CHRISTMAS SUGGESTIONS

Christmas is almost upon us again. With it comes a host of "offers" by the record companies and this article is an attempt to sort out this year's selection. The jumbo sets are very much part of the classical record market now, and I have divided them by the respective companies.

Pride of place must go to Decca. A brand new release of the Rachmaninov concertos and Paganini variations is played by Vladimir Ashkenazy with the London Symphony Orchestra and Andre Previn. The performances are poetic, avoiding the rhetoric which can affect these works—they may even lack steel and yet there is brilliant pianism here in plenty. Previn accompanies tactfully, yet with full bravura where necessary and there is tremendous rhythmical drive. The recording is beautifully balanced but the piano tone is variable (clangy in No. 1, but much better as the set continues). This is a small criticism of a superb set of 3 records (Decca SXLF 6565-7; £5-75). Decca have also released the previously issued Sibelius symphony cycle played by the Vienna Philharmonic conducted by Lorin Maazel. This cycle is consistent in its excellence—it misses the earthy side of this composer, so well caught by Barbirolli, but it has a brilliance and exuberance of its own. The recordings are superb and the set is accommodated on 4 records (SXL 6558-61; £5-95). I would still opt for the EMI set, but this is a minority view.

Philips have also much to offer this year. Neville Marriner has given some beautiful performances of the Brandenburg Concertos with his Academy of St. Martin-in-the-Fields at the St. Johns, Smith Square concerts. He uses the Thurston Dart edition which is an attempt to return to "Bach's original orchestration." This means soprano recorders in No. 4, horns in No. 2. It means only 3 movements in No. 1. The records are notable for their light airy dancing rhythms and the natural recording quality. Professor Dart lived only long enough to record the harpsichord part in some movements and George Malcolm took over the bulk of the rest. Famous soloists perform in this set—Barry Tuckwell (horn), Claude Monteaus (flute), and Dennis Munrow (recorder) are just three (Philips 6700045; £3-75). This is not a set that I should choose exclusively, more to hear in conjunction with more authentic renderings such as Benjamin Britten's rendition. Philips also offer a complete Schubert piano sonata set—almost complete because it doesn't give the incomplete sonatas that both Kempff and Badura-Skoda have on their sets. I would advise waiting for Brendel whose set is soon to come from this source.

No fewer than three complete Mahler cycles are on offer this winter. none particularly cheap. DGG offer

Kubelik, Decca Solti, and Philips Haitink. A clear choice is impossible and there are individual performances that are ideal in each set and equally those that are less good. Solti's readings are all energy and surface excitement: this works well in No. 7 and 2, but vulgarity creeps into his readings of No. 5 and 6. Haitink's sane approach is ideal in No. 5 and magnificent in No. 9, yet I find No. 6 and 7 lack excitement. Kubelik often goes for hectic speeds—3 is very rushed indeed, yet his No. 1 and 7 are superb. All the recordings are superb. I would advise "shopping around" and getting single records here rather than sets of these marvellous works, but if you must have one conductor, rather perversely I would suggest Bernstein's set of last year.

I have neglected 2 complete Schumann symphony cycles, a Tchaikovsky piano music set, 2 Vaughan Williams sets and 2 Haydn sets—there are riches indeed, if you can afford it.

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BOOK REVIEWS

AN INTRODUCTION TO HUMAN PHYSIOLOGY J. H. Green. 3rd Edition. Oxford University Press, 1972. £2.20.

This book has found a place in the libraries of most physiology students since it was first published in 1963. Its concise and almost diagrammatic approach, coupled with its emphasis on human physiology, makes it especially attractive to medical students.

Professor Green has made many alterations and additions to the text in preparing this new edition without destroying the original aim of the book, which was to present "the basic concepts of physiology unobscured by controversy".

