VOLUME 40 1971 PART I

THE ULSTER MEDICAL JOURNAL

PUBLISHED BY
THE ULSTER MEDICAL SOCIETY

CONTENTS

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INSTITUTE OF CLINICAL SCIENCE,
GROSVENOR ROAD, BELFAST BT12 6BJ.

.....19.....

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THE
ULSTER MEDICAL JOURNAL

PUBLISHED ON BEHALF OF THE ULSTER MEDICAL SOCIETY

VOLUME 40 1971 PART I

"THE ULTIMATE DIAGNOSIS"

By **KIRK FORSYTHE, V.R.D., M.D., F.R.C.G.P., D.P.H.**

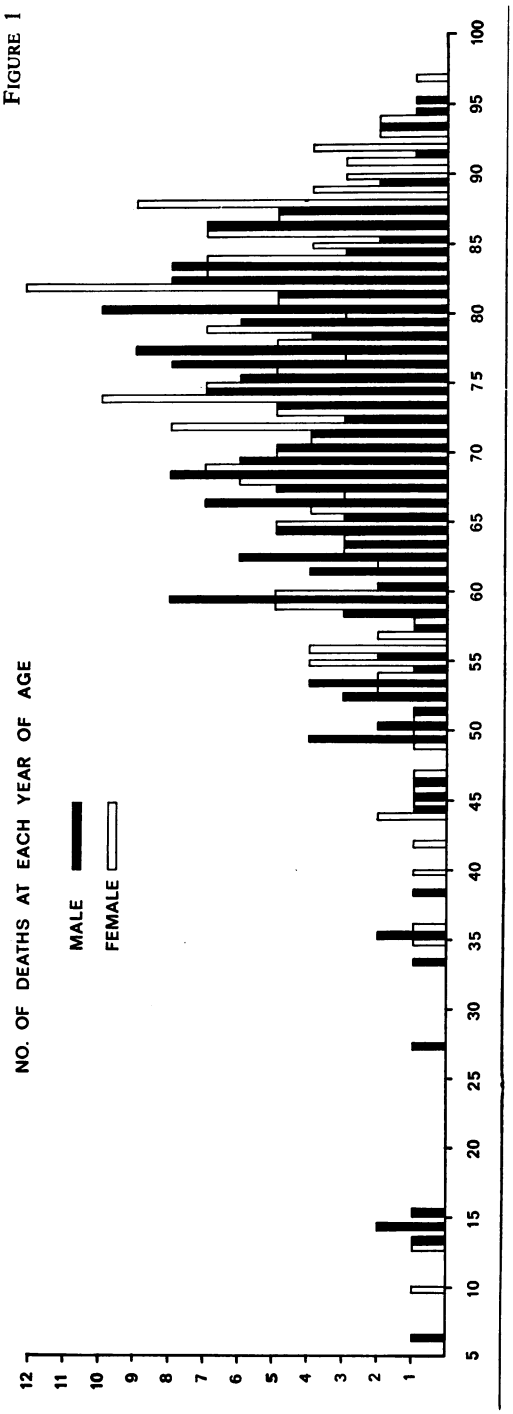
Presidential Address delivered before the Ulster Medical Society on 1st October, 1970

IN a short article in the British Medical Journal last year, a general practitioner recorded that one day the local postman said to him: "Doctor, most of those who pass away round here are patients of yours." It would certainly be true to say that many of those who have passed away in the Belmont area of Belfast during the past forty years were patients of mine, and this is a matter of mingled pride and regret. In the practice of clinical medicine we inevitable accept death as the conclusion of many of our cases. In general practice, however, the death of a patient brings to an end a professional association which may have extended over 40 years or more, and, on looking back, there are few deaths which I do not remember – some very clearly.

I have made a survey of all the deaths of patients in my practice during the past twenty-four years; that is to say, from my resumption of practice in 1946, after six years' absence engaged in other affairs, and up to the end of 1969.

I propose to look at three main aspects of the subject. First, the age at which death has occurred, or, as I prefer to regard it, the age to which each patient survived. Second, the broad groups of disease by reason of which death occurred, with some reference to individual cases. Third, there were some diagnostic problems, to which I shall refer. You may fear that this will be a formidable exercise in statistics, but I hope that these fears will be groundless. I acknowledge the essential part which statisticians play in medicine, but my personal orientation to the science was established many years ago, at a meeting of this Society. The occasion must have been the delivery of a paper on maternal mortality, and at its conclusion a much revered past president – only recently taken from our midst – proposed a vote of thanks to the speaker. With tongue in cheek, P. T. Crymble told us that, since graduation, he had conducted only one confinement. Regrettably, the mother had died, and her husband suffered a fatal heart attack at her graveside, completing an overall mortality, in his personal experience, of 200 per cent.

FIGURE 1



The certification of the cause of death may be a difficult task, in many cases. The accuracy with which it is carried out is of importance to the Registrar General, but it is of greater importance to our patients, in a retrospective sort of way, because it depends upon our accurate diagnosis of their condition prior to death, "the ultimate diagnosis", and this is what guided our treatment. Many times I have sat at the bedside of a patient whose puzzling condition required further observation, and I have said to myself, "Supposing this patient were to die during the night, have I any idea what I would enter on the death certificate?" Some doctors have more inventive minds than others, in these matters, and I well remember being told by a midwife, some 35 years ago, of a confinement at which she had assisted a local practitioner, and in which the mother had quite unexpectedly died. The doctor had consoled the relatives with the explanation that everything had proceeded normally until the afterbirth had got up round the mother's heart, and strangled her! I do not know what he wrote on the death certificate.

In the period under review there were 412 deaths, almost equally divided between the sexes. I shall show you a few graphs, but I emphasise that these have no real statistical validity, as they are not based on a known population, and I have no record of the numbers and age/sex groups in my practice over the whole period. They are simply graphic illustrations of the ages at which these patients died, and of what were the common causes of death.

Age at Death

Figure 1 shows the age at death of 412 patients. There were 203 males and 209 females. Twenty-five persons died under the age of 50 years but a nearly equal number (22) survived to over 90 years. One-third of the total lived to 80 years, or over (139). More than half of all these patients lived to ages greater than 74 years. The deaths up to 60 years of age were nearly equally divided between males and females. Between 61 and 70 there was a preponderance of male deaths (M49 F38) but between 71 and 74 the balance swung the other way (M17 F27), to revert again to heavier male mortality between 75 and 81 years (M50 F35). After the age of 81 the longer survival of females inevitably resulted in a greater number of female deaths over this age (M45 F70). Of the 22 patients who survived into their tenth decade, 7 were male and 15 female. The oldest was 97 years of age.

Figure 2 illustrates the same figures, but being in decades, is more easily interpreted. The Psalmist wrote: "The days of our years are threescore years and ten. If by reason of strength they may be fourscore years, yet is their strength labour and sorrow." This is belied by the happy, contented and vigorous octogenarians and nongenarians whom it has been my privilege to attend.

I wished to show some figures to compare with my own, and I was eventually able to find some which are not strictly comparable, but which serve my purpose. I took the Registrar General's mortality figures in different age periods for the City

FIGURE 2

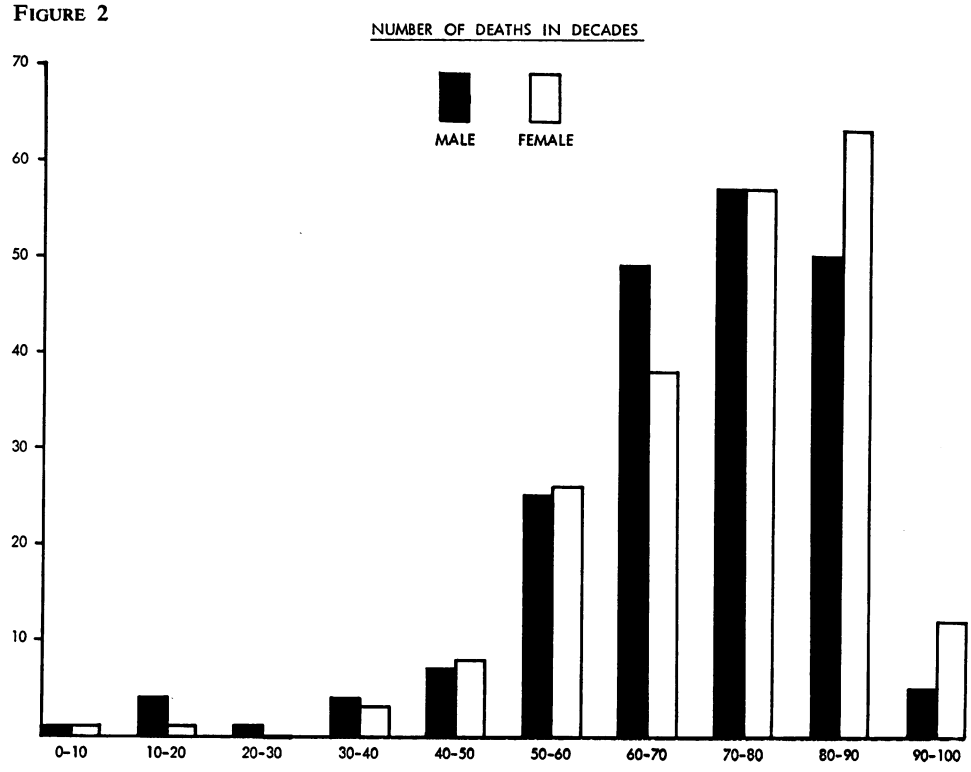
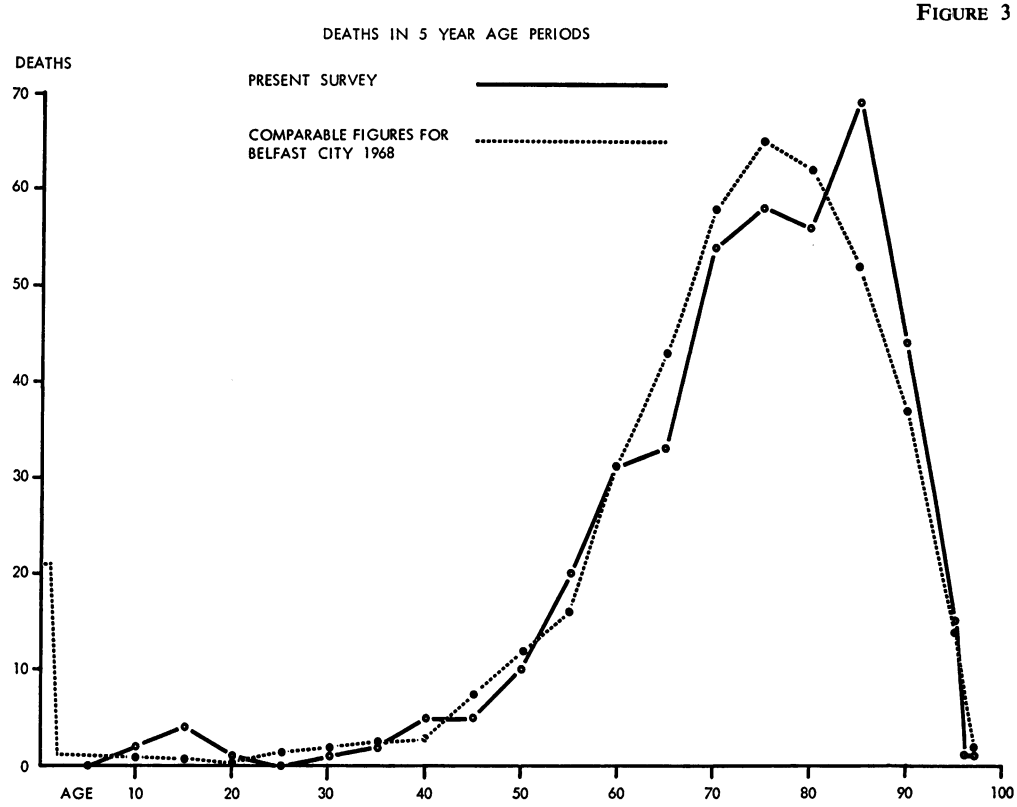


FIGURE 3



of Belfast in 1968, scaled them down proportionately, and plotted them as in Figure 3. The graphs coincide fairly closely up to the age of 60 years, but thereafter more of my patients have lived to a considerably greater age, than in the general city population. This is no doubt accounted for by social groups, standards of living, environment, and many other factors.

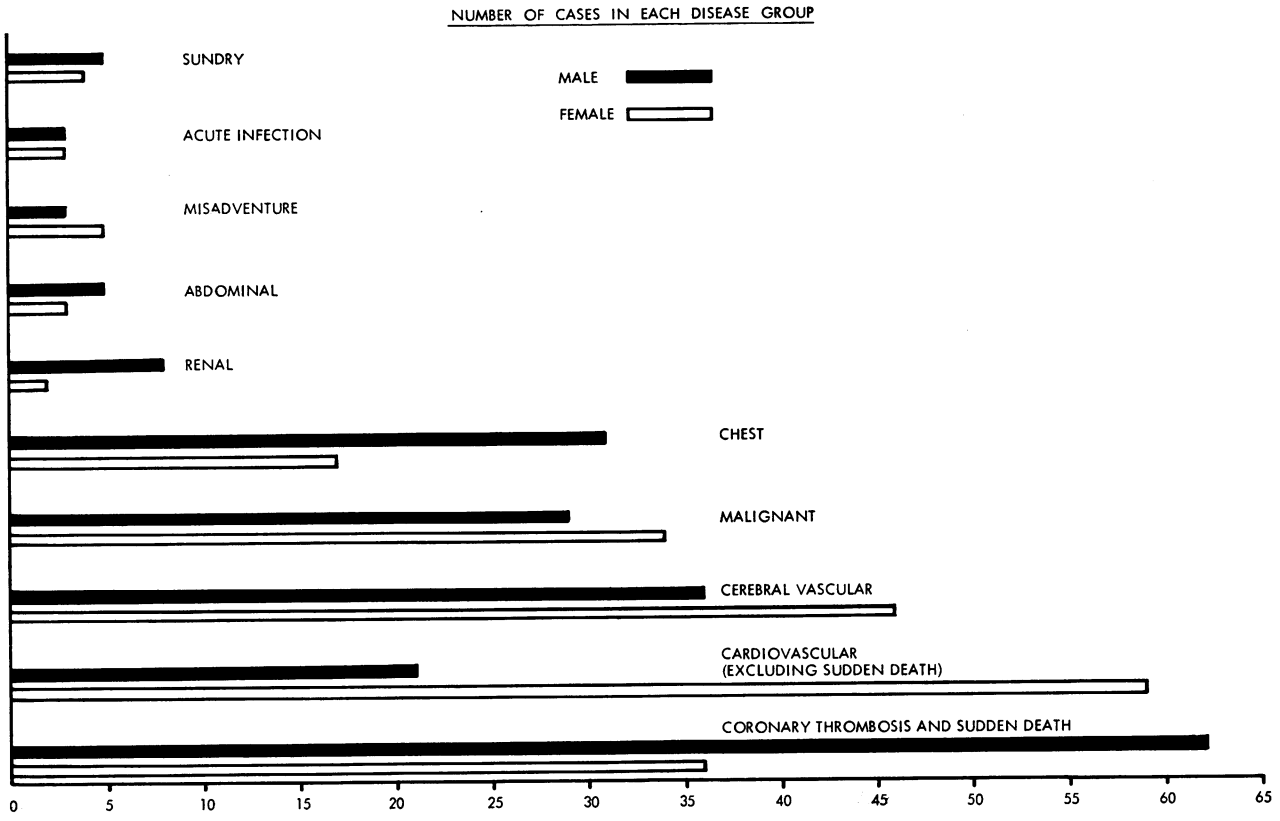
CAUSES OF DEATH

When considering the causes of death, I have found it convenient to ignore the accepted international classification, and to place all the deaths in ten groups. This is open to criticism, inasmuch as some of the groups are based on anatomical or systemic criteria, and others on causative factors, but it makes for simplicity. Figure 4 shows the groupings which I have adopted. All cases of malignant disease are grouped together and are not included in any other group.

Sundry diseases (9)

Four patients died of inanition and exhaustion following prolonged suffering from chronic rheumatoid arthritis. There were two cases of leukaemia and one of Hodgkin's disease. A boy of 14 years died as the result of muscular dystrophy complicated by measles and pneumonia, and a child of 10 years in status epilepticus, in spite of having undergone hemispherectomy.

FIGURE 4


NUMBER OF CASES IN EACH DISEASE GROUP
MALE
FEMALE
SUNDRY
ACUTE INFECTION
MISADVENTURE
ABDOMINAL
RENAL
CHEST
MALIGNANT
CEREBRAL VASCULAR
CARDIOVASCULAR
(EXCLUDING SUDDEN DEATH)
CORONARY THROMBOSIS AND SUDDEN DEATH
0
5
10
15
20
25
30
35
40
45
50
55
60
65

Infective diseases (6)

This is a rather vaguely defined group of infections affecting various organs, but not meriting individual grouping.

1 Polio-encephalitis
1 Influenzal meningitis
1 Non-specific meningitis
1 Infective hepatitis with necrosis of the liver
2 cases of diabetes, who died from general septicaemia.

The case of poliomyelitis occurred in the caterer of a well-known public school, at the very beginning of term, and, naturally, extreme vigilance was exercised during the following two weeks or so. One of the cases of diabetes had been in coma, but made a rapid recovery after the intravenous infusion of glucose and insulin, only to die a week later with general septicaemia and multiple abscesses. This was a long time before the establishment of the Central Sterile Supply Department. The other diabetic died of septicaemia and other major complications arising from infected insect bites.

Accident or misadventure (8)

Three deaths resulted from road accidents and there were two from fracture of the neck of the femur occurring at home. One elderly man suffered a pulmonary embolus following fracture of ribs. A paraplegic, addicted to smoking in bed, died from burns, and there was a very tragic case of accidental hanging.

Abdominal diseases (8)

Two cases of cirrhosis of the liver, one of diverticulitis and one of oesophageal stricture due to hiatus hernia. There was also a case of pulmonary embolism following herniotomy, two cases of non-malignant intestinal obstruction, and a strangulated hernia.

Diseases of the renal tract (10)

There were four cases of nephritis and five of non-malignant prostatic obstruction. The remaining case had tuberculosis of the kidneys and bladder, and eventually died as the result of obstruction of the ureters following transplantation into the colon.

Diseases of the chest (48)

We are now coming to the more common diseases, and the groups are increasing in size. Eight patients died from pulmonary tuberculosis and they were all chronic cases which did not have the benefit of the recent forms of chemotherapy for this disease. All except one died more than twelve years ago, the remaining case surviving, with active disease and chronic fibrosis, to the age of 82, and only died two years ago. Excluding this case, the average age at death of the remaining seven was 51 years, which demonstrates that tuberculosis was one of the "killer" diseases of the past.

There were 17 deaths due to chronic bronchitis, 8 of these being associated with asthma and cor pulmonale. The average age at death of patients with severe asthma, terminating with cor pulmonale, was 60 years – again a disease of the chest which does not lead to longevity. It is noteworthy that 23 patients died from acute bronchitis or pneumonia, in spite of the use of antibiotics. The average age of these acute lung cases was 78 years, and I quote from an article by Dr. George

Adams: "It is a popular fallacy, even among doctors, to imagine that society is overburdened with senility because antibiotics have deprived us of Osler's 'Old man's friend'! Old people still die of chest infections, in spite of antibiotics." But they do not always die. Some years ago, while I was on holiday, a dear old lady, verging on 90 years of age, but with all her faculties, recovered from a severe attack of pneumonia following very heavy dosage with antibiotics. Presumably as the result of anoxia, or toxic causes, her mental capacity became gravely affected, and she spent the remaining seven or eight years of her life in a mental hospital, eventually dying at the age of 97 years. I think that she was quite happy there, and is reported to have thought that she was in a somewhat eccentric hotel, being wont to chide the strangely attired waitresses and chambermaids, from time to time, and possibly to complain to the "manager".

Apart from pointing out its place as a cause of death, I shall defer comment on malignant disease at the moment. The wide variety of its manifestations merits separate illustration.