The author has enlarged the account of the abnormalities of cardiac rhythm, he explains the significance of diastolic pressure and discusses some of the factors which influence it. He has dealt with many of the peripheral ventilatory control mechanisms, but I find his discussion of the central ventilatory control mechanisms inadequate. Apart from this, the respiratory section is good and has an interesting outline of some of the technical problems associated with respiration during space travel. I am pleased to see that the juxtaglomerular apparatus and the renin-angiotensin system are now considered in the context of the kidney as well as the adrenal cortex, but I do feel that renin's association with the kidney deserves a place in the index.

In recommending this book, I would add a cautionary note. When preparing an introduction to a controversial topic like physiology many omissions and minor inaccuracies may appear in order to smooth out controversy and maintain brevity. This introduction is not, and was never intended to be a complete text-book of physiology; it is inadequate on its own for second M.B. J. G.

LABORATORY AID SERIES

Butterworth, London, 1972. 60p each.

ESSENTIALS OF MICROTOMY. S. J. Gray.
This is a book of basic factors involving the preparation of histological sections. The author has described a wide range of microtomes and microtome knives and the special features of each which includes the care and sharpening of knives. The subject is well illustrated and will be a useful aid to the beginner in the subject.

HISTOLOGICAL METHODS FOR BONE. E. A. Wallington.

The author sets out to make the technique of bone histology as routine as the technique for soft tissue.

The methods described include decalcification, dehydration, clearing and embedding procedures.

After reading this small book many laboratory workers will approach the histological techniques for bone in a more confident manner.

HUMAN TISSUE MUCINS. H. C. Cook.

This small book makes the effort to simplify the very complex subject of tissue mucins, covering a wide range of techniques and methods for the demonstration and identification of mucins. A most useful book for the laboratory staff.

J. W. M.

BLOOD GROUPS AND TECHNIQUES

J. B. Harris.

This small book is concerned mainly with a discussion of the human blood group systems. The author's easy style and practical experience in this field help to simplify this complex subject. There follows a brief section dealing in very general terms with the mechanism of production of antibodies and their chemical nature as immunoglobulins. The final section deals with blood grouping and cross-matching techniques. Although brief, this provides a general commentary on practical aspects of these methods based on the author's wide personal experience in a regional blood transfusion centre.

As one of the Laboratory Aids Series this book is written primarily for laboratory technologists. It is probably too specialised for the undergraduate medical student, but should be of interest to the pathology registrar who is only too aware of the practical problems of blood transfusion.

A. H. WATERS.

DIAGNOSTIC PROCEDURES IN CLINICAL BACTERIOLOGY

The Specimen. J. D. Jarvis.

This book, as stated by the editor of the Laboratory Aid Series, fits nicely into the category of one "written by an expert and reasonably priced as a useful adjunct to many of the text books in current use".

The first three chapters on containers in common use and the taking of specimens should be a useful guide to those whose responsibility this is, such as nurses, junior house officers and others since, as the author so rightly states, "the majority of specimens are not collected by the laboratory workers".

The chapter on treatment and culture of specimens, although still of interest to those who collect the specimens, will be of value to medical laboratory staff studying for examinations of the College of Pathologists, medical students, and medical laboratory technicians studying Medical Laboratory Sciences, and supplies a need for a concise book on this subject.

To summarise, while this is not a book which contains all the diagnostic procedures known, as the title intimates, the sub-title "The Specimen" would suggest that the author intends to produce a further work. Even so, the present volume is the result of the author's many years of experience in a clinical microbiological laboratory from which all who read this book can benefit greatly.

R. ANDREW.

CRYING DRUMS

Lionel Gregory. Pp. 236. £2.95. George Allen and Unwin Ltd., 1972.

This book tells the story of the four Commonwealth Expeditions. The idea of Comex, the Commonwealth Expeditions, was first thought up by President Nehru of India, and the author of this book, now the leader of Comex, Colonel Lionel Gregory.

The first expedition took place after the death of Nehru, in 1965. It ended when the members had to be flown back from Delhi with the onset of the Indo-Pakistan war. On the second expedition in 1967, the Durham coach was involved in a much publicised crash in Yugoslavia in which 14 members of the expedition were killed.

The third expedition, the largest, consisting of 500 people, took place in 1969, and in Delhi received a fantastic welcome, performing in concerts to audiences of 10,000 people for five nights in succession. The fourth expedition travelled further still, reaching Malaya and Singapore, crossing the Bay of Bengal on a British ship.

In "Crying Drums" Lionel Gregory tells of the story behind Comex, of meeting Nehru and the preliminary journeys he made on the overland route to Delhi, the same route as was later travelled by the expeditions. The author has travelled this route seventeen times, and so is able to tell much of his experiences along this route through Europe, Turkey, Iran, Afghanistan, Pakistan to India. This book tells not only the facts involved in the expeditions, but also many anecdotes along the route—the people he met, situations that arose. One of the stories is of an Indian in a bazaar encouraging him to buy a chicken "It must be good, I knew its father".

The book tells of tragedy also. After the accident in Yugoslavia, the nine months in Zagreb of Philip Dobson's trial, all the evidence produced and dismissed, the intricacies of the trial are gone into fully, at times in what seems to be rather confusing detail. After Dobson had been imprisoned President Tito himself granted an Abolition only given once before, which totally dismissed the whole case against Dobson.

Lionel Gregory ends the book on a rather more pessimistic note. The enthusiasm which is apparent throughout the book seems rather dampened, and a touch of cynicism creeps in.

"Crying Drums" is very readable, providing both interest and entertainment.

ROD BEXTON.

RUSSIAN FOLK MEDICINE

Paul M. Kornienoff/George St. George. Pan Books, 213 pages. 35p.

This is an interesting little book which reviews the folklore treatment of a wide range of both chronic and acute human ailments. It discusses the use of mainly

herbal remedies yet realistically acknowledges that in some cases their use can only be secondary to orthodox medicine. It is among the chronic diseases that a great variety of treatments can be found, ant-hill baths and bee-stings being two treatments for rheumatism, but usually the remedies seem more mundane consisting of mixtures of various herbs prepared in different ways. Readers of this *Journal* are unlikely to be swayed by the therapeutic ideas promulgated by this book but it still makes really fascinating reading, and for those who are willing to dabble in Russian Folk Medicine they may be pleased to know that, according to the cover, "Only preparations based on components readily available from good reputable herbalists and good chemists' shops are described". You may find though that Black Cockroach powder (used as one cure for dropsy) is not sold at all the branches of "Boots".

A. J. SEARLE.

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DIVING GROUP REPORT

The diving club has had a fairly successful year, with a number of long trips as well as dives most weekends throughout the summer. The season got off to a good start at Easter, when a three bedroomed cottage at Dale in Pembrokeshire was occupied for two weeks by up to 20 divers plus all their equipment. Although the weather was not too kind this year, in contrast to previous years, a fair number of people were initiated to diving in typical British conditions, cold, stormy and with poor visibility.

The summer kicked off with a 4 day dive over Whitsun at Plymouth, and diving continued throughout the summer, mostly with weekends at Ludworth Cove in Dorset, where an interesting wreck with plenty of fish life was found in 60 feet of water. There are tentative plans to survey it next summer.

At August Bank Holiday a group went to Anglesey, where they reported very favourable conditions for diving. Although no club trip abroad was organised this year, we were able to offer trips to people with other

POETS CORNER

AUTUMN BLUES

In England, now that Autumn's here,
I've married a rugby ball and beer.
Once Saturday 'noon was time for tea,
But now I belong to the "Ruggerees."
—That frozen flock of loyal girls,
Each feminine nose with its icy pearl,
Close by the line with hopes expectant,
Hoarsely cheering, then—disappointment.
When loved ones fall under 15 stones
Of another's heaving flesh and bone.
At 5 o'clock, the excitement comes
—Preparing bangers and toasted buns,
And spreading loaves of anaemic bread,
With margarine and potted beef spread,
And brewing tea in grubby urns,
Then thanked for this with scalds and burns.
At last the time has come to leave,
But "Ruggerees" still have to grieve
For a naughty night is NOT to come,
Full of frolic and fearless fun,
As men exhausted sit uncaring,
While girl-friends hover with seductive daring:
So everyone, please hear this plea,
(When loved ones suffer from B.D.)
Let Spring arrive with jubilation
To save us from this mad frustration.
(A SUFFERER)

T. HANCOCK.

St. Bartholomew's Hospital Journal



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The Navy is offering twenty-five medical cadetships this year. What are your chances?