Cerebral vascular disease (82)

This is a large group, almost entirely comprising very elderly patients, whose lives were terminated by cerebral vascular accidents. There were four patients who died at a relatively early age from sub-arachnoid haemorrhage (one at the age of 28 years) and a woman suffering from severe malignant hypertension, who had a massive cerebral haemorrhage at the age of 59 years.

Cardiovascular disease (excluding coronary thrombosis and sudden death) (80)

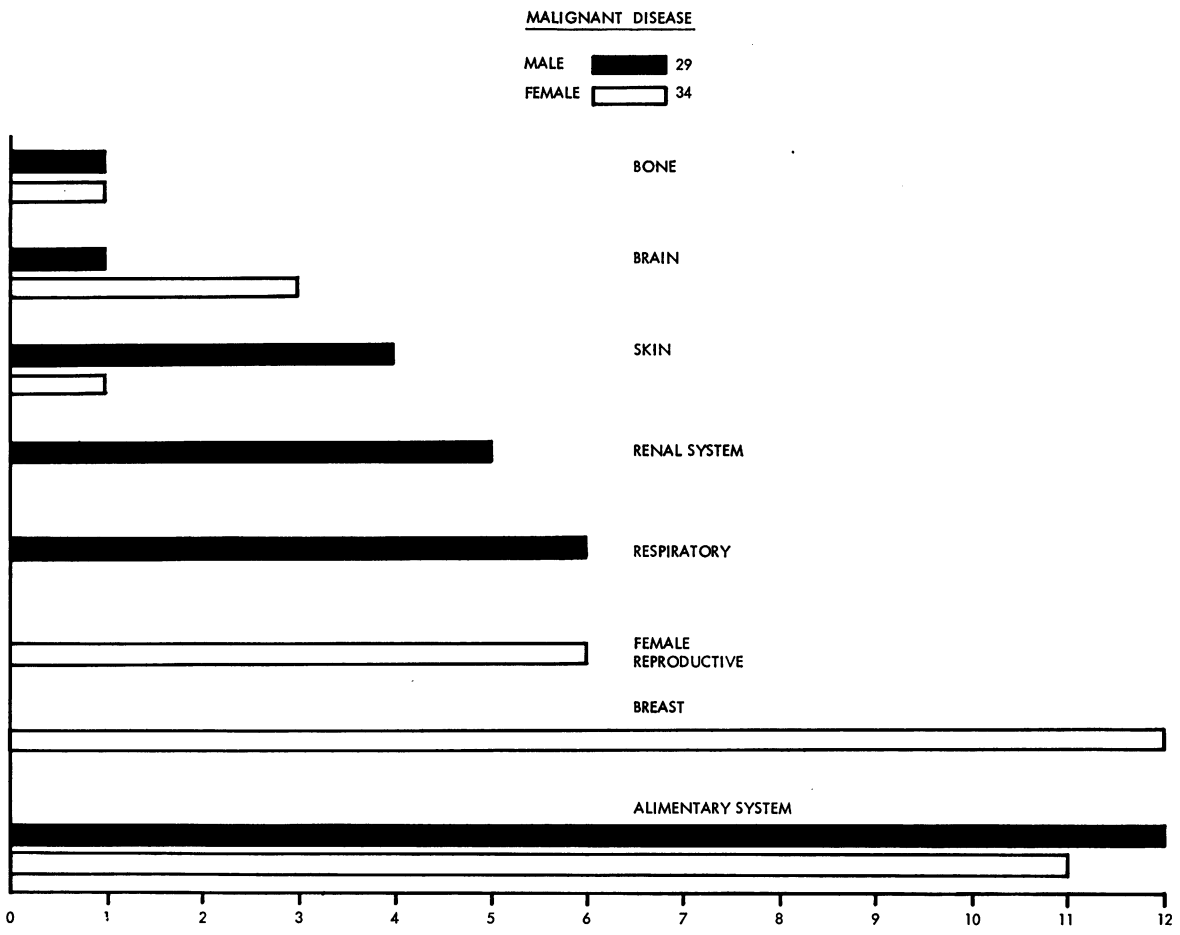
The great majority of the 80 patients whose death was certified as being due to cardio-vascular disease were in advanced years, almost two-thirds of the total being over 80 years of age, and only 8 (or 10 per cent) were under the age of 70 years. This is, therefore, a group, mainly of old people who lived on, free from other mortal disease, until hypertensive or degenerative changes brought about their death by heart failure. There were 4 cases of thrombosis of the femoral artery or femoral vein, and one case of specific aoritis. Only 2 cases of rheumatic valvular disease are recorded, one of whom died following attempted valvulotomy at a very late stage of her illness.

Coronary thrombosis and sudden cardiac death (98)

These 98 patients were either known to have died as the result of coronorary thrombosis, or died suddenly, or were found dead, in circumstances which pointed strongly to sudden cardiac death. At least half of these patients certainly had coronary thrombosis, as confirmed by post mortem examination or by the known circumstances of their death. There is no reason to doubt that the majority of the remainder probably suffered from coronary occlusion, and most of them were certified accordingly. The usual preponderance of males over females in this group is quite clearly shown (M62 F36). There is no doubt in my mind that some of these patients could have been saved, if the modern cardiac emergency service had been available, and I can recollect a number of patients who died suddenly while I was at their bedside.

We can all remember cases of sudden death which caused us some special embarrassment. One patient was reviewed routinely in surgery, his prescription

FIGURE 5


MALIGNANT DISEASE
MALE 29
FEMALE 34
BONE
BRAIN
SKIN
RENAL SYSTEM
RESPIRATORY
FEMALE REPRODUCTIVE
BREAST
ALIMENTARY SYSTEM
0
1
2
3
4
5
6
7
8
9
10
11
12

for tri-nitrin tablets renewed, and five minutes later he died on the roadside 200 yards from my door. Another patient, well-known in public affairs, had an electro-cardiogram done twice within a week, both being reported to be normal, and, on being allowed up, he died half an hour later. Two other patients, apparently previously well, were found dead in their bath. One evening, at the beginning of surgery, I went into my waiting room and found the only occupant to be a corpse.

Further reference to these groups of diseases reveals that death resulting directly from failure of the heart or blood vessels occurred in 260 out of the total of 412 patients, or 63 per cent. Adding 8 cases of misadventure and 63 cases of malignant disease brings the total to 331, or 80 per cent. All the other diseases "in the book" only accounted for 20 per cent of the total deaths, and therefore it is easily seen that any major prolongation of life in the future must depend on a solution of the problem of malignant disease, and the prevention of heart disease in middle age.

Malignant disease

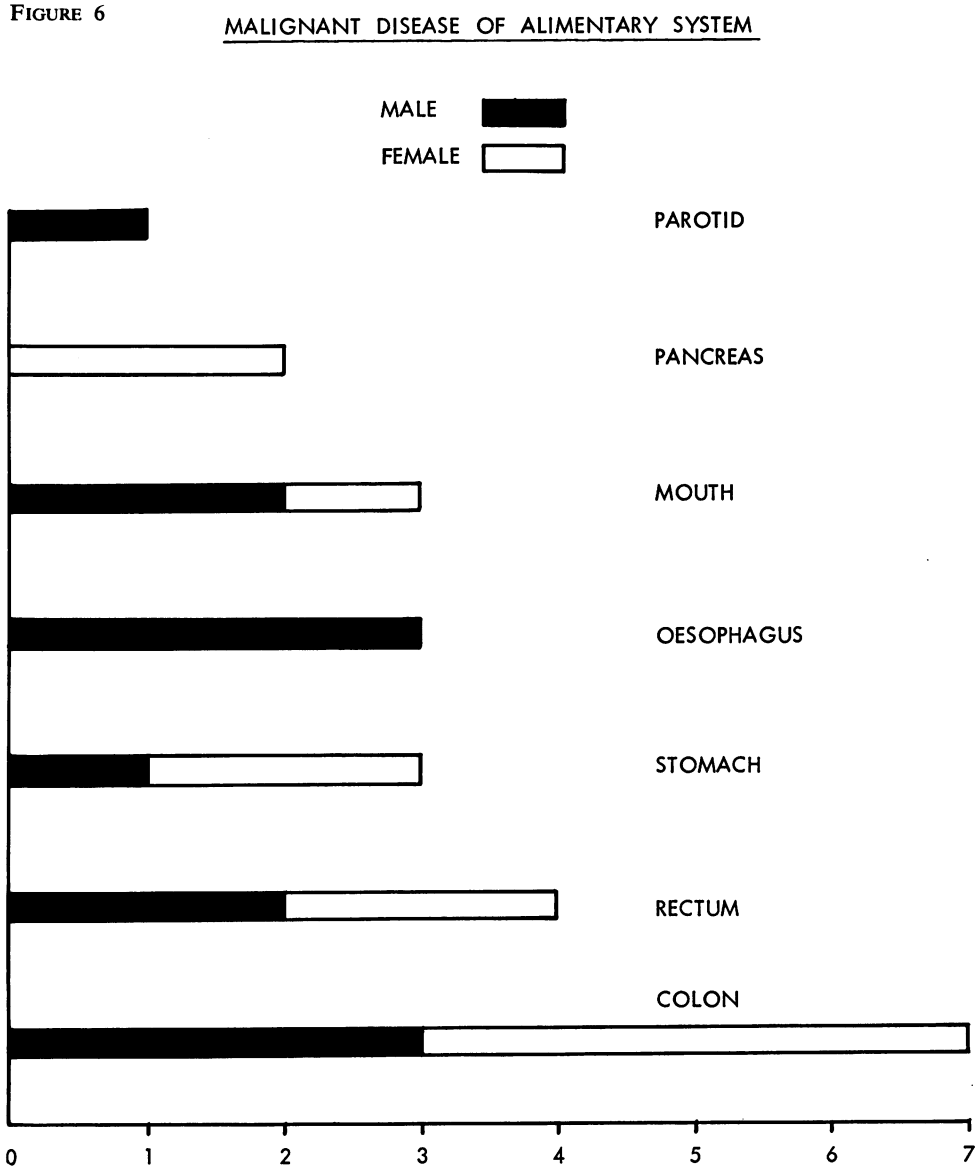
Figure 5 shows the sites in which malignant disease occurred, and its relative incidence in different systems. The number of deaths of females from malignant disease of the breast and reproductive organs has, to a large extent, been offset by the preponderance of males having disease of the skin, urinary tract and lungs. The brain lesions were all primary. (Cases with secondary brain lesions are included in other groups according to the site of their primary disease). There were five cases of malignant disease of the skin (including two of melanotic sarcoma) and three cases involving the mouth. In all these eight cases the lesions were readily visible, emphasising the need for acute vigilance in skin or mouth lesions which might have a malignant basis. Urinary tract disease comprised two renal tumours, two malignant prostates and one papilloma of the bladder. There were five cases of carcinoma of the lung, and one of carcinoma of the larynx – all in males. There were twelve cases of breast cancer, four of disease affecting the ovary, one the vulva and only one uterine cancer. The largest group, as might be expected, was in the alimentary system, and Figure 6 shows the distribution of the various sites.

Looking back over the years one inevitably remembers cases, the diagnosis or treatment of which left something to be desired, or recollects occasions on which some axiom or aphorism has been forgotten. As Jonathan Swift wrote: "A man should never be ashamed to admit he is in the wrong, which is but saying, in other words, that he is wiser today than he was yesterday." The commonest error on my part appears to have been undue concentration on the site of symptoms, instead of regarding the body as a whole, but the factors of pressure of work, and available time, are relevant. In 1950 a mother brought her son, aged 5 years, to my surgery, with the story that he had been noticed to be limping during the previous week, and had stumbled once or twice. Brief examination showed that he had considerable paresis of one leg, and as poliomyelitis was prevalent at the time, I had no hesitation in sending him to the Northern Ireland Fever Hospital. My satisfaction with my diagnosis was short-lived, as Dr. Kane 'phoned me on the following afternoon to say that the boy was in the Neuro-Surgical Unit, for investigation of his brain tumour. He had, indeed, a malignant tumour, and ultimately died in the condition

of opisthotonos – the only occasion on which I have ever seen this.

One Saturday afternoon I saw an elderly woman, who complained of pain in her left knee – which looked normal. Suspecting that she had osteo-arthritis of her hip joint, I made a gentle manipulation, and to my consternation I felt the "snap" as her femur fractured. More extensive examination revealed an advanced breast carcinoma with bone metastases.

FIGURE 6



In 1946, routine screening had not yet became a well established procedure. A middle aged professional man came to Belfast in that year, under my care, with a long history of controlled diabetes. He also had a history of recurrent ischio-rectal abscess, and had frequent obscure febrile attacks. No one had ever thought of examining his sputum, of having a chest X-ray, but at a later date it was found that his sputum was teeming with tubercle bacilli.

An elderly well-known public figure consulted me because of sudden severe pain in the distribution of his anterior crural nerve. This appeared very likely to be due to a lumbar disc lesion, and knowing his impatient temperament, and that relief was likely to be slow, I wasted no time in seeking the support of a consultant orthopaedic surgeon. While agreeing with my presumptive diagnosis, he proceeded to a general examination, and my face reddened when he demonstrated a spleen extending almost to the umbilicus, the result of chronic myeloid leukaemia. The patient was a hunting gentleman, and I had some difficulty in persuading him that a liberal application of strong horse linament was unlikely to relieve his symptoms.

In hospital, errors also occur, but here I think that the main factors are lack of previous knowledge of the patient, failure of communication, temporary loss of touch of the patient with his own doctor, and occasionally the failure of a relatively inexperienced member of the hospital staff to seek a more mature opinion.

Some 20 years ago, a young man, 28 years of age, presented himself, complaining of supra-orbital pain and double vision, and was seen to have a squint and a dilated pupil. This merited specialist advice and he was immediately referred to hospital, but through a combination of misdirection, faulty communication, and temporary loss of contact with me, the only action taken was to do his Wasserman three times in successive weeks, all being reported negative. He died in sudden convulsive coma. In present times I have no doubt that his aneurysm would have been diagnosed and probably successfully treated.

A man, 80 years of age, consulted me about a very odd looking knob on his cranium. My diagnostic skill did not go beyond feeling quite sure that it was not a sebaceous cyst. Rather ridiculously, searching for a possible diagnosis, the only thing which came to my mind was a whisper from a dim past of 40 years ago – something about a "Pott's Puffy Tumour". But I had no recollection of what that was. I referred him to hospital and I eventually received two independent opinions, one advising removal of the "sebaceous cyst", and the other advising that the "sebaceous cyst" should not be removed! Further representations secured his admission to a hospital ward where the correct diagnosis was made, and treatment of the Sarcoma of the parietal bone was commenced.

To emphasise the pitfalls of failure of communication, I will relate one more dismal tale. A woman of 83 years was admitted to hospital with a firm diagnosis of carcinoma of the rectum. She had a detailed letter, stating that she was also known, by previous investigation, to have a freely mobile and palpable right kidney. I do not know what became of my letter. The patient returned home two weeks later – not with a colostomy as I had expected, but with a paramedian scar, and a report that laparotomy had shown the swelling in the right upper quadrant of her abdomen to be her right kidney.

I would like to refer now to a few incidents which have lingered in my memory for various odd reasons.

In 1957 a young woman of 34 years, with advanced carcinoma of a breast, submitted to a series of surgical manoeuvres including mastectomy, hypophysectomy, oophorectomy, and other extensive therapy. Three years after her death, her sister, then aged 36 years, came to see me, and volunteered that there was something wrong with her breast. My first reaction was that, with knowledge of her sister's case, she was probably seeking reassurance about a trivial lesion, or at worst, had a very early and probably curable nodule. To my consternation she then revealed a huge ulcerating carcinoma. She had not wanted to worry her two remaining sisters! To the best of my knowledge they remain in good health, but I have always had some apprehension when I have noticed either of them in my waiting room.

Two elderly sisters, aged 82 and 88 years, led a rather spartan and independent life, but were rarely ill. In the severe winter of 1958/59, when there was deep snow on the ground, I was asked to call. Their house was bitterly cold, with no sign of a fire or a radiator. I doubt if there was any food. Both women were in bed, helpless, their limbs icily cold and blue, and their legs covered with large lesions of bullous impetigo. They were classical cases of hypothermia, and were immediately admitted to hospital, but died soon after. And so, two old women almost froze to death in a busy populous city suburb, because no-one knew of their plight.

An old gentleman developed an odd looking raised brawny area of skin on his shoulder. As it increased in size, and I had never seen a similar lesion, I asked Dr. Reggie Hall to advise me, and he had no hesitation in recognising a sarcoma of the skin. In spite of treatment, it spread uncontrollably. Shortly before this, at about 90 years of age, he underwent removal of his prostate, and very intensive post-operative resuscitation measures were required. He was able to return home some weeks later, and told me that he felt well, but he complained bitterly about a pain at his left ankle. This I was able to relieve by removing a rather dirty bandage and extracting a tied-in intravenous cannula, obviously there for many days, if not weeks.

A few years ago, looking over my morning mail during breakfast, I noticed an envelope addressed in distinctive handwriting, which I immediately recognised as being very well-known to me, but I could not identify the writer. Little wonder, perhaps, because I had last seen this handwriting some 35 years before (which leads me to explain that this anecdote will have little or no meaning to our younger members, but may be of interest to my contemporaries). The letter was from an elderly lady, asking me if I would accept her as a patient, which I was glad to do. She later developed a hemiplegia and was cared for, at first, in a hospital which she had served faithfully for many years, and after that was in Dr. Adams' care in Wakehurst House. Dr. Adams has told me that on asking her one day how she was, she insisted that she was very well and had nothing wrong with her, and when he suggested gently that perhaps she might have had a "wee stroke", she sat up straight, and said with outraged pride, "The Luttons do not have strokes." One could wish that this spirit was more commonly displayed.

I will describe two cases, in which the patients' awareness of serious illness was in marked contrast.

The first, a clergyman aged 82 years, suffered a very severe attack of coronary thrombosis and it was immediately apparent that his condition was very grave. Having given him the necessary pain killing drugs, etc., I retired to the drawing room and told his relatives that his prospects of survival were very small indeed. I returned to the bedroom where the patient greeted me with a smile, said that his pain was much easier, and asked if he could get up in the afternoon! He died about two hours later, but apparently had no insight into the gravity of his condition.

The other case was a very elderly medical colleague, whom I had attended for some years. He was somewhat chesty, had a poor circulatory system, and an abdominal aneurysm, but he got along fairly well. I was surprised to be asked to see him one evening, as I had already visited him that morning, when his condition seemed much as usual. When I entered his bedroom, he said, "Doctor, I'm done." When I demurred, he said firmly, "Doctor, you know and I know that I will not be here tomorrow morning." I examined him again and I could not support his pessimistic prognosis, but I was puzzled, and I sat and watched him for some time. Very gradually the picture changed and he became more ill-looking, with evidence of failing circulation. He reached out his hand, shook mine, and said, "Thank you for all you have done for me." He was dead within an hour. This old man had quite clear awareness of his impending death.

We have considered the "Ultimate Diagnosis". Finally may we consider the situation when the "Ultimate Prognosis" appears to be that of inevitable death. Fewer than 40 per cent of the patients, whom I have referred to, died in hospital – the great majority of the remainder in their own homes. To use a topical, but unhappy phrase, unless there are "obvious compelling reasons" for hospital treatment, I am quite certain that every effort should be made to care for terminal cases in their own familiar surroundings. Relatives, even if unskilled in nursing, can provide soothing care and comfort. The presence of the family doctor is not regarded lightly. Surely after a happy life, it is fitting that it should be relinquished only in the presence of one's "Lares et Penates". I cannot phrase it more aptly than by mis-quoting Oliver Goldsmith, who might well have written, in "The Traveller" –

"Where-er we roam,
The first, best nursing home
Is still at home."

ACUTE POLYNEURITIS CRANIALIS WITH TOTAL EXTERNAL OPHTHALMOPLEGIA AND AREFLEXIA

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A CASE of acute neurological disease presenting with complete external ophthalmoplegia, bulbar palsy and areflexia is described here in order to stress the fact that, whereas the condition is very alarming, the ultimate outcome is very good.

CASE-REPORT

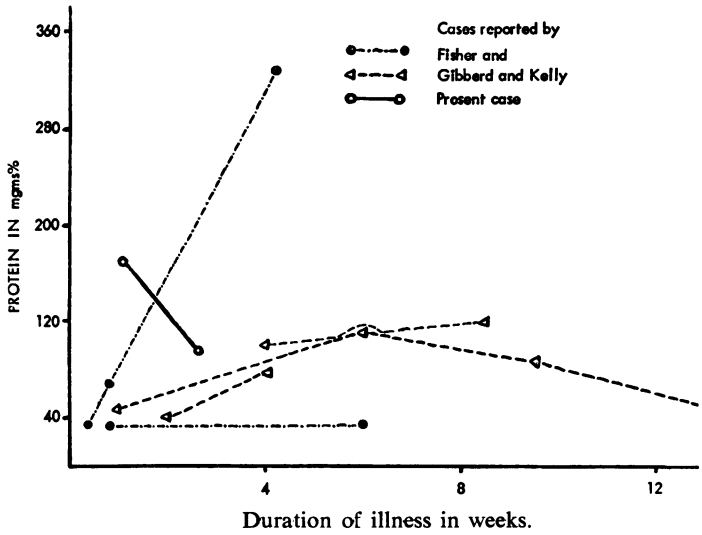
Mrs. S. C., aged forty-one gave birth to a female child on March 19, 1970. She had a manual removal of placenta without anaesthesia and the baby needed resuscitation. Ten days later, on March 29, 1970, she noticed dizziness and unsteadiness in the morning. She also noticed that her voice was low pitched and hoarse. When she ate her breakfast she could not swallow properly and fluids regurgitated through her nose. The following day she complained of double vision and also tingling and numbness in her hands and feet. Her voice became so hoarse that she was barely able to speak. During the next twenty-four hours there was further deterioration with progress of all the symptoms, but the double vision disappeared. On examination on 3rd April, 1970 she was found to be alert, fully orientated, her mental functions and special senses were normal. Although the pupils reacted briskly to light, there was complete loss of movement of the eyes in all directions with slight bilateral ptosis and the eyes were fixed in the forward-gaze position. Mild bilateral facial weakness was also present. The palatal arches did not move and the gag reflex was absent. She was unable to cough. There was no weakness of trunk or limb muscles. However, all the tendon reflexes were absent and the plantar responses were flexor. She had mild tenderness of the muscles of the upper arm. Sensation was normal and her gait was slightly ataxic.

Investigations: A full blood count, serum electrolytes, a radiograph of chest and skull were normal; E.S.R. was high (57 mm. in first hour). A lumbar puncture showed clear cerebrospinal fluid (C.S.F.) under normal pressure. C.S.F. protein was high (Figure) with normal cells (less than 1/c.mm.) and a slightly abnormal Lange's colloidal gold curve (0123321000). The Wasserman reaction in blood and C.S.F. was negative. Tests and culture of bacteria and viruses from throat, urine, faeces, blood or C.S.F. were negative.

Progress and Treatment: Intravenous injection of 10 mg. edrophonium hydrochloride on two occasions did not improve the opthalmoplegia. A week after the onset of illness, paraesthesae, dysphonia and dysphagia began to improve. However mild bilateral facial weakness of lower motor neurone type progressed and became very marked in another four days; Bell's phenomenon became positive on both sides and she was unable to close her eyes properly. At this time the eye movements also began to improve. She was able to swallow fluilds without regurgitation through her nose and the tendon reflexes returned in the lower limbs. Thereafter all the signs gradually cleared up. A definite improvement of the facial weakness

on the left side was noticed on 15th April, 1970. On the same date there was no dysphagia, the eye movements had returned to a great extent and all the tendon reflexes were present. The E.S.R. had come down to normal in ten days and C.S.F. protein was also less but not back to normal in the third week (Figure). Electromyography and nerve conduction studies were normal. The patient did not receive any form of medication.

FIGURE



Protein levels in cerebrospinal fluid during the course of illness.

DISCUSSION

There were several clinical features in this patient which are worthy of emphasis—for example, complete bilateral external opthalmoplegia, areflexia without loss of power or sensation and the striking symmetry of neurological signs. There were no prodromal symptoms and the condition progressed for the first seventy-two hours followed by spontaneous improvement in the second week although the facial weakness became quite evident later on. The cerebrospinal fluid protein was high in the second week of the illness coming down but remaining high in the third week.

As there were no signs of a pyramidal or a sensory tract lesion it is likely that the lesion in this case was in the course of cranial nerves i.e. it was polyneuritis cranialis. In the absence of mental symptoms, headache and neck stiffness, and with normal cells in cerebrospinal fluid, it is unlikely that the patient had encephalitis or meningitis. Wernicke's disease was not considered as there was no evidence of malnutrition. No toxin was found and in particular botulism and diphtheria were excluded. Absence of response to edrophonium hydrochloride excluded acute myasthenia gravis.

Areflexia with bilateral facial weakness and cyto-albuminologic dissociation in the cerebrospinal fluid suggested that the patient had a "Guillain-Barré type of neuropathy". The predominance of cranial nerve palsy indicated that the brunt of the disease was borne by the cranial nerves. Marshall (1963) in his review of cases

of Landry-Guillain-Barré syndrome observed that some of the patients also had involvement of the cranial nerves and two of these had complete external ophthalmoplegia. One of the cases of polyneuritis reported by Dreifuss, Hurwitz and John (1957) also had complete external ophthalmoplegia.

There are many similarities between the cases of ophthalmoplegia associated with peripheral neuropathy and cranial nerve palsy described by Fisher (1956), and Gibberd and Kelly (1964) and the case described here for example, the illness progressed in all the cases from forty-eight hours to seventy-two hours; there was spontaneous improvement in all the cases indicating a good prognosis; the C.S.F. protein was usually high in the second or third week (Figure) and came down subsequently. Pupillary reaction to light was only sluggish and not completely lost in the three cases with total external ophthalmoplegia reported by Fisher (1957), and one of the three cases reported by Gibberd and Kelly (1964) also had external ophthalmoplegia without internal ophthalmoplegia in the early stage of the disease.

Gibberd and Kelly (1964) considered mumps infection in their cases as antibody responses to mumps virus were present in these cases but they felt that it was unlikely, because none of their patients had been in contact with mumps and that they did not have the usual manifestation of mumps. In the present case there was no evidence of infection with mumps virus and hence it supports the view of Gibberd and Kelly (1964) that the condition is not due to the virus.

Summary

A case of complete external ophthalmoplegia associated with bulbar palsy and areflexia is described. Although the cause remains obscure, it appears that the syndrome is a form of Guillain-Barré type of neuropathy affecting mainly the cranial nerves (polyneuritis cranialis).

I wish to thank Dr. J. H. D. Millar for his permission to publish this case and also for his helpful criticisms.

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THE FOUNDATIONS OF BELFAST MEDICINE

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ADDRESS TO ULSTER MEDICAL SOCIETY ON 3rd NOVEMBER, 1970

Let us now praise famous men
And our fathers that begat us.
—ECCLESIASTICUS.

THIS PAPER is about some of the men who were founders of the profession of medicine in this area, and who created its medical school. It also includes one Ulster man who, while contributing nothing to this particular area, made an indelible mark on British medical and scientific affairs. The older generation should remember the work of these pioneers with thankfulness: the younger generation should be told of them, for many of the printed sources of information are not generally available. As distance makes the mountains stand out from the hills, so does the passage of time make great men stand out from their more ordinary fellows.

This story is in many ways an anthology. As Montaigne says:

> I have gathered a posie of other men's flowers,
> And nothing but the thread that binds them is my own.

To initiate social undertakings of various kinds, to found hospitals, medical societies, colleges and universities – all these need men of courage, vision and enterprise. They have to be as undaunted as that famous creature, Robert the Bruce's spider. And who is to say to what extent that arachnid's capacity for endurance was influenced by the toughening qualities of Ulster's unpredicable and exasperating climate?

The view of modern Belfast from McArt's fort shows a great city spreading far beyond its Parliamentary boundaries up the Lagan valley and to the flanking hills of Antrim and Down. It gives little idea of the original small town at the river crossing, still less of the site on which Belfast arose. This was at all times flat and swampy. In winter floods must have been widespread. To get any idea of it it is necessary to take away bridges and their approaches, to remove quays which have been repeatedly widened, and to excavate and inundate reclaimed land. The east bank of the Lagan can be traced close to the first mile or so of the Co. Down Railway track to the north-east of what is now called Bridge End, and then upstream by the Short Strand and Ravenhill to about the site of the present Ormeau Bridge. The western shore is more difficult. Great sloblands lay in the area now covered by docks, Corporation Street and York Street. A more solid strip of ground then projected eastwards towards the Down side and is today the Ann Street, High Street and Waring Street area, ending at the west side of Victoria Street. The tip represented by the Ann Street–Victoria Street intersection most closely approached the opposite bank, and here there was a sandbank which provided a ford at low water. The stream that ran down what is now the middle of High Street was perhaps what made the sand build up at this point.

South of the sandbank the estaurine waters of the Lagan and the Blackstaff spread widely. The Blackstaff was so wide that the lowest place at which it could first be bridged in former days was the point to which the tide still rises – the Great Salt Water Bridge of Belfast, literally underneath the present Boyne Bridge.

From this apex the Blackstaff widened until it made its junction with the Lagan by an opening that is now represented to the north by the north-east corner of Victoria Square and to the south by the present outfall in the gasworks estate. Such was the watery wilderness that provided the site of Belfast. The ford across the Lagan here was one of the type called in the Gaelic a Farset – a tidal ford. The little stream just north of it thus became known as the Farset River. Bealefarset was therefore the place at the mouth of this river, and the name became corrupted to its modern form. The site was of strategic importance to many people: native Irish, Normans and later planters. But it was the Chichesters who eventually caused a small town to be built here. It got its first Charter in 1613. A map of 1660 gives some idea of it and its five named streets: High Street, Waring Street, North Street, Bridge Street and Skipper Street. It had earthen walls, though there was masonry at the gates. There was no bridge across the Lagan, though this was under consideration. The only building of importance was the Castle. It stood on the site now occupied by the British Home Stores, and it is interesting to see how the entrance to the grounds and the entrance to the building still correspond to present day topographical features. Such was Belfast when it was first mentioned in medical affairs.

When Robert Esler, then Senior Physician to the Ulster Hospital, addressed the Ulster Medical Society during the 1886–87 session on the early history of medicine in Belfast, he did what many have done since, and quoted extensively from George Benn's monumental history of the town, which had been published ten years earlier. Benn had described how, under the Cromwellian Government, Ireland had been divided into fifteen Precincts, of which Belfast and Carrickfergus, with the Counties of Antrim, Down and Armagh, formed one, and he, in turn, quotes a letter to the Commissioners at Belfast on 22nd September, 1651, in which they were informed that

> If there be want of a Doctor and Apothecary amongst you and you can find fit and able persons for that purpose we leave to you the choice of them and the granting of their salaries, only limiting you in this that you exceed not £100 yearly to the Doctor, nor £50 yearly to your Apothecary.

The next matter to which Esler referred, and again Benn is the source, is the Great Military Hospital of the Williamite campaign.

> Schomberg, said Esler, had landed 10,000 men at Bangor on 13th August, 1689, and William and Mary had just been proclaimed in Belfast, through which James's troops had recently marched.. This town became winter quarters in 1689 for the army which had been at Dundalk on duty. Thomas Pottinger, the Governor, asserts that at his own expense he furnished a hospital and storehouse for the men on their return to winter quarters, and here the sick were attended to during the early months of 1690, and prepared for the deadly conflict in which they were so soon to be engaged on the banks of the Boyne.

Benn quotes several Petitions in full, but an extract from one will suffice to show the economic position.

To the Queen's Most Excellent Majesty, The humble Peticon of Thomas Pottinger of Belfast in the Kingdom of Ireland Merchant
Sheweth

That your Petr., being Sovereign of Belfast . . . on the Irish Army's Descent into the North, the whole Inhabitants and Merchants (a few excepted) transported themselves & Families into Scotland and other parts, leaving their houses, goods and effects behind them. And seeing the ruin that was like to fall on the . . . Town your Petr. resolved to stay for the preservacon of the same, and accordingly under God was the means thereof . . . which preserved the same until the Army was past . . . By your Petrs. endeavours . . . not any part of the protection was violated until it pleased God Duke Schomberg arrived, when there being few Gentry in the Country, your Petr. had the whole Charge of quartering his Forces in Town & places adjacent, and the transporting Baggage to Carrickfergus in order to the Siege and after to Dundalk and furnishing horses from severall parts to carry bread & other provisions with the Army, and likewise waited on the Duke at Dundalk to take care of the sick men on their return to Winter Quarters, furnishing them with a Hospitall & Storehouse of his own without payment . . .

Nor was he reimbursed one penny . . .

And your Petr. shall ever pray, &c.

Benn quotes George Story, an Englishman who was a Chaplain with William's Army, and who afterwards became Dean of Connor. Many army patients were admitted to the Great Hospital of Belfast, as it was called. Dr. Lawrence was sent from the camp to the Hospital to look after them, and it is said that, between November and the following May, 3,762 men died in it. Fever spread from the military patients to the civilian population, and Story records that

> he has sometimes stood upon the street (of Belfast) and seen ten or a dozen corpses of the townspeople go by in little more than half-an-hour.

It is hardly surprising that this hospital was closed on the completion of the successful campaign. An unpublished paper by R. M. Young has preserved a frivolous detail. A surgeon at the Military Hospital kept a flock of ducks fed on poultices, but they proved a drug on the market on this diet becoming known.

At that time Belfast was certainly not without its doctors to meet the needs of the ordinary civilian population on a paying basis. And it can hardly be supposed that those who could not pay were just left quietly to die, but in many respects the medical canvas of the period is a blank. There was no corporate medical life such as is now represented by the British Medical Association or the Ulster Medical Society. There was no hospital of any kind. There was no thought that some day there would be an important medical school with an influential Faculty. It is difficult to disentangle the threads represented by such a mixed growth, yet the attempt is worthwhile, for the story is a fascinating one.

While there must have been many instances of religious or private charity which went unrecognised in those early days, the first glimmerings of any organised philanthropy date from the 17th century, when

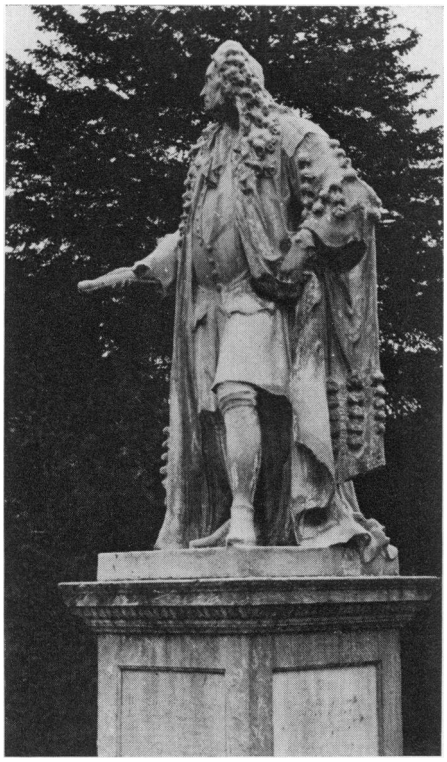
> Edward Holmes, Burgess, dyed in June, 1631, and left to the poor decayed inhabitans of belfast 40 lib.

"Poor decayed inhabitans" is the only name given to those considered in need of help. The complexities of the vast social problem were seen only in terms of general hardship. The little fund grew in spite of the difficulties of the times. Its

several sums are recorded on the Old Parish Church Charity Board, now in Clifton House. For over a century the Poores Money, as it was called, represented the collective municipal effort. It was administered by the Churchwardens, mainly for the direct relief of poverty, but there is one recorded instance of its use to apprentice a child.

Until the middle of the 18th century the medical affairs of Belfast appear to go unrecorded. But in 1660 there was born in Killyleagh, in County Down, a man destined to become one of the most distinguished figures in London medical circles. The Life and Times of Sir Hans Sloane was the subject of a Presidential address to the Ulster Medical Society by Professor W. W. D. Thomson in 1937, but it is not now generally available.

Killyleagh Castle, much of which is the original Norman structure, still dominates the surrounding town, just as it must have done when Hans Sloane was born in its shadow. His father was Receiver of Taxes for the County of Down, and was well-known to the Castle's residents. At that time these were James Hamilton, 2nd Viscount Claneboye, 1st Earl of Clanbrassill and his wife, the Countess Anne, daughter of the Earl of Monmouth. Then, as now, Strangford Lough was a paradise for the birdwatcher and the field naturalist, and the young Sloane was both. He had, too, full access to the extensive library of the castle. From an early age he decided to study medicine, and when he was 19 he went to London, There, it is said, he lived with a chemist named Stapherst in Water Lane in a house adjoining the laboratory of the Apothecaries' Hall, and he spent much of his time in the new Physic Garden established by the Society of Apothecaries at Chelsea.



Statue of Sir Hans Sloane, Bart., in the Chelsea Physic Garden

He continued his studies in Paris and Montpellier, and eventually took the M.D. of Orange, being excluded from that of Montpellier because he was a Protestant. He returned to London and became assistant to the great Sir Thomas Sydenham. He then was given the opportunity of travelling to the West Indies as personal physician to the Duke of Albemarle, and there showed the astuteness of the Ulster-Scot by extensive purchases of Peruvian bark, the source of quinine. Back in London he soon became one of the foremost medical consultants, a Fellow of the Royal College of Physicians and then President, and a Fellow and then President of the Royal Society – a unique combination. He also became a baronet. His great wealth did not prevent him from treating the poor free at his own house, but it did enable him to

add to his already enormous store of curiosities – botanical, zoological, geological and archaeological. This collection represents his greatest claim to fame, for he left it to the Government for a nominal sum, and it formed the nucleus of the British Museum.

He was also rich enough to purchase the Manor of Chelsea from Lord Cheyne, and so became the landlord of his old haunt, the Physic Garden. During his lifetime he granted it to the Society of Apothecaries at a rent of £5 in perpetuity, provided that at least 2,000 new plants were presented to the Royal Society, a target long since far surpassed.

This quiet oasis on the Chelsea Embankment is still a beautiful garden, and still provides colleges, university departments and medical schools all over the Metropolitan area with teaching material. Today the statue of Sir Hans looks out over the pleasant acres where he first learned his Materia Medica, and from which many, usually quite unwittingly, still learn their botany. Hans Crescent, Sloane Street and Sloane Square may commemorate his name, but he is to be for ever associated with the British Museum and the Chelsea Physic Garden.

Sloane died in Chelsea in 1753. For half a lifetime he had been part of an intellectual society that had included Newton, Ray, Boyle, Sydenham, Wren and Locke. His headstone, erected by his daughters, still stands on the Chelsea Embankment near the Old Parish Church, and not far from his beloved Physic Garden.

After the magnificence of Sloane and his contemporaries, dominating as they did, the scientific and medical life of London, a return to the modest affairs of Belfast, then a remote Ulster country market town, is almost painful, but even in those days, the change to country air and the smells of the sea and of turf fires and an altogether simpler and less sophisticated way of life, may have represented the same sort of thing as it means to town dwellers today to get away from it all.