Having passed your 2nd M.B., it all depends on you.

For our requirements are not simply your medical qualifications—but also the way in which your personal qualities match up to the demands of being a medical officer in the Royal Navy.

You see, as the only doctor on board, the entire medical responsibility for the ship's officers and men is yours. You might for example be somewhere in the Arctic or deep down in a nuclear submarine. In any emergency you are pretty well on your own. And that calls for very special qualities.

But you're more than just a doctor.

Above all you are a naval officer—with the travel, the satisfaction and the full, rewarding life that every naval officer enjoys.

Of course all this happens after your registration. In the first place, to qualify for a medical cadetship, you must pass your second M.B., or equivalent. After that you must be selected, following a Board interview.

Then while still at medical school, you are just like any other student. Except that we



pay your fees and give you a guaranteed salary of £1,697 a year in the rank of Surgeon Sub-Lieutenant.

When you qualify you can spend your pre-registration year either at your hospital or one of ours.

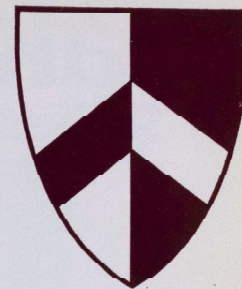
After which we promote you to Surgeon Lieutenant, your pay goes up to £3,395 a year and you begin your short-career commission with us for five years. When you leave us you'll take a lot of useful experience with you—together with a tax-free gratuity of at least £1,400.

As well as 2nd M.B. students, the Navy also enters qualified doctors for a 5-year short-career commission. (Applications should be made during or after pre-registration year.)

Write now to Surgeon-Commander F. M. Kinsman, R.N., (26 AZ), Dept. of the Medical Director-General (Navy), Empress State Bldg., London, S.W.6, and tell him your age and qualifications. In return he'll tell you more about the advantages of applying for a medical cadetship or commission with the Royal Navy.



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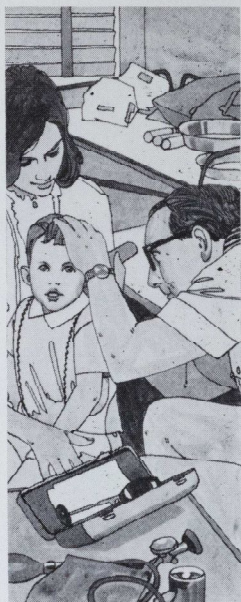


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At the end of five years, if you want to return to civil life, you 'retire' with a tax-free honorarium of £1400 to

£2600 (depending on the length of your cadetship). If you want to stay on in the RAF for a full and satisfying professional career you can apply at any time after two years' service as a Flight Lieutenant.

For more information visit your nearest RAF Careers Information Office—address in 'phone book—or write, giving age, nationality, and details of medical training (including expected date of graduation) to: **Air Vice-Marshal J. Clarke-Taylor, CB, OBE, BSc, MB, ChB, DPH, DIH, RAF (ret'd), Institute of Health and Medical Training (26KA1), Royal Air Force, Halton, Aylesbury, Bucks.**

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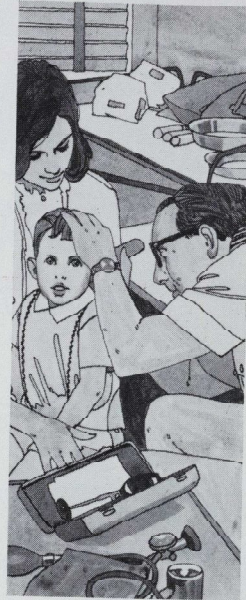