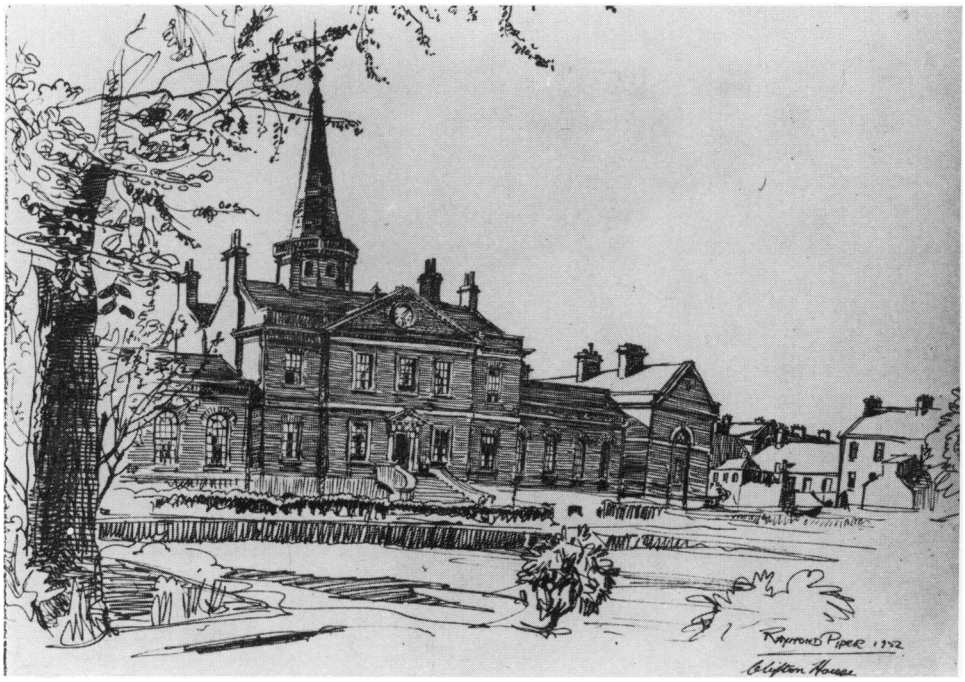
Socially the need for something more than the Poores Money was becoming evident to the ordinary people of Belfast. In August, 1752, a number of men met in the "George" Inn

> to consider of a proper way to raise a sum for building a poorhouse and hospital.

They were merchants of the parish together with the vicar and some of the local medical practitioners. They were men who had business connections with the ports and manufacturing centres of Britain or the Continent, or who had studied in the medical schools and universities of Dublin, Edinburgh or Glasgow. The Lord of the Manor, the Chichester of the day, had no doubt travelled more widely, but it was not contemplation of the Colosseum by moonlight that was to initiate the Belfast Charitable Scheme, but more intimate contact with the problems of the poor, and especially a knowledge of the voluntary hospital movement, then astir in other parts of the British Isles.

It was almost twenty years before they had funds sufficient to build and open the lovely Georgian building known today as Clifton House, and then the President and Assistants of the Belfast Charitable Society, as the members of the corporate body were, and still are, called, had to learn in the hard school of experiment what it meant to relieve hardship. It is a historical fact that they provided hospital beds, an out-patient dispensary and a scheme for the outdoor relief of poverty, that the doctors of the town offered their services free, that for many years the Society was

responsible for the water supply of Belfast, that it was here that orphaned children were first apprenticed to the mechanised cotton industry and that all this was done on a voluntary basis. What is of especial interest now is that, because all the philanthropic work of the town was in the hands of this one Society, they were able to see it as a whole, and then analyse it into its various parts. Hardship was seen to cover many things. Poverty had many causes. The failure of the local harvest could be the ruination of the poor, for wages were fixed, and bore no relation to the cost of living in a year when prices were high, while to conspire to have earnings raised was a legal offence.



Clifton House, Home of the Belfast Charitable Society.

The Charitable Society gradually began to grasp the intricacies of their work. They had to deal with poverty, with the aged and infirm of the parish, with orphaned and abandoned children, with vagrants and sturdy beggars, with insanity, with prostitution. And they had to raise the money to do all this. They were, furthermore, responsible for the day-to-day medical and surgical care of those who could not afford to pay for their own doctoring. Many of these tasks they continued to perform for years, and today, as is well known, Clifton House, to give it its modern name, is a home for the elderly. The first men to attend the sick in the Charitable Society's Infirmary were Dr. Ferguson, Dr. Mattear, Dr. Ross, Mr. Apsley, Mr. Clarke and Mr. Kidley. Little is known of any of them, but if only for one reason their names must go down in the annals of the medical history of Belfast: they were the first members of the staff of the first hospital. These were the gentlemen of the Faculty who were present at a meeting in 1775 and who

advised the Committee of the Poorhouse what equipment they considered necessary for the House's Infirmary:

> Bedclothes . . . An under blanket – a pair of sheets – an upper good blanket – a cover – & a pillow for each bed. Two close Chairs for the great ward – and a table, one Close chair for each of the small wards, & a small table, a chamber pot for each bed. Safe candlesticks for the wards – Three or four sauce pans of different sizes. Half a dozen of table Pewter spoons – Two or three tea spoons. Two or three half pint tins, & as many pint tins. Three or four strong chairs – One pewter bed pan. A dozen of common tea cups.

It was some years before it was realised that the Charitable Society's Poorhouse with its many other obligations could not alone meet the medical needs of the rapidly growing town. The society that was to evolve into the modern Royal Victoria Hospital had a modest enough beginning. Those who first thought of it can hardly have imagined what was to be the outcome of their original intentions.

> We are informed, said the News-Letter of 6–10th April, 1792, that there is an idea of forming a public DISPENSARY in the Town, for the purpose of supplying with Medicine and Attendance in their own houses, Labourers and Artists, reduced to poverty by sickness – It is said that an annual subscription of 100 guineas applied in this manner, would relieve 600 individuals. The Scheme is likewise intended to embrace a HUMANE SOCIETY.

The ideal of a humane society, that is, an organisation for the resuscitation of the apparently drowned, marks the personal interest of Doctor James McDonnell, and indeed this had been the subject of his thesis to the University of Edinburgh. It is interesting to know that one of the earliest meetings held to discuss the new charity was held in the Donegall Arms Hotel, which had been rebuilt in 1786, and is still in use as part of John Robb's shop. The first Consultant Physicians were to be Doctor Haliday and Doctor Mattear, the Attending Physicians to be Doctor McDonnell and Doctor White, while the Attending Surgeons were to be Mr. Fuller and Mr. McClelland. Premises were to be rented, but, in the event, the work of the Dispensary was carried on from the Charitable Society's Poor-House for several years, so that the identities of the two medical staffs at that period are far from distinct.

There is a good account of Doctor Alexander Haliday in Benn's History of Belfast. He was the son of a Presbyterian Minister of Rosemary Street Congregation, and was, in his time, one of the foremost physicians in Belfast. He was a poet of some note, and the composer of a tragedy. He was physician to both the Charitable Society and the Dispensary. The Belfast Reading Society, which later became the Belfast Library and Society for Promoting Knowledge, and which is better known today by its shorter title, the Linenhall Library, because of its early home in the White Linen Hall, was founded in 1788, and though he was not one of the original members, Alexander Haliday was appointed first President in 1792. Young records of Haliday that he used, jocosely, to compare himself to a huntsman, "always in at the death", and that he charged a guinea a mile. He lived in stirring times. In 1770, the Hearts of Steel, a secret society whose activities were directed mainly against absentee landlords, attempted to burn down the house of Waddell Cunningham, who had arrested one of their number for maiming cattle. Doctor Haliday tried to restore peace, and finally went to the military barracks to

secure the release of the prisoner or offer himself as a hostage. Fighting broke out at the barrack gates, but Haliday was able to persuade the military to stop firing.

There was much political unrest. The days of the United Irishmen followed hard on the period of the Volunteer movement, and constitutional hopes of reform eventually gave way to the open rebellion of 1798. That year Haliday wrote to his friend, Lord Charlement:

> Government, he said, after turning our aged, infirm and infant Poor, out of our Poor-House, to their and our great annoyance and distress, insist on our selling it to them in perpetuity; we should take them at their word; or under the present Code, they may take it for nothing; as it was built, as a very great expense, in the most elevated situation this Town afforded, it will make a good citadel; as for the old inhabitants I think it would be right to compel them all, men, women, & children to become United Irishmen, and then either hang them for being such, or transport them for life to Arabia Petrea where those who ask'd for bread will be sure at least to get a stone . . .

The Haliday vault is in the Clifton House cemetery. Benn quotes two extraordinary paragraphs in connection with his death in 1802. The first is part of a letter from Mrs. McTier to her brother, Dr. William Drennan:

> You ask what religious aid Haliday had . . . Three nights before he died Bruce and I played cards with him, & the very night that was his last he played out the rubber. Now, he said, the game is finished, and the last act near a close; blessed the departing guest and sent his love to her sister, was helped up to bed, comforted his wife, spoke of the blessing her sister and Wm. had been to them the last gloomy winter – and the rest you know.

The other quotation is from his will, where, after making considerable allowances to his wife he added:

> I leave her also a Legacy of £100 by way of atonement for the many unmerciful scolds I have thrown away upon her at the Whist Table; and I further bequeath to my said dear wife the sum of £500 in gratitude for her never having given on any other occasion from her early youth till this hour any just cause to rebuke or complain of her, and I further leave to my said dear wife a further sum of £100 as an acknowledgement of her goodness in devoting an hour or two every evening, WHICH SHE COULD HAVE SO MUCH BETTER EMPLOYED, to amuse me with a game of Picket when we happened to be alone, after my decayed eyesight would not longer enable me to write or read much by candle light.

According to Malcolm, from the opening of the Dispensary until January, 1794, the doctors attended 733 cases. No annual meeting was held in 1796. The fortunes of the new venture had fallen on evil days.

> A total want of interest seems to have prevailed at this time, says Malcolm. The institution, consequently, fell into debt, and was in the most imminent danger of being completely abandoned.

In 1797, public enthusiasm for the Dispensary revived, and a subscription list was opened, so that the Committee found themselves able to rent a house in what is now Berry Street.

> April 27, says Malcolm, the first Hospital in Ireland for Fever, opened, with six beds, in Factory Row, Belfast.

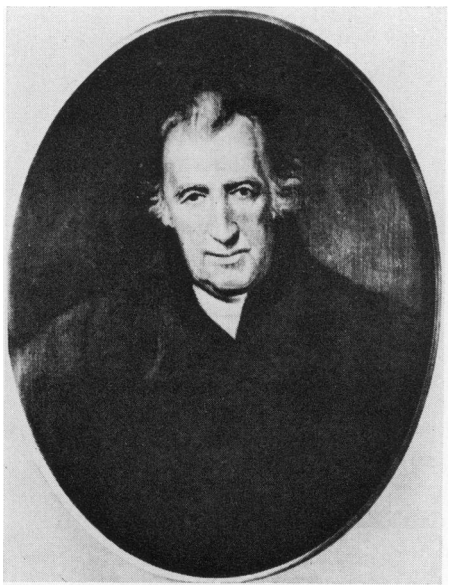
He did not know that Limerick lays claim to having the first fever hospital, not

only in Ireland, but in the whole of the British Isles, for St. John's Hospital was founded there in 1780 by Sir Thomas and Lady Hartstonge.

The physicians to the new Berry Street Fever Hospital were Doctor Samuel Martin Stephenson and Doctor James McDonnell, with Messrs. McClelland, Bankhead and McCluney.

In Stephenson and McDonnell we find two of the great names of early Belfast medicine. They were already well known in the town, for Stephenson had been working at both the Poorhouse and the Dispensary, while McDonnell was one of the founders of the latter charity. Now each was to make his name as a consultant, and as a physician on the staff of a hospital, though in those days there was probably little prestige attached to the holding of such a post, unlike the years that lay ahead.

There is a long biographical note about Stephenson on the back of a faded photograph of his portrait in Clifton House. He was born in 1742 at Straidballymorris in the Parish of Templepatrick. He attended the school of John Rankin, Presbyterian Minister in Antrim, and then went to Glasgow University. After being licensed in 1767 by the Presbytery of Templepatrick, he became Master in the Diocesan School at Monaghan, where for two years he lodged with an Apothecary called Braddock, and where he developed his taste for medicine, which he studied in Dublin and Edinburgh, graduating M.D. of the latter University in 1776. Meanwhile, he received a call in August, 1773, from the Congregation of Greyabbey in Co. Down. His trial sermon, preached the following year, is reported to have been of doubtful orthodoxy, and he refused to subscribe to the Westminster Confession of Faith. It was by a majority of only one vote that he was admitted to the Ministry of the Church, and was ordained by the Bangor Presbytery, reading a written declaration of his own faith. His salary at Greyabbey was £50 with the addition of the Regium Donum. He practised medicine gratuitously in the village and was surgeon to the Greyabbey Volunteers. He resigned his spiritual charge in 1785. He then settled in Belfast where he soon had an extensive practice, succeeding to the position formerly held by the now ageing Haliday, and was to become renowned for his skill in the management of the infectious fevers. It is interesting in this connection to discover that his thesis to the University of Edinburgh showed his early interest in these diseases, for the subject was "De Typho" – "About Typhus". It is said that out of the first sixty fever cases admitted to his care in the little fever hospital, only one died. In recognition of his high character for public spirit and private charity, the General Synod



Rev. Dr. Samuel Martin Stephenson, M.D.

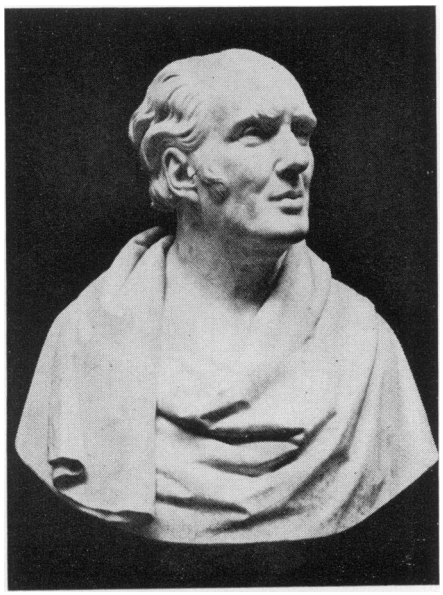
of Ulster in 1818 replaced his name on the Ministerial roll, though he had exercised no clerical duties for over thirty years.

Other facets of his career are worth mention, for in the multiplicity of his activities he was typical of many of the physicians of his day. He took an interest in the manufacture of china in Belfast, and was a partner in a local pottery. He was an amateur archaeologist of note, and had a considerable personal collection of valuable antiquities. He was one of the first elected Board of visitors of the Academical Institution, was Vice-President of the Belfast Reading Society, and a President of the Literary Society. He lived for a time in Waring Street, and died in 1833 at the age of ninety-one.

> He was, said C. D. Pourdon, in a contributed Biography in Benn, incapable of doing a dishonourable or unkind action, and was always most considerate towards his juniors.

His portrait shows a face of great character; strong, thoughtful, understanding and humane.

James McDonnell was an even more remarkable man. Benn's History of Belfast is again the source of much information about him, once more in the form of a contributed article by C. D. Purdon in the second volume. He was born in a house about a quarter of a mile from Cushendall on the road to Red Bay in 1762. His first school was in a cave at Red Bay, and was conducted by Maurice Traynor, who was regarded in the whole area as unrivalled for his teaching. He then attended David Manson's school in Belfast, and finally went to Edinburgh University where in 1784 he took his medical degree. His thesis, as has been mentioned already, was "On the Drowned", and in it he advocated blood transfusion as a final resort. He was soon to gain a dominant place in Belfast medicine, and to retain it throughout his life. His activities in connection with the foundation of the Dispensary, and his association with it, with the subsequent Fever Hospitals and the General Hospital make him an undoubted father figure in local medical affairs. Some, indeed, regard him as the founder of the Belfast Medical School, for there is no question that it was he who was the first person to give a formal clinical lecture in the old General Hospital.



Dr. James McDonnell

> He was, said Malcolm, long the Nestor of science in Belfast . . . No contemporary of any note in Britain was ignorant of his profound learning and distinguished name . . . The Dispensary and the Fever Hospital were peculiarly the objects of his unceasing care. So long as health permitted was he to be seen, night and day, working in the Districts like a very slave, or toiling in the wards for hours.

Like so many of the doctors of his time, medicine was far from his only interest. He had a large library of his own, and a noteworthy collection of objects of botanical and geological interest. One of his books was a gift from the Marchioness of Londonderry, and contained a dedicatory inscription because of the valuable advice he had given her in recommending that her children be nursed by herself, and thereby discouraging the pernicious custom of employing wet nurses. He found time to write a paper on the differential pulse, and it is said that he almost lost his life in doing so. Some authorities state that he anticipated the opinions of Corrigan on aortic reflux, and that the eponym might well have been his. Another of his papers was entitled "Account of a Descent in a Diving Bell".

> His appearance, it is recorded, was well known to every one of the inhabitants, as he always went about clothed in drab-coloured knee-breeches and white stockings. When travelling, he would always be seen sitting beside his servant "Mike", and reading a book through a magnifying glass held in his hand. "Mike" was as well known as Sir Astley Cooper's Jew-driver was; he always considered that he and the doctor were joint partners or at least expressed himself as such; he imbibed the doctor's tastes, and especially that of forming a Museum of Natural History, which he made in his room, often borrowing from his master different articles that he took a fancy to. After the doctor's death he returned to his native Glens, and being long associated with the Doctor, the natives thought that he had acquired the same skill in treating diseases that his master had, and sought his advice constantly, which was always given, often successfully, for he had obtained a number of his master's recipes, which he marked as useful in certain complaints.

There are included in this note some quotations from a letter by James McDonnell's son, John, the Dublin surgeon.

> I very often drove my father in his old gig while he read, but I never knew him to use a magnifying glass for the purpose; and his man, MICK, a perfect original, would not be recognised by his numerous friends by the name of Mike . . . I remember, as vividly as if it were not ten years ago, taking a night ride from Belfast to Cushendall with my father seventy-years since. We left home about midnight, and arrived at Garron Point at dawn of a summer's morning. We tied our horses to bushes, and scrambled up to the extremity of the promontory; and I fancy that I can see at this moment the noble view of the North Channel, bounded on the East by a long stretch of Wigtownshire, Ailsa, Arran, and the ancient possessions of my Highland forefathers, Cantyre, Isla, and Jura, and by the Antrim coast on the West, some stars still glimmering in the deep blue over the lovely Ardclinis; and that I hear the dash of the waves, the scream of the seagulls, and the wild sweet whistle of the curlews.
>
> On this occasion my father told me that, when settled in Belfast, and till his professional engagements rendered it impossible, he paid his mother a visit at this house once a fortnight. He left home at midnight, found a fresh horse waiting for him at Glenarm, spent some hours lying on a sofa talking to his mother, and rode back to Belfast within the 24 hours – a ride of about 100 English miles.

He still found time for other activities. With Doctor S. S. Thomson and Doctor S. M. Stephenson, he was among those who founded the still extant Belfast Literary Society, and he was its first President. He was a prime mover in supporting the famous Festival of the Harpers in 1792, at which Bunting recorded so many of the ancient airs destined to become celebrated as Moore's Melodies.

> Indeed said Malcolm, so great and varied was his intellectual capacity, that he was enabled, almost single-handed, to stamp a literary fame upon the entire locality . . . No subject of any importance, past or present, in any age or country, seemed beyond his grasp.

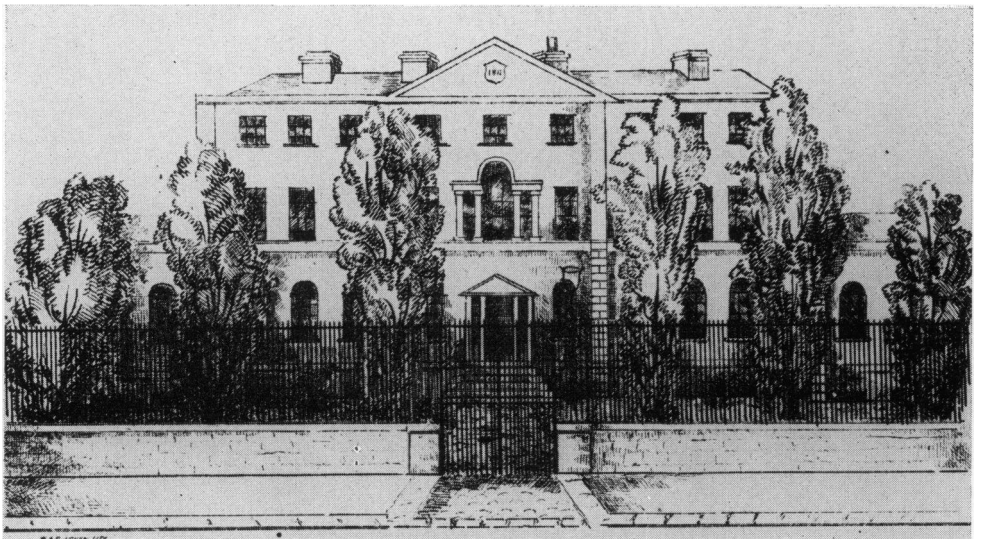
He died at his home in Donegall Place in 1845 at the age of 83, and was buried at Layde on the Antrim coast, just north of Cushendall, in the graveyard where his ancestors had been buried for centuries. His bust is to be seen in the Royal Victoria Hospital and in the Ulster Museum. It shows a man of deep sensitivity, as if he were searching the very firmament of heaven for the answers to the questioning of his ever-active mind.

One of the factors that may have brought about the failure of the first Fever Hospital may have been the very modesty of its start with a fund of some £58. Further, according to R. H. Hunter, both Stephenson and McDonnell contracted typhus, and, finally, the political events of the times, culminating in the rebellion of 1798, so unsettled the economic status of both the town and its inhabitants that closure was probably inevitable. It seems likely that the establishment had an actual working life of only some six months. In October, 1799, the Hospital was re-opened in three houses in West Street. The Physician was James McDonnell, and he was joined in 1801 by Doctor S. S. Thomson. Individual subscriptions, charity sermons, concerts and balls were the financial foundations on which the charity depended, and it is difficult today to realise the obstacles then in the way of raising the modest sum of £200 a year which was the actual sum expended. This worked out at a cost of 9d. per patient per day.

By 1810 the lease of the West Street property was due to expire, but the Fever Hospital had by then become a more fixed part of Belfast life, and was on a surer if still unpretentious financial footing. It was therefore decided to build a new hospital, and a site in Frederick Street was granted by the Marquis of Donegall. The foundation stone was laid by him on 5th June, 1815, and the premises were dedicated to the sick and to the art of medicine. The following year, while typhus and relapsing fever were raging in the town, patients were hastily admitted into the new hospital, although, we are told, the walls were still wet, and the staircase scarcely secure. At the same period Charitable Dispensaries were established in various parts of Belfast, and there was a general acceptance of the principle that the staff of the hospital would be elected from those who had served in the dispensaries. The functions of the General Hospital and the Dispensaries, side by side, thus anticipated the plan of the subsequent Irish Poor Law system.

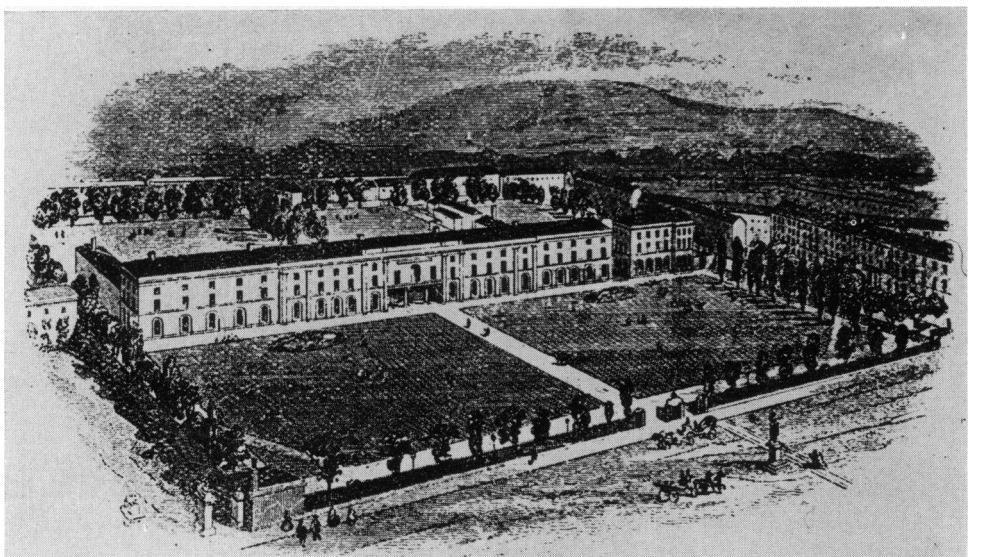
The affairs of the General Hospital had now reached what would be called today the point of no return. A. G. Malcolm, the Medical Historian, and a physician on its staff has recorded its history in a delightful volume. It grew. It became the home of the Belfast Medical Society and afterwards of the Ulster Medical Society. James McDonnell gave the first clinical lecture there in 1827. It became the Royal Belfast Hospital in 1875. At last, in 1903, with Belfast and its population growing at a rate which was phenomenal even for the days of the Industrial Revolution, it could no longer take its share of the medical and surgical work of the city, and was replaced by the Royal Victoria Hospital on the Grosvenor Road site. Today nothing is left of it, not even the foundation stone has been recovered. But men such as Haliday, Stephenson, McDonnell, Thomson and Malcolm established a tradition of which any medical centre might well be proud.

The evolution of the Royal Victoria Hospital, as it is today, is, of course, the story of only one institution. There is the long story of the Lying-in Hospital that became the Royal Maternity. The Irish Poor Law gave birth to the Union Infirmary,



THE GENERAL HOSPITAL.

and thus to the present City Hospital. There are the Mater Infirmorum and the two Children's Hospitals to be included as well as the Benn, the Ophthalmic, the Samaritan and other special hospitals that have played their parts. Some continue to do so, others have disappeared in the evolving scheme of the Northern Ireland Hospitals Authority's service. However, the Royal Victoria remains the main teaching hospital, and is thus the successor to the one which, in its various stages



THE INSTITUTION, FROM A PLATE ENGRAVED ABOUT 1855.

of development, was most concerned with the early days of the local medical school.

But the whole question of medical teaching in Belfast antedates the first clinical lecture given by James McDonnell in the General Hospital in 1827, and the medical school may well have been built on a foundation that is unique in these islands.

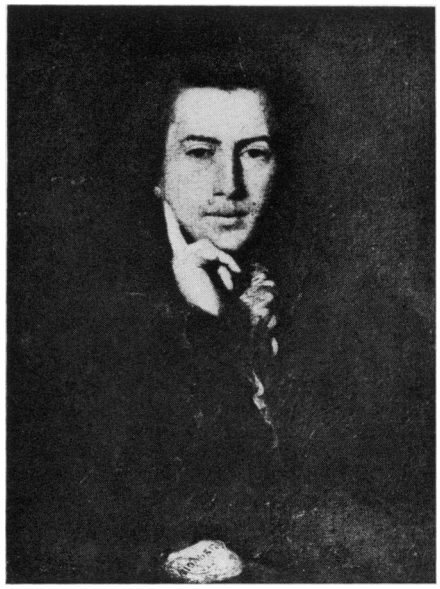
In 1810 the Belfast Academical Institution was founded. As Malcolm points out, it is thus considerably younger than the Belfast Academy, which was opened in 1786, because

> Notwithstanding the facilities for complete education which this establishment possessed, the demand for more extensive institutions which would include provision for disseminating that species of knowledge so necessary for the lower classes who were engaged in manufactures, mechanics, or agriculture, became a prevailing idea about the year 1806, and first suggested to the friends of literature in this town the project of the Academical Institution.

It had a more fortunate start in life than the impoverished Factory Row Fever Hospital. When it was opened in 1814, Doctor William Drennan gave the address.

> The object of the Academical was, and is, he said, shortly and simply, this – to diffuse as widely as possible throughout the province and population of Ulster the benefits of education, both useful and liberal, and by that means to prevent the hard and disgraceful necessity, in such a great and prosperous community, in sending their children to seek in other countries, with much risque to their health and morals, for that instruction and those literary qualifications and honours which might be equally well attained at home, with evident advantage to the public interest as well as to that of individuals . . . so that in their future progress, in their mature manhood, or even in their declining age, they may stop for a little in their journey of life, and pointing to this building say: "THERE it was we spent our most delightful and instructive days; THERE we were, taught by the best and kindest of masters; THERE we learned, not merely to understand, but to feel, the classics, to cultivate the arts and sciences, and – TO LOVE OUR COUNTRY." So may it be, we pray to Heaven.

He must have remembered his own words. He died in 1820, and, in accordance with the instructions given on his deathbed, his funeral cortège stopped for a few minutes at the gate of what was then the New College. The school became known to all in the North of Ireland as Inst. and was, of course, not founded just as a boys' school. In its early days it could provide a Higher Certificate of Education, so that, for example, its students were accepted for the Ministry of the Presbyterian Church without a University degree. The chairs and classes were open to all creeds.



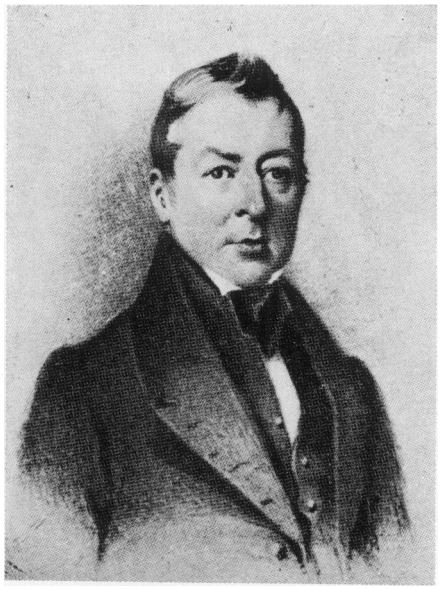
Dr. William Drennan

Two Primates of the Church of Ireland gave the school their support, and it is recorded that:

> Dr. Crolly, the Roman Catholic Bishop of Down and Conner, took the same benevolent and broadminded attitude. Not merely did he encourage Roman Catholics to attend the new Institution, he actually sent thither for general education his diocesan students for the priesthood, before they went to Maynooth for theology.

The staff was a very distinguished one. Doctor James Thomson, for example, was Professor of Mathematics as well as head master of the school of Arithmetic, Bookkeeping and Geography. His sons were pupils of the school: the famous Lord Kelvin and the equally distinguished Professor James Thomson of Glasgow University. The boys were born in College Square East, and that is why the house, now a news theatre, was formerly known as the Kelvin Picture House.

Some idea of the Inst. Medical School can be formed from three main secondary sources of information: the Fisher and Robb Centenary history of the school, the subsequent Jamieson volume and Malcolm's History of the General Hospital. Indeed, Malcolm's book, published in 1851, can be regarded in many ways as primary, since Malcolm was himself an old boy of the school, though a medical graduate of Edinburgh. Both the Inst. histories stress that from the start it had always been the intention of the directors to establish a school of medicine within the College. The first step taken was in 1818, when James Lawson Drummond was appointed to a Chair of Anatomy and Physiology. According to Jamieson, part of the reason for this isolated medical professorship, then in the Faculty of Arts, was the fact that it was a common thing for students preparing for the Presbyterian Ministry to acquire a little medical knowledge along with their studies in Divinity.



Professor James Lawson Drummond

The more usual reason for a Chair of Anatomy and Physiology seems to gain support from the fact that in January, 1820, just two years later, pupils were first admitted to the practice of the General Hospital, and resident pupilship in Belfast carries on a long tradition of Irish Medical education.

It was, however, not until 1826 that any steps were taken to regularise the corresponding clinical instruction in the hospital. In that year Drummond wrote both to the Institution and the Hospital a letter which appeared in the public press, in which according to Malcolm he recommended the setting aside of special cases of disease for clinical purposes, and the regular delivery of clinical lecturers by teachers in a medical school. This letter appears in the Belfast News-Letter of 7th November, 1826. Though the available text is slightly mutilated in the Linenhall Library files, only one paragraph is imperfect, and even the intention of this too

is clear. Much of Drummond's reputation as a founder of the Medical School depends on what he said at that time, and the letter is therefore worth quotation:

TO THE JOINT BOARDS OF MANAGERS AND VISITORS OF THE INSTITUTION, AND THE MEMBERS OF COMMITTEE OF THE FEVER HOSPITAL.

GENTLEMEN, Though of opinion that no COMPLETE medical school can be supported in a town of our population, yet I think, along with some enlightened friends both of the Institution and Hospital, that much might be done to render these two establishments, in conjunction, a PREPARATORY school of medicine and surgery, useful and important to the medical youth of Ulster. I am the more confirmed in this opinion, by the acknowledgements of various medical students who attended the anatomical course in the Institution prior to their studying in Edinburgh and Dublin, and who voluntarily have expressed the most lively gratitude, on account of the knowledge thereby acquired, and the facility with which they were in consequence enabled to enter on the minuter details of surgical anatomy, and to follow with clearness the prelections of the Professors in those medical schools.

After Anatomy, the next great objects of medical education are Chemistry and Materia Medica, and whatever obstacles may stand in the way here of practical anatomy, there are none opposed to these branches, which may not be easily surmounted.

Our able Professor of Natural Philosophy intends, I am happy to say, to deliver this winter, a course of lectures on Pharmaceutical Chemistry, in which the medical student will have explained and demonstrated to him by experiments the modes of forming the various chemical preparations and compositions of the Pharmacopoeias, and will also obtain a knowledge of the principles of chemistry in general. It is probable, that a course of this description, and also a regular course of Materia Medica, would prove more extensively useful in Belfast during summer, as the medical schools of the metropolises are then mostly closed, and consequently more medical students are at home, and could avail themselves of the opportunity of attending.

The next subject I wish to turn your attention to, is this. It is of early importance to the student to have an opportunity of observing disease in its various aspects, and hence the utility of his attending an hospital and seeing patients. Much, however, may be seen, while little may be understood, and hence in medical schools, CLINICAL lectures are established, in which, on two nights each week, the cases which the students have been attending in the hospital, are fully explained, the various symptoms and changes of the disease commented on, and the reasons for using the remedies employed pointed out. The student has thus, in an intelligible form, the history, theory and practice connected with the disease fairly brought before him. He sees the case in all its bearings, and of all modes of teaching pathology this is the best. I would therefore suggest the utility of a ward in the hospital being appropriated to the reception of a certain number of patients, to be placed under the care of one or two Physicians, and that clinical lectures be delivered twice a week on the cases of said patients, agreeably to the above remarks. In these lectures, it would be advisable, until a regular course of Materia Medica shall be established, to give, besides the history, &c. of the cases, the history also of the medicines employed, including their chemical properties, medical uses, reasons why employed in the present instance, and so on.

A weekly lecture or two on the surgical cases in the hospital by the Surgeons, would be of great importance; and when a body is opened in such circumstances as to permit of sufficient time, opportunity should be taken to explain the morbid appearances and demonstrate as much of the anatomy of the organs as the limited examination could permit.

I beg leave, Gentlemen, to suggest to your consideration another subject. The Lying-In-Hospital of this . . . though there are at least one hundred and fifty . . . confined in it annually, has not, I believe, been . . . of any use in promoting the study and knowledge of midwifery. Were a properly qualified person . . . this important subject, either in the Hospital . . . , and were medical students, when suffi . . . intrusted,

under proper regulations, with . . . cases in that hospital, it would form to such students a most valuable source of improvement, and the poor patients would certainly be in better hands, than in those of our midwives, who are universally ignorant and untaught.

Under present circumstances, the motives which would lead a practioner (sic) to undertake the labour and trouble of giving such lectures as I have alluded to, must originate in professional zeal alone, for emolument is out of the question; but whatever small fees the students might be required to pay, would be usefully disposed of in forming a medical library for the students' use, to be kept at the Hospital or Institution as might be found most beneficial.

The advantages, Gentlemen, to be expected from adopting the above measures, may be considered only as prospective and uncertain, but the experiment is worth trying. Were it known through Ulster that in Belfast a season would be at least as profitably spent in commencing a medical education as it could be in Dublin or Edinburgh, we might reasonably conclude that students would on that account resort to it. I hope I have made it apparent that much lies in our power as a foundation to commence on; I am willing to lend my hand to the oar, and there can be little doubt that others much more able are equally ready to join in the work.

The good effects may not soon be apparent, and yet it may in time lead to the cognizance of Belfast, by the schools of the capitals. Though we are not to look on the privilege of conferring medical degrees, there is nothing I apprehend very quixotic in indulging the hope, that a time may come when a season or two spent here will be considered equivalent to an equal time spent in Edinburgh or Dublin. This is all we could dare to look to, but were that accomplished, it would be a circumstance of great moment to the country.

I shall add nothing more, Gentlemen, on this subject at present. I have addressed you in this public manner, because the subject is one of public concern, and because, though you may be the instruments of bringing into operation the plans I suggest, you would naturally wish that such plans should undergo the security of public opinion.

I have the honour to be, Gentlemen,

Your obedient servant,

Jas. L. Drummond.

Belfast. Nov. 1, 1826.

What, exactly, did this letter imply? True, Drummond was suggesting that the cases for teaching should be placed for that purpose "under the care of one or two Physicians". Did this justify the interpretation seemingly made by Malcolm that there should be "the regular delivery of clinical lectures by teachers in a medical school"? In short, was teaching to be confined to those who belonged to the staff of the Academical Institution or of some private medical school such as existed in London, Dublin and elsewhere? The Medical Staff of the Hospital were asked their opinion.

Their report, says Malcolm, very properly, and on very adequate grounds, took objection to the plan proposed by Dr. Drummond; but, at the same time stated, that, should it be deemed advisable, clinical lectures in the Hospital, either at the present or any future day, might be undertaken by one or more of the Medical Attendants, in their respective departments, without being liable to the objections to which they referred.

So it came about that, as has been recorded, arrangements were made for the first clinical lecture to be delivered by Doctor James McDonnell on 3rd June, 1827. In the meantime Drummond continued with his lectures at Inst.

These, says Malcolm, were, it is true, of a popular cast, and students not destined for the profession formed the majority of the classes.


APUD SCHOLAM MEDICAM

Collegii Belfastiensis Regii.

Quandoquidem nos, Facultas Medica Collegii Belfastiensis Regii, certiores facti sumus Johannem Hood hujusce Collegii Alumnum, non modo prælectiones de rebus obstetricis atque mulierum infantiumque morbis in Collegio nostro sex menses audisse, sed etiam, per tempus saltem æque longum, Artis hujus exercitationi sedulam operam dedisse, et parturientibus multis, sub Professoris nostri Artis Obstetricæ oculis, suppetias tulisse,—examinationibus accuratis per nosmet ipsos insuper habitis, quas felicissime sustinuit,— nos igitur censemus et testamur eundem Johannem Hood Arti Obstetricæ exercendæ omnino idoneum esse. in cujus fidem, nomina nostra subscripsimus sigillumque Collegii commune affiximus.

Kalendis Maiis,

MDCCCXLIII

Jacobus L. Drummond Anat. Prof
Th. Andrews M.D. Chem. Prof.
Jacobus D. Marshall Mat. Med. Prof,
Robertus Coffey M.D. Chir. Prof
Hy. McCormac M.D. Med. Prof
Gulielmus Mateer M.D. Bot. Prof
Gulielmus Burden M.D. Art. obstet. Prof

But the number of medical pupils gradually increased, and there were further demands for the formation of a formal medical school.

Fisher and Robb record that in 1829 the Joint Board (of the Managers and Visitors of the Academical Institution) asked the Board of Faculty, and at that time Arts was the only Faculty in the Institution, to report on the advisability of establishing a Faculty of Medicine, and this was strongly recommended. The proposal also had the support of the medical and surgical staffs of the General Hospital. Drummond would at that time have been the only person common to both these bodies. The following year there is again a suggestion that perhaps a private medical school had been under consideration and had been abandoned, because what Fisher and Robb describe as "a deputation from the Belfast School of Medicine and Surgery" made another approach to the Joint Board of the Institution. They pointed out the anxiety of the practitioners in the town to establish a medical school, and put forward a scheme under which the proposed chairs should be filled in the first instance by those of their own number whom they though suitable, but agreeing that their successors should be appointed by the Joint Board and the New Medical Faculty. The Joint Board held that from the start the appointment of the Professors should be in their own hands. Two points probably forced a settlement. There was so little money available that it was inevitable that initially only local men with an established position could afford to accept nomination, while the General Hospital had the whip hand in deciding who would have access to beds there. No one was likely to apply whose local professional status was not already secure.