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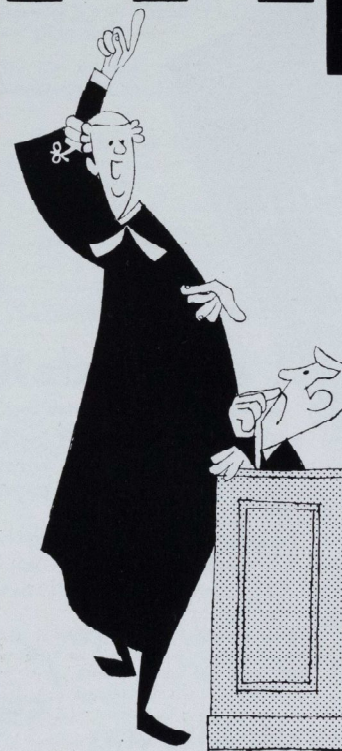
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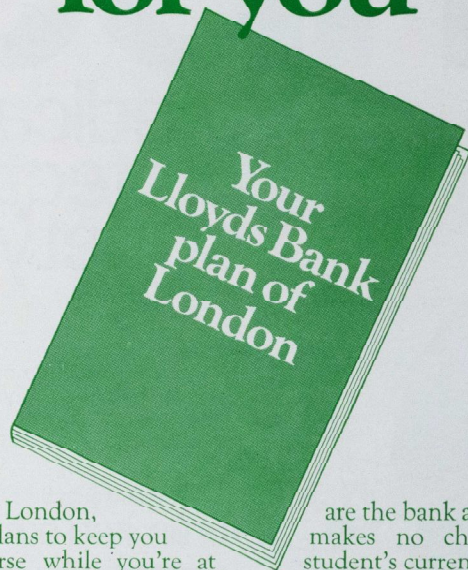
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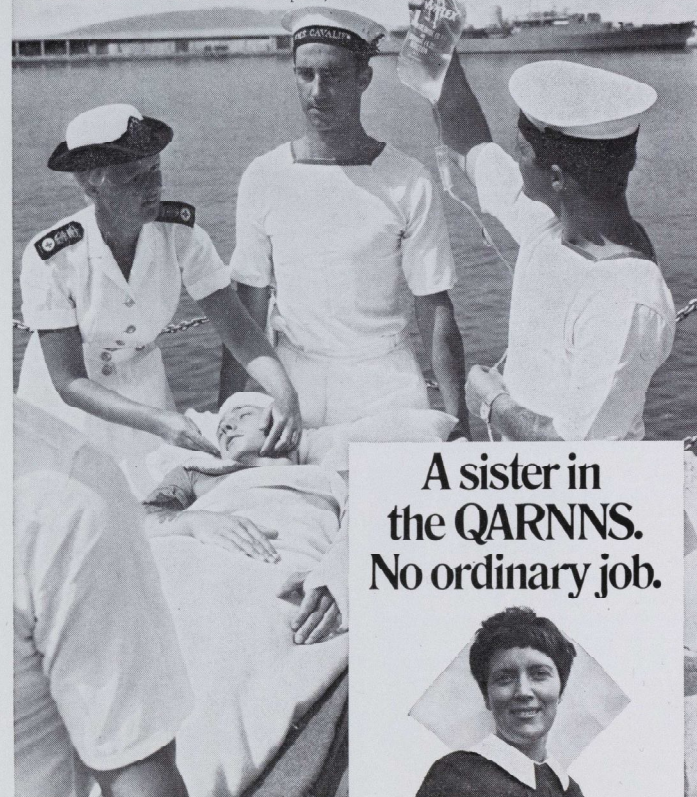
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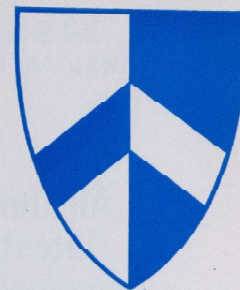
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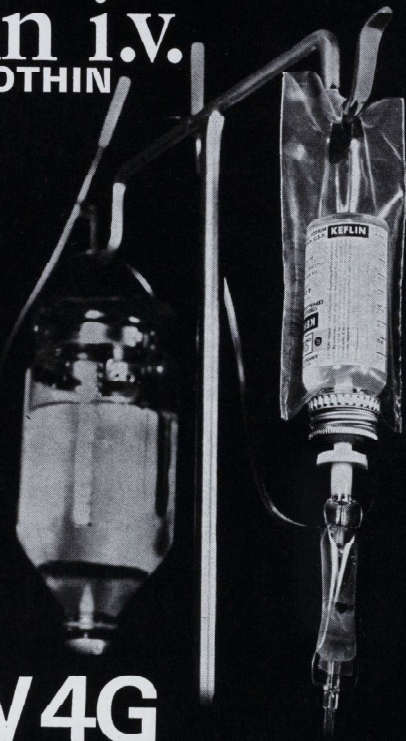
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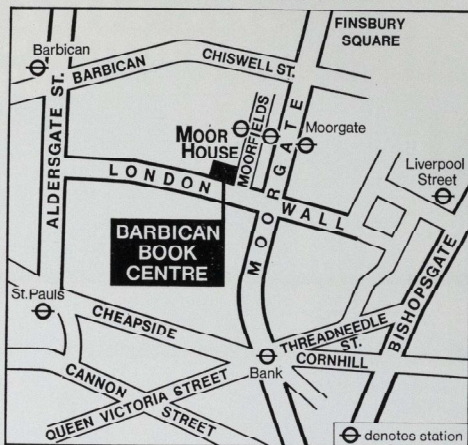