Support for the formation of a medical school also came from the Belfast Medical Society, but this by its very nature does not necessarily mean the approval of an increased number of medical men over and above those who had already expressed their opinions through other channels. In 1831 it was decided to establish the Faculty. A scheme was prepared by Mr. James Tennant, and after it had been printed was circulated for comment among various medical opinions in Britain. It was finally adopted that year. A sum of £2,000 was raised locally and a further £2,000 was granted by the Government. Drummond was asked to supervise the plans of the architect and by 1835 the Academical Institution had erected

> a new building intended for a medical school in the rear of the new North Wing.

In the autumn of that year some of the professors were appointed. Drummond now took on Botany as well as Anatomy and Physiology. John McDonnell, son of the great James, was appointed to the Chair of Surgery, but neither he nor Ferrar, the next man to be offered the post, took up their appointmnts. Robert Coffey was the first person to hold the Inst. Chair of Surgery. Thomas Andrews was appointed to the Chair of Chemistry, James D. Marshall to Materia Medica and Pharmacy, and Robert Little to Midwifery and the Diseases of Children. Drummond became the first President of the new Faculty of Medicine.

In 1837 the Belfast Medical School, with its formal teaching at the Academical Institution and its clinical teaching at the General Hospital, was recognised for examination purposes for the diplomas of the College of Surgeons, London, the Faculty of Physicians and Surgeons, Glasgow, Apothecaries Hall, Dublin, the College of Surgeons in Ireland and for the Medical Degrees of the University of London.

It was still the era of those Belfast intellectuals whose talents took them well outside the scope of their business and professional work. Many present-day Belfast societies owe their origins to such men, and, in particular, to the late 18th and early 19th century medical practitioners.

Such a pioneer was Doctor Samuel Smith Thomson who had worked in the old West Street Hospital and then in the General Hospital. He was the first President of the Belfast Medical Society in 1806 and founder and first President of the Anacreontic Society in 1814, now the Belfast Philharmonic Society. By 1834 he had attained such a position of seniority and affection among his colleagues that he was known locally as the Father of the profession and was presented with what has been described as a "massive and splendid" gold snuff box, an interesting relic, for on its base are inscribed the names of the 37 Belfast doctors.

Drummond was cast in a similar mould. It would probably be incorrect to describe him as a kindred spirit, for it is clear that many of his colleagues on the staff of the General Hospital disagreed with him about how the new medical school should be staffed. Nevertheless, like Samuel Smith Thomson and the great James McDonnell, he left additional marks on the intellectual life of Belfast through activities other than medicine. There is a good biographical account of him in the Centenary volume of the Belfast Natural History and Philosophical Society contributed by S. Shannon Millin. His name has an honoured place in the annals of that Society for he was a founder member and the first President, and his portrait still hangs in its lecture room.

James Lawson Drummond was born at Larne in 1783, the son of a naval surgeon. His father died early, and the family moved to Belfast, where he became a pupil at the Academy. He then entered the Navy to serve a surgeon-apprenticeship. He duly completed the full priod of this in spite of the protests of his elder brother, the Rev. William Hamilton Drummond, who had written to his mother and to his sister, Isabella, to express his disapproval.

> Ah! B. – Ah! Mother – Could you bear to see your dear James a prisoner in the cockpit, at the mercy of winds, and waves, and cannon balls, after being skeletonised by a miserable servitude of five years over the pestle and mortar? No, no, James, thou deservest a better fate.

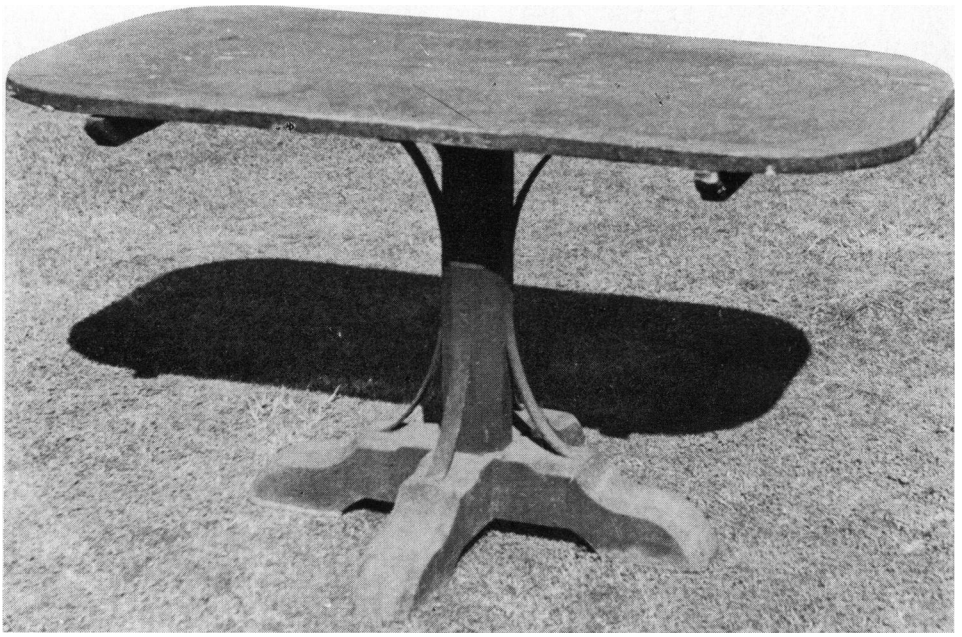
And, indeed, so it was to prove. He graduated in Medicine in Edinburgh like so many of the pioneers of the Belfast School, and came to Belfast in 1814, settling in practice in High Street in partnership with his brother-in-law, Doctor Andrew Marshall, who had also been a surgeon in the Royal Navy. He was Physician to the West Street Dispensary and afterwards to the General Hospital, and by 1818 was Professor of Anatomy and Physiology at the Academical Institution, and thus, strange as it sounds today, President of the Faculty of Arts. By 1821 he and his friends had founded the Belfast Natural History Society, and it was meeting regularly in his house, which was now 5 Chichester Street.

He was an active member of that society for many years, and the driving force in the construction of its museum in College Square North, where the exhibits of the Society were housed for many years, and which is still the Society's home and headquarters. His "Letters to a Young Naturalist", published in 1831, did much to stimulate an interest in natural phenomena as a hobby, and it is little wonder that he was able to fill the Chair of Botany at the Inst. Medical School in addition

to his other commitments. He was a frequent contributor to the programme of the Natural History Society, sometimes reading two and three papers in a single season, his subjects ranging from "Life", "Native Marine Plants", "The Organs of Hearing in the Lower Animals" and "Contrivances for diffusing Seeds', to the address at the opening of the Museum Buildings. He died in 1853, and was buried at Ahoghill.

> Study the Almighty in everything you can, he wrote, and get the truth of everything as far as you can, but have nothing to do with disputes and controversies respecting things that are above human comprehension; for a man may fight about these for his whole life and leave the world possessed of very little wisdom, little honour and less virtue . . .
>
> Consider truth as a gem above all price, as the great reward of your endeavours after knowledge, as your protection from the indulgence of vain and arrogant conceits, and from the equal chance of having your mind crushed to imbecility by childish, absurd, and superstitious fears.

As a relic of the anatomical school at the Academical Institution there remains at least one old dissecting table. It is small, and can never have been very convenient for its purpose. It has collected dust for many years in the basement of the Anatomy



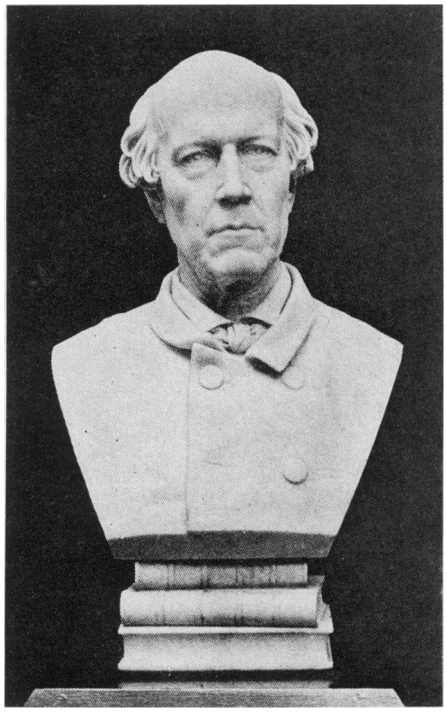
Dissecting Room Table from the Academical Institution

Department in Queen's University, for neither the Board of Governors of the Academical Institution who are its proprietors nor the University have yet seen fit to give it the place of honour it deserves in the medical history of Belfast.

As has been pointed out earlier, it was not fully appreciated in those early days that those holding college chairs in clinical subjects must have access to teaching material in hospital. It just so happened that this was usually the case, but there had early been some dispute about this as has been seen in the discussions that

went on between Drummond and the rest of the staff of the General Hospital. The person to suffer most in this way was William Burden, who, as has been recorded both by C. H. G. Macafee and by the present writer, had a long but finally successful war with the Ladies' Committee of the Lying-in Hospital about the admission of pupils there. The Committee took the view that teaching was private enterprise and not to the advantage of the Hospital. Burden was the second Professor of Midwifery at Inst., and one of the people who was to retain his chair in the new Queen's College. To get over these difficulties the Academical Institution acquired the old Cavalry Barracks in Barrack Street, with the intention of converting it into a small teaching hospital, but there was never enough money, and the main use made of it was an overflow for fever patients from the General Hospital in times of epidemic disease, when it is recorded that there might be as many as four patients in one bed.

Strangely enough, there was no Chair of Medicine in the Inst. Faculty until the appointment of Henry MacCormac in 1837. As the first Professor of the Theory and Practice of Medicine he was one of the great men of the school. He has been the subject of papers by Robert Marshall and Sir Ian Fraser, as well as of earlier accounts in the history of the school and of those societies in which he took an active part: the Belfast Literary Society and the Belfast Natural History and Philosophical Society. His biography in the centenary volume of the latter organisation, written by Isaac Ward, is an excellent resumé of his life.



Professor Henry MacCormac

Henry MacCormac was born at Fairlawn in Co. Armagh in 1800, the son of an officer in the Royal Navy. He studied medicine in Dublin, Paris and Edinburgh, and was an Edinburgh graduate. He visited the Cape of Good Hope, and thence travelled by land to Sierra Leone, almost dying of fever on the journey. He twice visited the United States by sailing ship. About 1828 he settled in Belfast and started practice in Upper Arthur Street. He was elected to the staff of the General Hospital, and was conspicuous for his part in the cholera epidemics that from time to time ravaged the town. Much of his local fame rests on the tradition that he landed himself in the police court for smashing his patients' windows with his umbrella, but this is based on the firmer foundation that he was far before his time in advocating the value of fresh air, and especially of the night ventilation of bedrooms, in the treatment of pulmonary disease, and in particularly pulmonary tuberculosis. He was a distinguished philologist, and was said to know twenty

languages. His last home was in Fisherwick Place, where he died in 1886. His son, Sir William MacCormac, who was an Inst. boy and a Queen's man, and who became President of the Royal College of Surgeons of England, wrote of him that:

> He was a man of great mind and of great heart, great in human sympathy and affection, and great in his profound belief in the progressive amelioration, both moral and material, of the human race.

The bust of Henry MacCormac by Shakespere Wood is in the Ulster Museum. It shows a face of great character, firm, kindly, and with the level and searching gaze of the philosopher.

The life of Thomas Andrews, the Inst. Professor of Chemistry, is one of unusual interest. Today, chemistry seems a scientific discipline so remote from the practice of medicine that it is difficult to realise that then its study was based almost exclusively on a medical education. Andrews was at times President of both the Literary Society and the Belfast Natural History and Philosophical Society, and in both their centenary volumes are to be found excellent accounts of his life. He was born at 3 Donegall Square South, in 1813, and was educated first at the Belfast Academy and then at the Academical Institution. At the age of fifteen he published his first scientific paper on 'The Action of a Flame urged by the Blow-Pipe on Other Flames" in the Philosophical Magazine. He spent four years at Trinity College, Dublin, and qualified M.D. in Edinburgh in 1835, by which time he had already taken the opportunity of studying chemistry in Paris. He refused the Chair of Chemistry at the Richmond Medical School in Dublin, and became Professor of Chemistry in Inst. as soon as he had taken his medical degree. He practised medicine in Belfast. Even before he had passed his final examinations he had published a paper on the blood in cholera.

Professor Thomas Andrews, F.R.S.

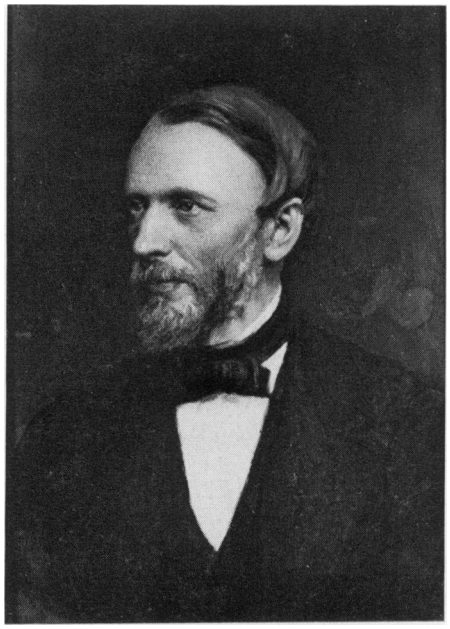
> His advice, it is recorded, was always freely given to the poor; and during the famine in 1847 he laboured assiduously among those stricken down by typhus.

He carried out much original research into the nature of ozone, recognising that it was an allotropic form of oxygen, but his main contributions to chemistry were his observations on the liquifaction of gases. In 1849 he was elected a Fellow of the Royal Society. His place in the Hall of Fame is assured. He was not only a Founder Father of the Belfast Medical School, but one of the great men of British chemistry. This was further acknowledged when he was made President of the British Association in 1876. Among his contributions to local societies are to be found papers on "Photography", "Spectrum Analysis", "Analysis of the Ballynahinch Water", and "The Difficulties of France, Their Cause and Remedy'.' He died at Fortwilliam Park in 1885.

If Inst. was the academic pride and joy of Belfast, since local energy had created both the school and the collegiate department, it was a different story in 1849 when the new Queen's College was opened, for it was felt that the new academic body had been foisted on the community by Act of Parliament. It had to win a fresh loyalty, for, of course, it replaced the old faculties of the Institution, being part of the Queen's University in Ireland, which had its other colleges in Cork and Galway. The Medical School was transferred to it, but, because of lack of accommodation, anatomy continued to be taught in Inst. until 1861. But the foundations of the Faculty had been laid long ago at the Academical Institution.

> In its short life of fourteen years, says Jamieson, the Medical School turned out about 600 students. (Unfortunately the records are not complete, and the Minutes of the Medical Faculty are as brief as minutes could very well be.)

The need in the new Queen's College was essentially for consolidation. Continuity with the old Inst. school was maintained through three Professors: Burden, Gordon and Andrews. William Burden had still to win his battle for the admission of students to the Lying-In Hospital. Alexander Gordon, famed for the splint with which he treated Colles' fracture of the forearm, and described by Whitla as "The Master Surgeon" was to remain in his Chair until his retirement in 1886. He then went to live at Ringneill, near Comber, where local tradition has it that the first thing he did when he got there was to throw all his textbooks into the pond in the garden.



Professor Alexander Gordon

Thomas Andrews became Professor of Chemistry in Queen's College, and its first and only Vice-President. He exercised a profound influence, not only in the medical faculty, but in the whole field of academic politics, and it is recognised that he was one of those who did most to re-establish the school in its new home. This did not interfere with his chemical researches. There can be few students to have passed through Queen's without the firm conviction that it was beneath the old laburnum tree in the quadrangle that Andrews carried out those fundamental experiments on the liquifaction of gases that he considered too dangerous to attempt in the laboratory. This tree still receives special treatment, and the Department of Botany has even arranged for a lineal descendant as a replacement, should the present tree die.

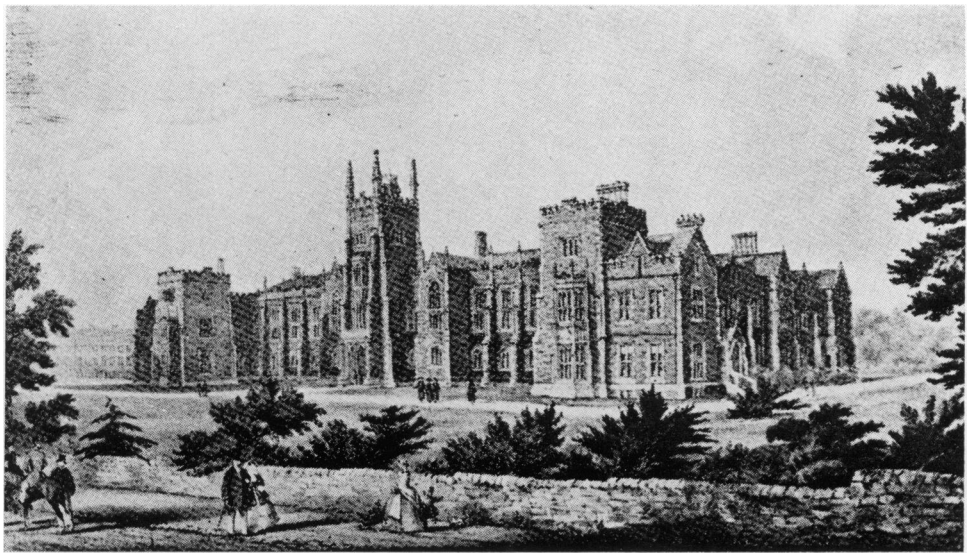
Queen's College and University have since had many distinguished men on the staff, and many have left its cloisters to carry its name afar, but great as these men may have been or may be, and though they continue to add to the credit of the medical school, they hardly rank among the Founding Fathers.

In 1879 the University situation in Ireland fell into the political melting pot. Trinity College, Dublin, managed to ride out the storm, independent and unscathed, but there emerged, instead of the Queen's University in Ireland, the Royal University of Ireland. This was purely an examining body, and the various Queen's Colleges were no longer constituent parts of it. They were thus virtually abandoned to their own devices, and almost perished of financial starvation, but in 1908 there was another academic upheaval. Two new universities were created. In the south, in addition to Trinity College, there was the new National University of Ireland with University Colleges in Dublin, Cork and Galway. In the north, the Queen's University of Belfast was founded. Medical students from Queen's had no longer to go to Dublin to sit for their examinations. The Belfast Medical School had reached full maturity and was at last its own examining body.

In his "Book of Belfast" Robert Marshall recalls Sir William Whitla's Presidential Address to the British Medical Association in 1909 when he said that:

> a great, glorious and free University has arisen to shower its blessings upon our Province, to carry the lamp of learning, and to bear upon its wings the balm of healing to the remotest parts of our colossal Empire.

The old main building of Queen's College still stands, one of the loveliest pieces of architecture in Belfast. It may be brick, but it is not redbrick. Every trace of the former medical building has disappeared. Does the spirit of the pioneers still



Queen's College, Belfast

remain? The progress of scientific medicine will no longer allow one man to practise general medicine and specialise at the same time, to write a tragedy, to found an intellectual society, to make scientific discoveries that earn an F.R.S., to take a full part in the political affairs of the day. Most of these activities brought our founders no reward other than the satisfaction of achievement, or a slender teaching honorium. None gained place in an Honours list or had thought of a distinction award.

It is all the more fitting that in latter days their names should be recalled with gratitude and pride.

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COMMUNICATION IN MEDICINE

Opening address delivered to the Students of the Royal Victoria Hospital on Thursday, 8th October, 1970

by

TERENCE KENNEDY, M.S.(Lond.), F.R.C.S.(Eng.)

EACH YEAR since 1827, when the first address was given by Dr. James McDonnell, founder of the Hospital, a member of the staff has been invited to welcome the new students coming to the hospital for the first time. To-day it is my privilege, and I feel myself doubly honoured; firstly, because almost all my predecessors have been graduates of The Queen's University, the Royal University of Ireland or one of the Scottish Universities, whereas I am one of the very few English graduates to have this honour; secondly, because I am welcoming students from two university years at the same time. As is usual, those of you in the fourth year are welcomed just six months after your arrival here. I hope you will appreciate that the warmth of my welcome is in no way diminished by its tardiness. Those of you who are in your third year, and who arrived only this week, are especially welcome. By commencing your clinical studies six months earlier than hitherto you are making history. You are, to some extent, educational guinea pigs, but you will know that great efforts are being made by your teachers to eliminate the problems which must inevitably arise when such a radical change of the educational programme is introduced.

The long months of basic study have led, at last, to the point when you will come face to face with sick human beings. You will encounter pain and suffering, anxiety and fear, hope and despair. You will learn, the hard way, just how difficult it can be for you to communicate with your patient, and how difficult it may be for him to communicate with you. You will, I hope, appreciate just how important these communications are.

It has always been the privilege of your orator to choose the subject of his address, and to-day I have chosen to talk about "Communication in Medicine."

Doctor and Student

Medicine was always more an art than a science, and the student in the past was always essentially an apprentice, a concept surviving to this day in this hospital with the title "Resident Pupil". Compulsory residence in the medical and surgical wards is an excellent way of ensuring that each of you is adequately exposed to ordinary, and sometimes to extraordinary clinical problems; these periods of residence may well prove to be the most rewarding parts of your entire undergraduate career.

In 1851 Dr. Malcolm, Physician to this Hospital, wrote "Clinical instruction is not to be imparted by a careless walk through the wards . . . but on the contrary, the most patient, assiduous, vigilant, zealous and unceasing labour on the part of the teacher, and the most rigid attendance on the part of the pupil, are absolutely necessary." I am sure that you will have noticed that the teachers of his day required far stronger exhortation than did the students.

Knowledge is increasing at an explosive rate, and simple apprenticeship is no longer enough. "The successful teacher is no longer," in the words of Osler, "pumping knowledge at high pressure into passive receptacles." New specialties are emerging like mushrooms, and it is no longer possible for any one physician or surgeon to teach all that needs to be learned, even in his own speciality. You will be exposed, instead, to a large number of clinical teachers whose aptitude for communication may vary considerably. You will be making more and more use of modern technology – films, video tapes, closed circuit television, and other audiovisual aids.

Doctor and Doctor

Some of the younger amongst you may not fully appreciate that acquisition of knowledge does not cease with the passing of the Final M.B. examination, nor indeed with the passing of membership, fellowship, or other higher diploma, nor even with the attainment of a consultant post. In your chosen profession you must continue to learn until the day of your retirement. The most important vehicle of communication of knowledge between doctors is the medical journal. The average physician or surgeon will need to read two weekly journals, as well as at least two monthly and perhaps one, or more, quarterly journals. There is seldom time for all this essential reading during normal working hours, and enquiries among my colleagues reveal that an average of four to six hours each week is spent on this task in the evenings in the doctor's own home.

No good article can be published until the author has done a great deal of hard work, so that each article tends to be regarded as a measure of the author's professional worth, and it is tempting to equate the length of a candidate's list of publications with his suitability for appointment to an important post. Certainly every doctor should learn how to communicate in print, but this ability should not be the prime factor in selecting the best man for the post of consultant in, say, a small country hospital.

The pressure to publish is so great that medical journals have taken on a mammalian characteristic. They tend to become fatter and fatter until they ultimately give birth to a new journal. The gestation period is about fifteen years; that is to say, the number of medical journals is at present doubling every fifteen years, and there are already more than 5,800 journals published throughout the world.

Recently we have seen the emergence of medical news-sheets and journals of reviews and abstracts, financed by advertisements from the big drug houses, and circulated free. At a recent count I was astonished to find that I now regularly receive fourteen of these free publications. They are certainly more welcome in my letterbox than the barrage of direct advertising materials which every doctor had to push off his breakfast table only a few years ago.

The Information Explosion has placed a great strain on medical libraries – and our library in this building is no exception. During the decade of the sixties there was a more than threefold increase of everything: staff, journals, books, and cost. A great advance has come recently from the wide use of photocopying. This should help to destroy the growing practice of sending printed postcards asking for reprints of published articles. Reprints are costly, even though many authors have access to departmental funds, and the majority of those who ask for reprints have,

in any case, access to a library with a photocopying service. No author begrudges a reprint when he receives a personal letter commenting on, and perhaps criticising, his article – indeed, useful communication channels may well be opened up in this way. The ultimate in absurdity, in my own experience, was the receipt in one post of nine printed postcards, all initialled in the handwriting of the same secretary, all requesting reprints of the same article to be sent to the nine individual members of the same department in a small hospital.

There are limitations to the effectiveness of communication in print, so that ultimately face to face contact may be more rewarding. Our medical administrators are well aware of this, and display much enlightenment in the way in which they encourage travel to big national and international congresses, as well as visits with smaller groups to smaller meetings. In all these meetings it is the direct face to face discussion that is so valuable. Useful though travel may be to both the individual and the community, there comes a time when excessive travel may lead to diminishing returns.

The enlightenment of government, which allows financial support to doctors attending such meetings, does not, unfortunately, extend to the cost of journals. Those of us who serve the National Health Service on a part-time basis can claim tax relief against the cost of journals and text books, but those who are full-time employees of the State can claim no such relief. This anomaly is one that might profitably have been eliminated by the late Review Body, an action which would have pleased the profession, and perhaps the undignified dispute which we suffered recently might have been avoided; a dispute which demonstrated the poor state of communications between the doctor and the politician.

Communications within any big hospital are often very inefficient. Such a simple matter as the failure to revise the internal telephone directory at regular intervals can cause much irritation, delay and even danger to the patient. Within any one discipline or specialty, contact is normally quite good, but there is often little or no contact between the members of one specialty and those of another. Joint clinical meetings and research seminars, involving, say, surgeons and physicians, urologists and gynaecologists, will do much to improve this aspect of communication.

Future progress in medicine must depend upon teamwork which will require the bridging of gaps between different disciplines. The benefit of engineering expertise to orthopaedic surgery, and electronics to cardiology, are two obvious examples. In a large teaching hospital such as this, it is the University link that makes possible this contact between department and department, between faculty and faculty.

Some of the difficulties of communication between different disciplines are due to the excessive use of jargon and neologisms. For example, M.A.O. means Maximum Acid Output to the gastroenterologist, it means Monamine Oxidase to the pharmacologist, but something quite different to the rest of us. Some specialities, particularly the newer ones, seem to take a delight in building up mystiques in this way, a form of one-upmanship which does no service to the community. This is an age old problem, as Galen knew when he wrote, "We are convinced that the chief merit of language is clearness, and we know that nothing detracts so much from this as do unfamiliar terms. Accordingly, we employ those terms which the bulk of people are accustomed to use."

Communications between the family doctor and the hospital doctor leave a great deal to be desired. Few family doctors to-day use the "Dear doctor, please see and treat . . . " type of referral letter, but even those who do give reasonable clinical details, all too often make no mention of the treatment which their patient is receiving, even when important drugs such as cortisone or insulin are involved.

The hospital doctor, be he resident, registrar or consultant, must accept an equal share of the blame for poor communications, leading to indifferent clinical handling of the individual patient's problem. Delay in making hospital appointments, delay in writing letters after seeing out-patients, and delay in writing to the family doctor after the patient's discharge, are all important causes of friction and perhaps danger to the patient. The family doctor is often put into an impossible position when his patient is admitted to hospital without his knowledge, has an operation without his knowledge, and perhaps dies while he is still left in the dark.

Doctor and Public

There has been much comment recently about the breakdown of relations between the profession and the press. Roper, of The Times, has written, "If the medical profession found itself in the dock on a charge that its members were bad communicators, the jury would find a verdict of 'guilty'."

Doctors, with few exceptions, are naturally reticent. The principle of professional secrecy embodied in the Hippocratic Oath should protect the individual patient from having his diagnosis and treatment published in the press, but this is the very material that the press and public seem to want. It is not enough for them to know, for instance, that a kidney transplant was carried out; they must know that Mrs. Joan Brown, mother of three, received a kidney from the late John Smith, father of six. Some patients are extroverted enough to welcome this sort of publicity, but the majority are not. Would it not be possible, when a news-worthy operation is to be carried out, for an extra clause to be added to the operation consent form, giving or withholding permission to publish the patient's name and address?

Prominent politicians and other important people in the public eye must abrogate their right to secrecy, as the state of their health is a legitimate public concern. Recently an M.P. collapsed and was admitted to this hospital; the press were, not unnaturally, a trifle vexed when the only information given to them was that the Member was "comfortable". Surely press and public were entitled to some authoritative information. It would be a pity, however, if we went quite as far as the Americans, who give a tremendous amount of detail about the illness of their Presidents and public figures. I still recall with distaste the "blow by blow" commentary of the terminal illness of a Secretary of State, who died with abdominal cancer more than ten years ago.

The press and public are also most anxious to have news of any form of medical advance. "The old view, shared by doctors and public, that medicine is a mystery about which the layman should expect to know as little as possible" (Lord Brain) is no longer tenable. Laymen to-day, encouraged by the more liberal attitude of society, are asking for more information, and it is questionable whether we, as doctors, have any right to deny them. Brotherstone has said, "An educated public opinion is the most powerful weapon for improvement in the health service, and therefore the most powerful ally of the profession. Unfortunately there is a real

risk that the profession may not recognize this alliance, and may resist it."

The press and the physician are so far apart to-day that a Communication Catalyst is desirable. Many English and Scottish regional boards have recognized this by appointing press officers, through whom all enquiries and statements are channelled. It is sad that here in Ulster, where human communications of all kinds are, at present, so disordered, there has been much delay in making an appointment. There can be few commercial undertakings employing more than 25,000 workers, as the Hospitals Authority does, that have no press officer.

The public's desire for information on health matters has been confirmed by detailed and comprehensive surveys carried out in Manchester, and here in Belfast, which show that education does not necessarily lead to increased anxiety. Experience has shown that posters and pamphlets are much less effective in health education than direct discussion or television propaganda. Provided that the doctor can learn to project his personality, direct person to person communication is probably the most effective of all media in a health education campaign, but television will, of course, reach a vastly wider audience. Here we run into difficulties related to advertising, a dilemma perhaps forseen by Sir William Osler nearly 100 years ago, long before even sound radio was available. He said " . . . In the life of every successful physician there comes the temptation to toy with the Delilah of the press. There are times when she may be courted with satisfaction, but beware! Sooner or later she is sure to play the harlot, and has left many a man shorn of his strength – the confidence of his professional brethren." This quotation must have been in the minds of many a year or two ago, when, with infinite sadness, we saw a group of British transplant surgeons posing inanely with Union Jack badges and other frivolities before the television cameras.

The rule of anonymity in both sound and television broadcasts has been broken so often that it is now almost meaningless. The whole problem of doctors advertising has become very much less important since the introduction of the National Health Service, as fewer doctors are dependent, either wholly or even in part, on private practice. When a doctor is employed on a full time, salaried basis by university or health service, it becomes a trifle ridiculous to insist on anonymity. When a doctor is only partly dependent on private practice, and only appears very occasionally, it seems somewhat unnecessary. Many of us have, at one time or another, been invited to give public university lectures on purely medical topics, and we have not given these lectures under a cloak of anonymity; yet the advertising content is probably just as great as that of a television programme. Many, too, have given talks on medical subjects to ex-patients' guilds rotary clubs and other lay audiences, but again without anonymity. The principle is just the same.

Would it be sensible to relax the rules just a little, though still asking the doctor who is to give a series of broadcasts or television appearances to maintain his anonymity? With repeated broadcasts a doctor may cease to be, in the eyes of the public, an expert; he may become the expert.

Doctor and Patient

"Who knows most doubts not; entertaining hope means recognizing fear." (Robert Browning).

Some months ago in the witness box in the High Court I heard a country general practitioner asked by counsel why a patient had gone to see him after his discharge from hospital. He answered that the patient had gone in order to find out what had happened to him whilst he was in hospital. He went on to say that "patients find it difficult to talk to hospital doctors; it is easier for them to talk to their own doctors, whom they know better." What a terrible indictment this is.

In an attempt to discover the efficiency of our own communications, we recently made a study of patients attending a review clinic. Of 211 patients who answered our questionnaire, two-thirds had a benign condition and three out of four of these were able to give a reasonably accurate account of their diagnosis and treatment. The remaining quarter of this group had no idea of either diagnosis or treatment, and it was quite clear that our methods of conveying information had failed completely. Seventy-seven patients had been treated for cancer, and of these one-third knew the diagnosis, but this proportion was higher in those where the tumour was superficial and obvious. Many of those who knew that they had a cancer were outspoken in their approval of the fact that they had been told frankly the nature of their illness and operation. One old lady, who had two different cancer operations over a period of thirteen years said, "Of course it is a good thing to know, because I suspected it at the beginning." Another said she was glad to know – "after all it is my body" – and another said, "Reticence would have caused all sorts of misgivings." A recent study from the medical school in London, where I received my own training, surprisingly showed that patients remember only about half of the things that they are told, and that retention of knowledge is less when there is much anxiety.

What is it that causes this failure of communication between the doctor and his patient? Can it be fear? As Edmund Burke said 200 years ago, "No passion so effectively robs the mind of all its powers of acting and reasoning as does fear." Clark-Kennedy has said, "Fear may be on the surface, but most patients are more afraid than they appear, and all should be encouraged to bring their fears into the open." Fear may be quite cunningly concealed, and the patient who comes to her doctor complaining of an ingrowing toe-nail, or some such triviality, may not reveal that her real fear is of cancer, until she has established rapport with her doctor. Communication is, of course, a two-way operation, and the physician should remember the advice of Hippocrates that "he must have at his command a certain ready wit, as dourness is repulsive both to the healthy and the sick."

The establishment of a close understanding between doctor and patient must always be cultivated, and this may lead to the doctor becoming emotionally involved in his patient's problem. This is a luxury that we must ration, as too much emotional involvement may well cause an intolerable strain on the doctor, but if we stand on the side lines and invariably avoid this involvement, we may then lose our humanity and lose the right to say with the Latin poet, Terence, "Humani Nihil A Me Alienum Puto" – nothing of humanity is foreign to me.

Some years ago in a survey of patients' reactions to their stay in this hospital, Mrs. Dudgeon and Brigadier Davidson found that fear, amounting almost to panic, was common at the time of admission, and that there was a real need to relieve the fear that practically all patients suffer prior to a surgical operation. Another recent survey revealed that more than half of all patients on admission

to hospital were fearful, and that those who were less ill, feared most. Too often, in hospital, the existence of fear is denied or played down. It is surely our duty to explain fully and frankly to our patients the nature of their illness, and, whenever possible, the rationale of treatment and the expected results. The more senior the doctor who gives this explanation, the more readily will the patient understand and accept it. Yet there is a tendency, in hospital practice, to leave the task of informing the patient to the houseman or ward sister, or perhaps to neglect it completely. Surely all of us in charge of patients should make an effort to find the few minutes of time needed to talk personally at least to our more seriously ill patients.

One survey reports a man who "was cautious in accepting what he was told about his illness, because he came to the hospital suspecting that physicians lie to patients and his experience in the hospital reinforced this suspicion." This was in an American hospital, but are we any better? I very much doubt it.

Thomas Percival in 1792 wrote, "As misapprehension may magnify real evils, or create imaginary ones, no discussion concerning the nature of his case should be entered into before the patient, either with the house surgeon, the pupils of the hospital, or any medical visitor." This is good advice, at least so far as frightening or possibly misunderstood words are concerned. Growth, tumour, cancer, carcinoma and leukaemia are among the terms that should never normally be used in the patient's hearing. When, however, it is possible – as after an abdominal exploration – to give the patient a clear and categorical statement that he has not got a cancer, then this reassurance should certainly be given.

I have been discussing the need to inform the patient of his diagnosis and prognosis, when his condition is essentially treatable or curable, but when the patient has cancer, or other chronic or incurable disease such as disseminated sclerosis, the problem becomes more difficult.

James Jackson in his "Letters to a Young Physician" wrote: "A young physician, fearful that he may be thought ignorant, is tempted to answer too readily the enquiries of the patient . . . as to the diagnosis, prognosis and treatment. He will, however, ultimately gain by not yielding to this temptation. Be cautious, but at the same time frank; and when you have made an opinion, state it plainly. Be slow to give alarm as to the result." This advice was given over 100 years ago when, by our standards, there was virtually no effective treatment for any serious disease. The caution of our forbears is therefore understandable.

The same caution remains to-day, especially in this Province. Many surgeons will never tell a patient that he has a cancer, even when it has been treated with an apparently good prospect of cure. Direct questions are met with deception or evasion, but in the words of Lane ". . . Our evasions of truth boomerang upon us. It is impossible to reassure patients who have a simple condition." He goes on to say: ". . . Often patients have been left in a state of anxious doubt; no one has told them anything . . . this is an affront to human dignity. To have a cancer is bad enough; to be treated like a child, or feeble creature, is worse."

Let us take a problem commonplace in the practice of any general surgeon – the woman who comes to hospital with a lump in the breast. If she has any intelligence and any education at all, she knows that this may be a cancer, and has probably already convinced herself that it is. She is examined by a surgeon,

who bluntly says that the lump must be removed, but declines to discuss the matter further. He removes the breast, and subsequently she is referred for radiotherapy. He never mentions the diagnosis, and she is afraid to ask; worse still, if she does ask he equivocates or deceives. She knows that she has a cancer, and now thinks that it is so far advanced, or the outlook is so bad, that the surgeon dare not tell her. Is it not kinder to discuss, at her first visit, the patient's fears? She probably does not realise that cancer accounts for less than one-quarter of all breast lumps referred to hospital, nor is she aware that three-quarters of all breast cancers can be cured, if they are treated early. Knowledge of these facts will calm her fears even before her operation. Afterwards she must be told that it was a malignant tumour, but when she learns that it was early, and the chance of cure is good, she will nearly always be able to contain the news, for hope can well be strong enough to conquer fear. Should she be lucky, and the tumour prove to be benign, she must be told so categorically and without delay, for fear feeds on delay.

Probably no doctor would advise that every patient should be told the full truth. An interesting study was carried out in Manchester during the 1950's, when over 200 patients, selected because their tumour was early and probably curable, were deliberately told the diagnosis. Two-thirds of these patients subsequently expressed approval of the policy of telling them, some were doubtful, but only seven per cent expressed definite disapproval. When interviewed some years later, these proportions had not altered. One advantage of telling such patients is that a population can thus be built up, knowing that they have had a cancer and been cured. Some, at least, will tell their friends and this, in turn, will help to destroy the widely held belief that cancer is always and absolutely incurable. It will help to destroy the ugliness of the word, and thus give hope to others.

A leading Chicago physician recently wrote that he was taught, as a student, to lie to cancer patients, but he soon gave this up because he was unable to lie convincingly. He goes on to say how relieved he was, when his own bowel tumour was removed, that his surgeon told him frankly that it was completely excised, and there were no secondaries. When a doctor is treated for cancer he usually insists on being told the truth, and many of us have observed the dignity and composure with which friends and colleagues have handled this knowledge. If we accept that our colleagues can live with the knowledge that they have had a malignant tumour, is it not arrogant for us to maintain that patients from other walks of life are less well equipped to accept similar information?

It is quite usual for patients, in American hospitals, to discuss freely the fact that they have cancer; has the American really a tougher character than the Ulsterman?

Doctor and Relatives

Percival wrote: ". . . A physician should not be forward to make gloomy prognostications, but he should not fail on proper occasions to give to the friends of the patient timely notice of danger when it really occurs."

It may be very difficult for the doctor to decide whether or not to tell the truth to the patient, but there should be no difficulty in deciding to communicate with close relatives. The husband or wife, parent or relative must always be informed of serious or incurable disease, and this information should normally be given by the doctor in charge. He will be best equipped to convey any nuance of prognosis,

or to answer the difficult questions that may be asked. It has been, for some time, my own practice to set aside a period of time each week to interview relatives by appointment; an appointment which may be made at the request of the relative, or at the suggestion of the ward sister or myself. Often the relative will insist that the truth should be withheld from the patient, a request which must be respected. Unfortunately the patient frequently learns, one way or another, and his last few months may be spent in trying to prevent his wife from knowing, while she, at the same time, is trying to hide the truth from her husband – a hideous situation which puts them both under a great strain.