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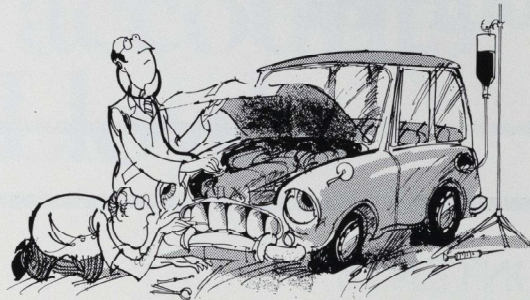
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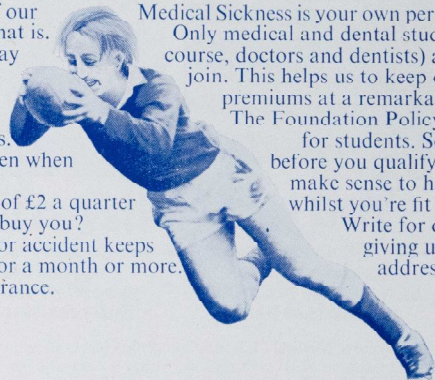
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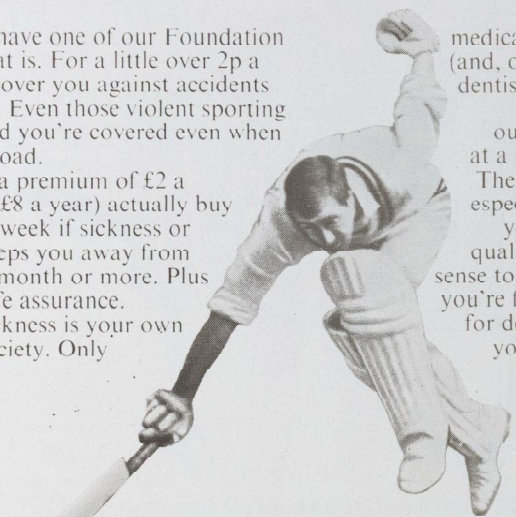
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What does a premium of £2 a quarter (or £8 a year) actually buy you? £10 a week if sickness or accident keeps you away from work for a month or more. Plus £1,000 of life assurance. Medical Sickness is your own personal society. Only




medical and dental students (and, of course, doctors and dentists) are eligible to join.

This helps us to keep our costs and premiums at a remarkably low level. The Foundation Policy is especially for students. So you qualify before you qualify. Wouldn't it make sense to have one now, whilst you're fit and healthy? Write for details today, giving us your name, address and date of birth.

Medical Sickness Society

7/10 Chandos Street, Cavendish Square, London W1A 2LN. Telephone: 01-636 1686

a member of the Medical Sickness Group 

Sensodyne introduces the Sensodyne Softex toothbrush for complete hypersensitivity treatment.

Patients suffering from hypersensitivity often neglect oral hygiene simply because brushing hurts too much. Now Sensodyne can break this pain/fear/neglect cycle, whether the hypersensitivity is associated with gingivitis, periodontitis, surgical exposure, erosion, or other dental conditions.

The Sensodyne Softex brush, used in conjunction with Sensodyne tooth-paste, makes brushing teeth a pleasure again. The toothbrush has specially rounded tufts—no sharp points to scratch or injure gums. The tufts are close packed to give the most efficient cleaning action.

The head of the brush is short and narrow, making it easier to brush properly and clean all parts of the teeth. And there's a special tip of natural rubber for extra gum massage between the teeth.

Sensodyne tooth-paste is specially made for the adjunctive treatment of hypersensitivity. It contains strontium chloride, a unique therapeutic agent with a cumulative de-sensitising action. The more your patient brushes with Sensodyne, the less it hurts, so the habit of regular brushing is quickly regained.

The Sensodyne Softex tooth-brush and Sensodyne tooth-paste used together give the complete treatment for sensitivity sufferers.

STAFFORD-MILLER
Quality products for dental health



Lloyds Bank's advice for the best holiday abroad: prepare for the worst.

At Lloyds Bank we can safeguard you against some of the unforeseen hazards of holidaying abroad.

Like losing your money, or having it stolen. Or getting held up because you haven't the correct documents (viz: a visa). Or suddenly discovering you haven't got proper insurance cover, or the necessary vaccinations.

By helping you avoid these pitfalls we can help you have a happy, carefree holiday abroad.

Firstly, go to a Lloyds branch and get your travellers cheques (you don't have to be a Lloyds customer). They can be cashed all over the world, and if they're lost or stolen you can get a complete refund. In an emergency, Lloyds customers can have cash sent

immediately to a nearby bank.

As well as travellers cheques, all Lloyds branches can supply you with foreign currency (although we need to know your currency requirements a few days in advance). Larger branches — known as Bureau de Change branches — can supply foreign currency on demand.

Lloyds can also help you to obtain your passport and visa, if required. And with holiday insurance for accident, theft or illness.

So when you go abroad, leave your worries at your nearest Lloyds branch. Call in, or complete the coupon for our free 'Going Abroad' booklet. It contains details of all Lloyds services for the overseas traveller.

Take or post this to your nearest Lloyds Bank branch.
Please send me a copy of the Lloyds booklet 'Going Abroad'.

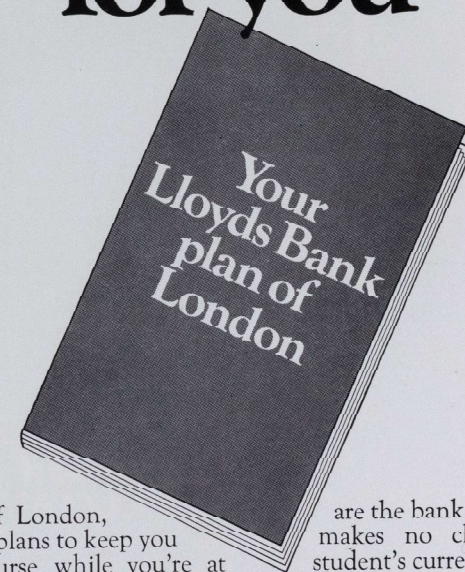
Name

Address

**Lloyds
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Lloyds Bank Travellers Cheques

Students! We've got plans for you



Students of London, Lloyds Bank has plans to keep you on the right course while you're at university. We're giving away large-scale, detailed street maps of London to all students who open a bank account with us.

These street maps have places of interest and Lloyds Bank branches clearly marked, as well as a comprehensive street index. The maps are free of charge. So

are the bank accounts. Lloyds Bank makes no charge for running a student's current account, provided it is kept in credit.

So go to your nearest Lloyds branch, open a bank account and get your map. Then you'll be sure you're always heading in the right direction.

Financially as well as geographically.

Lloyds Bank looks after people like you





It couldn't happen to me...

Couldn't it?

We have plenty of students on our books who found that an accident or sickness could hit them unexpectedly. Some will never work again.

But they were wise enough to take out a Foundation Policy.

It's always been an excellent way of covering basic life and sickness assurance needs for next to nothing. And we've just improved the policy.

Now we will pay you £10 a week if sickness or accident keeps you away from work for a long

time. And the basic life cover is £1,000.


All for only £8 a year. Or £2 a quarter if that helps.

Isn't it time you realised that unpleasant things can happen. To anyone - including you?

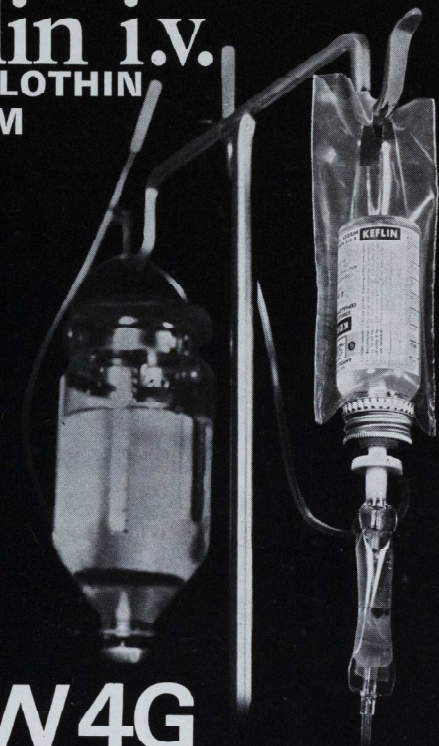
Write for details of our Foundation Policy. Tell us your name, address, date of birth and approximate date of qualification. Do it now, and mark your envelope confidential.

Medical Sickness Society

7/10 Chandos Street, Cavendish Square, London W1A 2LN telephone: 01-636 1686

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THE NAVY IS OFFERING TWENTY-FIVE MEDICAL CADETSHIPS THIS YEAR. ONE COULD BE YOURS.

To be in the running, you must have your 2nd M.B. behind you.

After that, we'll want to be sure you are suited to be a medical officer in the Royal Navy.

For it's a unique way of life.

Serving with the Navy at sea, you'd have absolute responsibility for the health of all on board—and possibly in other ships as well. Alternatively, in Naval hospitals at home and abroad, you'd be caring for Service men and women—and their families.

Wherever you are, you'd be part of a team. Finding new interests—meeting new problems—seeing new faces. For as well as being a doctor you'd be a naval officer—with the travel, the satisfaction and the full rewarding life that every naval officer enjoys.

Of course all this happens after your registration. In the first place, to qualify for a medical cadetship, you must pass your second M.B., or equivalent. After that you must be selected, following a Board interview.

Then while still at medical school, you are just like any other student. Except that we



pay your fees and give you a guaranteed salary of £1,814 a year in the rank of Surgeon Sub-Lieutenant.

When you qualify you can spend your pre-registration year either at your hospital or one of ours.

After which we promote you to Surgeon Lieutenant, your pay goes up to £3,668 a year and you begin your short career commission with us for five years. When you leave us you'll take a lot of useful experience with you—together with a tax-free gratuity of at least £1,400.

As well as 2nd M.B. students, the Navy also enters qualified doctors for a 5-year short career commission. (Applications should be made during or after pre-registration year.)

Write now to Surgeon-Commander F. M. Kinsman, R.N., (26 AZ), Dept. of the Medical Director-General (Navy), Empress State Bldg., London, S.W.6, and tell him your age and qualifications. In return he'll tell you more about the advantages of applying for a medical cadetship or commission with the Royal Navy.

RN
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