Relatives will often ask: "How long has he got, doctor?" You should never give a precise answer to this question; it is only in novels that this is done. In real life a guess is likely to be wrong, and a wrong guess may well cause distress. The answer should be vague: "Not very long" or "weeks, rather than months."

The Incurable or Dying Patient

It is said that eighty per cent of patients know that they are dying, and would like to discuss their problem, whereas eighty per cent of doctors believe that they should be told nothing. The Anglican Bishop of Exeter said a few years ago: "The problem of whether and when a doctor should tell his patient that he is suffering from an incurable disease is an intensely difficult one. Many patients and their relatives do not wish to be told the truth, but the maintenance of a relationship of complete trust and confidence between the patient and his doctor is of absolutely vital importance." He goes on to say: "Doctors tend to conceal the truth to an unnecessary and unjustifiable extent . . . making the work of the clergy in preparing people to meet death, unnecessarily difficult."

From the beginning of medical history, doctors and others have debated whether deception is justified, or whether the patient should always be told the truth. Hippocrates was perhaps the first to recommend evasion when he advised ". . . Concealing most things from the patient while you are attending to him, revealing nothing of his future or present condition. For many patients through this cause have taken a turn for the worse." Since his day, a large body of opinion has advocated deception in the interests of the patient's supposed well-being. Francis Hutcheson wrote: "No man censures a physician for deceiving a patient by expressing good hopes . . . Wise men allow this liberty to the physician, in whose skill and fidelity they trust." James Jackson went further, advising that "When from benevolent motives you must deceive the patient, do it thoroughly; do not try to save yourself by equivocal expressions." These stratagems may have succeeded one hundred years ago, but to-day even the most carefully planned deceptions of doctors and relatives are suspected by perhaps three-quarters of all dying patients.

Denials, deceptions and evasions will have a bad effect on some patients, causing loss of confidence in their medical advisers, and often an attitude of aggressive resentment. Such a situation can only lead to unhappiness and distress; it calls for a policy of frankness and honesty.

There is one group of patients requiring special consideration, a group that only came into existence in recent years, and which is steadily increasing in number. I refer to those patients with incurable disease, for whom some form of major

surgery is contemplated. Let us turn again to the problem of breast cancer. Consider the woman who is incurable when first seen, or who returns later with disseminated tumour. Cure is impossible, but much can yet be done, perhaps with hormones or chemotherapy, perhaps by operation. Removal of the pituitary gland by a cranial approach is an operation commonly practised to-day, but surely no surgeon could ask a woman to undergo an operation of this magnitude without a full and frank discussion of her problem.

Perhaps a majority of the many who have written on the subject are adamant that the doctor must never tell a deliberate lie. None expressed this view more strongly than Dr. Samuel Johnson, when he said, "You have no business with consequences . . . you are to tell the truth." Yet he appears to have had a life-long fear of death, and when he was himself told that he could not recover without a miracle, he seems to have turned his face to the wall; for when asked a little later whether he was better, he replied: "No, sir; you cannot conceive with what acceleration I advance towards death." He was perhaps one of those who say, "What I want, doctor, is the plain truth," when this is, in fact, the last thing they really want. We have all met patients of his kind, and by them many doctors have been led to insist that the truth must never be told, in any circumstances. But has not the patient the right to demand information? It is possible that real harm may result from telling the whole truth, but this is much less common than is popularly supposed, as most patients have far more courage than we expect. A middle course is advocated by Lord Cohen, who advises that the patient should not normally be told the facts but, if asked directly, the doctor must not tell a lie. He should try to soften the truth by expressing justifiable doubts, because hope must never be extinguished.

It is perhaps less important to ask whether to tell? or when to tell? than to ask what to tell? and how to tell? As Davidson points out . . . "That which hurts most is not what the doctor says, but the manner in which he says it." The difficulty of telling the incurable patient the facts was well recognized by Percival when he wrote: "This office is so peculiarly alarming when executed by him, that it ought to be declined, whenever it can be assigned to any other person of sufficient judgment and delicacy." I hope that none of you will accept this deplorable advice.

Timing is very important, and a discussion of terminal illness, or incurable disease, should never be attempted until real understanding has been established between the doctor and his patient. Silence can be a potent means of communication, and we should remember the devastating effect that can be produced by simply walking past a dying patient on a ward round, saying nothing. This has been aptly called the L.I.S., or Loss of Interest Syndrome. Yet there are times when it is desirable not to speak. "Think not silence the wisdom of fools, but, if rightly timed, the honour of wise men. Such silence may be eloquence." (Sir Thomas Browne).

"The fear of death is more to be dreaded than death itself," wrote Pubilius Syrus, and it is perhaps in allaying fears of pain, fears of inadequate courage, fears of being a burden to family and friends, that the doctor can help so much. Any of us who have had the courage to talk frankly to a dying patient must have been most impressed to see anxiety and discontent replaced by serenity and calm when

patient, relative and physician all share the same secret, for "Death is almost always preceded by a perfect willingness to die" (Worcester).

Death would seem to be the natural end point at which communications would normally cease, and here I will leave the subject.

I am well aware that I have said a lot that is controversial, and much with which you will disagree, but this is my prerogative. If I have stimulated you to think about the problems of communication with colleagues, with the public, and with your patients, then I rest content, for this has been my purpose. The final decision on when and what to tell must remain with each one of you.

I wish you all every happiness and success in your chosen career – hoping that you will be more helpful to your patients than Belloc's

> "Physicians of the Utmost Fame
> Were called at once, but when they came
> They answered, as they took their fees,
> 'There is no cure for this disease'."

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A SURVEY OF MENTALLY SUBNORMAL PATIENTS WITH ORTHOPAEDIC ABNORMALITIES

AT MUCKAMORE ABBEY HOSPITAL

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IN 1967 it was decided that an orthopaedic surgeon should pay regular visits to Muckamore Abbey. It was soon realised that instead of seeing selected cases it would be more productive to carry out a survey of all the patients. This would mean that every patient would be examined at least once by an orthopaedic surgeon. It so happens that at Muckamore Abbey the patients with orthopaedic problems tend to be concentrated in some of the villas, thus by the time the first 300 patients had been seen, the majority of those with orthopaedic abnormalities had been found. By the time that 400 patients had been examined, a considerable number of orthopaedic problems had accumulated and those patients that had undergone surgery were returning for follow-up. The survey was stopped after seeing 450 patients, and this communication describes the main findings.

PATIENTS WITH ORTHOPAEDIC ABNORMALITIES

The object of the survey was to discover those patients that would benefit by orthopaedic treatment. Whilst the primary diagnosis was of interest from the prognostic point of view, it was the functional state of the patient that was of prime interest. Many had purely orthopaedic conditions such as valgus feet and knock knees, but this did not materially affect their functional capacity. Disorders of muscle control however were far more common and greatly affected the capacity to be independent.

Of the 450 patients, 299 were found to have conditions of orthopaedic interest.

The Primary Diagnosis

The primary diagnoses are shown in Table I. The term amentia is not very precise and in it there were a group that had evidence of mental and physical deterioration. The latter revealed itself by muscle wasting.

Of the sixty-five mongols, thirty-three were sixteen or under. Only seven were unable to walk. It is of interest to note that almost a third of them had a

TABLE I
Primary Diagnoses

Primary Amentia and Microcephaly	341	Gargoylism	1
Mongol	65	Incontinentia pigmenti	1
Hydrocephaly	18	Marfan's syndrome	1
Phenylketonuria	7	Cretin	1
Birth Injury	4	*Cri du chat*	1
Tuberose sclerosis	3	Glycine deficiency	1
Tuberculous meningitis	2	Selenium poisoning	1
Hereditary ataxia	2	Encephalitis	1

valgus deformity of the feet, which is probably associated with the ligamentous laxity. This was slightly commoner than the wide cleft between the big and second toes. Three mongols had congenital skeletal abnormalities, two having hemivertebrae, and one had phocomelia.

Of the patients with hydrocephaly, ten were confined to bed by a combination of mental retardation and paralysis. Six could walk, and two were confined to a chair due to lower limb paralysis.

Disorders of Muscle Control

There were 139 patients with disorders of muscle control, the majority being children. Of these 113 had mainly increased muscle tone, 19 decreased muscle tone, five athetosis, and two were ataxic. These types of motor disturbance tended to be combined in most patients. The relationship of the disorder to the functional capacity is noted in Table II.

TABLE II

The disability of those patients with disorders of muscle control

	Increased tone	*Decreased tone*	*Athetosis*	*Ataxia*
Bedridden	33	13	—	—
Chairbound	24	5	2	—
Walked a few steps	12	—	—	2*
Walked reasonably	33	1	3	—
Walked normally	11	—	—	—

* *one has subsequently died*

Degree of Mental Subnormality

This varied from slight educational subnormality with an I.Q. of 70 to complete lack of comprehension of the surroundings. Where it was possible, the intelligence qoutient had been estimated, but there were great difficulties with those who had severe muscle abnormalities or who were blind or deaf. It was found that the intelligence quotient was of little help in deciding whether or not a child would have the mental capacity to make use of any improvement that was made in the physical state. It was found more useful to assess roughly the degree of motivation of the child. Unfortunately there is no available method of expressing this quantitatively. The motivation had to be estimated by the "spark in the eye" or whether the child showed physically a desire to move around. Often the patient had a desire to move but was limited by physical incapacity, and this resulted in frustration tantrums. This may possibly give a quantitative measurement of motivation. Motivation also gave rise to difficulties in assessing the results of operative treatment, for motivation may vary and sometimes many months went by before a child suddenly decided to walk and make use of an operative physical improvement.

The Bedridden Patients

Broadly speaking the severity of the physical state corresponded to the mental state. Forty-seven bedridden patients were seen of whom twenty-nine were male and eighteen were female. Fourteen were five and under, twenty-three between

six and sixteen, seven were from seventeen to forty, and three were over forty. The primary diagnosis in thirty-seven was amentia, and hydrocephaly in ten. Six were blind, deaf, or unable to speak. Twelve of the forty-seven had flexion contractures of the knees, and eight had contractures of the hips, six of the hips being dislocated. It must be realised that in nearly all of these patients the gross mental abnormalities alone would have confined them to bed.

The children who were confined to bed with quadriplegia in flexion had the most severe contractures. It appeared that if the knees and hips were flexed, they also fell to one side so that one hip was flexed and abducted, and the other hip flexed and adducted. Of eight patients with a flexed and adducted hip, six of these hips were dislocated. It must be noted that the nursing at Muckamore Abbey is of the highest quality, and the staff constantly straighten the limbs, yet in spite of this contractures occurred. It must also be noted that all these patients were incontinent and helpless, yet not a single bed sore was seen. Those who were completely helpless also developed gravity deformities of the skull and thorax.

The Chairbound Patients

Thirty-nine patients were chairbound, of whom eighteen were male and twenty-one female. One was under five, nineteen were six to sixteen years of age, thirteen were between seventeen and forty, and six were over forty. Eight had normal tone, twenty-three had increased muscle tone, six had decreased muscle tone, and two had athetosis.

Most were confined to chair life because of physical incapacity, but some had no motivation to walk. It was noted that of the thirty-nine, eleven had developed a scoliosis, which in some cases had become severe. It was noted that these were all children with rather poor muscle tone, and slumped in their chairs. It was also noted that some of the children who had previously been classified as bedridden, could be re-classified as chairbound when fitted with a thoracic support. The nursing staff noted that these children appeared to be far more contented when they could sit up with the aid of a support, and could see the world around them.

Those who could Walk a Few Steps

There were fourteen patients who could walk a few steps, nine male and five female. Ten were under sixteen years and four over. All showed increased muscle tone, but two also had marked athetosis and two had ataxia. These patients could walk in a walking machine, but did not have enough control to use crutches, they did however show a desire to walk.

Those who Walked Reasonably Well

There were forty-three patients in this group, twenty male and twenty-three female. Three were age five years and under, twenty between six and sixteen, eleven between seventeen and forty, and nine over forty. All except one could be classified as having cerebral palsy, and all had reasonable motivation. They walked with difficulty due to adduction of the hips and flexion deformities of the hips and knees, and plantar-flexion of the feet. It was in this group that the greatest number of operative procedures were undertaken in an effort to reduce the spasticity and deformity of the limbs.

Treatment

Non-operative

Physiotherapy is still the primary form of treatment for these patients. The treatment is aimed at encouraging the children to use what capacity they have, rather than the correction of individual deformities. It is of little use the physiotherapist ensuring that a muscle is used in a certain way for thirty minutes daily if during the rest of the day the lesson is lost. To encourage a child to walk demands an intimate knowledge of the psychology of that particular child, and the treatment must be individual. Many of the children are unco-operative to a direct approach. Adequate apparatus is available at Muckamore Abbey, but with such individual attention necessary, the limitations of treatment lay in the staff available. It is true to say, however, that the treatment that is given is of the highest standard. The nursing staff also spent a large part of their time encouraging the patients to make use of their physical capacity.

Ten children were fitted with supportive corsets. The majority of these were of leather, and had a neck brace. An attempt was made to use Plastizote, which is easier technically to produce, but the support was in no way superior to that made from leather. Eight children were supplied with calipers. These were only used when absolutely necessary, for the very weight of the caliper was a hindrance. Several children had their calipers removed as it was considered that in fact they were hindered by them, and it must be recorded that some of the parents objected.

Operative Treatment

In all, eighty-one orthopaedic procedures were performed. Four of these were for fractures of the neck of the femur, and two for syndactyly. The remainder were performed for the correction of muscle imbalance and deformity.

Of the eighty-one operations, sixty-three were performed on forty-one children for the correction of lower limb deformities and muscle imbalance. It must be realised that a child may have several operations, but in cerebral palsy they are performed at intervals, so that their individual effects can be noted.

The Problems Arising from the Survey

There were three main groups of patients that required investigation and help.

1. The Bedridden Children with Flexion Deformities

It would seem that helpless children who are confined to bed, and who have an increase in flexor tone of their muscles, will eventually develop contractures in spite of good nursing and physiotherapy. Contractures are not desirable, for joint movements become painful to the child, and the variety of positions in which the child can lie becomes very restricted. This means that their nursing is painful and difficult, and they become liable to gravity deformities and possibly serious complications. The nursing staff found dressing and undressing of the patient difficult, and there had to be considerable care over the prevention of bed sores.

In established contractures, there is a great reluctance to perform operative correction upon these children, especially if they are markedly mentally retarded. One of the major complications of the contractures is dislocation of the hip. To perform an open reduction and to release contractures is a major procedure, the benefits of which are not obvious to some when the child is seen with the lower limbs neatly covered by bedclothes.

2. Those who are unable to sit correctly without aid

Many children had weak spinal muscles and were unable to sit up without aid. It was noted that those who were already sitting tended to develop a scoliosis, which in time would give rise to respiratory problems. These children were fitted with a leather supporting brace. Many also had weakness of the neck muscles, and were fitted with a Milwaukee brace to support the head. To fit a leather support is a lengthy and expensive procedure, and some experiments were carried out with Plastizote supports. The patients appeared to be far more comfortable when in their supports, especially those with weak neck muscles who appreciated that they were able to see far more around them. The support also controlled or prevented the development of scoliosis. Some of the bedridden children are now able to sit up, and could be re-classified as chairbound. The nursing staff and parents also appreciated the provision of a support. Many of the children were difficult to lift or move due to their lack of muscle tone, but when wearing the support they could easily be lifted.

3. Those who had difficulty in walking

Orthopaedic procedures on mentally normal children who suffer from disorders of muscle tone can produce reasonably predictable results. With mentally subnormal children the results are difficult to predict and are often disappointing. There is great difficulty in judging whether or not the child is going to make use of any physical improvement. Many procedures used in cerebral palsy involve the re-education of muscles, but, even if the muscles learn their new roles, the child must have the desire to make full use of the new conditions. It has already been mentioned that there is no quantitative method of assessing the motivation of a child. A decision on the suitability of a child for operation can only be arrived at by a long period of observation.

There are further pitfalls in operative treatment in that some of the children show cyclical variations in activity, and it may be many months before a child will show any improvement, or, alternatively, a child who has been active, may decide not to walk for a time.

Conclusion

As a result of the survey, some forty-nine patients have received operative orthopaedic treatment and ten have received supporting corsets. All too often an entirely fatalistic attitude is adopted towards patients who suffer from mental deficiency and physical deformities. It is true that the results of treament are not so dramatic as in those who are mentally normal. It was found however that there were those who wished to be more active, and every effort was made to assist them. Those who could lie, could be made to sit, and were thus given a more interesting world to see. Those who wished to move could be encouraged by physiotherapy, and contracture or muscle imbalance could be diminished. Generally speaking the limiting factor was the mental state of the patient.

The role of operative orthopaedics is, however, limited, and operations must only be undertaken after careful assessment. It must be backed by adequate physiotherapy which is used in encouraging and assisting the patients to walk.

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THE MANAGEMENT OF CHRONIC CROHN'S DISEASE

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IN NEARLY all patients, Crohn's disease runs a chronic course, usually extending over many years. The thirty-fourth President of the United States, Dwight D. Eisenhower, had the disease for 46 years (Heaton *et al,* 1964). Without definitive treatment, there is no real evidence that the inflammatory process will ever cease spontaneously and the patient become permanently symptom-free. Progression of Crohn's disease of the colon can often be seen in serial barium enema examinations. It is much more difficult to obtain strictly comparable films of small intestinal changes but progression probably does occur in some untreated patients (Marshak and Linder, 1970). Often, however, it appears that the disease remains active in a short length of lower ileum for years without spreading proximally. Recurrences after inadequate surgical treatment are well known. The very chronic nature of Crohn's disease is a major factor in planning the treatment of any patient in whom the diagnosis has been made.

Diagnosis

The diagnosis of Crohn's disease rests on four main pillars: (i) clinical history and findings; (ii) radiological investigations; (iii) macroscopic appearances, and (iv) histological findings. At least two out of the four must be presented to support the diagnosis. The appearances on X-ray may not always correspond with the clinical state of the patient. When multiple sections are cut, the classical epithelioid cell granulomas and the giant cells will be seen on histological examination in two-thirds of resected or biopsy specimens; their absence does not rule out Crohn's disease. Today more emphasis is placed on the transmural extent of the inflammation and to fissure formation and rather less on Hadfield's (1939) classical criteria. While the diagnosis is usually straightforward, in a quarter of all patients it may only be possible to make the correct diagnosis after observing the behaviour of the disease for several months or even years. On the periphery of any series of patients with Crohn's disease there are always a few cases labelled "Unproven"; prolonged follow-up may elucidate the nature of their illness.

Non-operative Treatment

The decade of life in which Crohn's disease of the small intestine most often starts is that between 20 and 30 years. This is the time when young men should be earning their living and young women rearing their families – if Crohn's disease has not rendered them infertile. With the cause and cure of the disease still unknown, the doctor must carefully consider what line of treatment will enable each patient to lead as normal and active a life as possible.

Medical therapy is usually tried first. Until recently the results were poor. In Aberdeen, between 1955 and 1968, there were 145 patients with Crohn's disease,

Based on a lecture given to the Ulster Medical Society, 30 October 1969.

including 30 patients where the colon was the site predominantly affected. Of the 145 patients, 83 had a trial of medical therapy lasting more than one month; only 16 (19 per cent) remain well, most of the others eventually requiring operation. In extenuation, it must be admitted that in some of the failed cases treatment had consisted solely of alleviating symptoms and had not included any concerted attempt to combat infection and inflammation. Crohn's disease of the colon has only been widely recognised for 10 years (Lockhart-Mummery and Morson, 1960), so that long follow-up results are not available, but it seems that the condition may be more responsive to medical therapy than is ileal Crohn's disease. Changes in the colon can sometimes regress very rapily when intensive medical treatment is given.

General Measures

Adequate rest is obviously necessary in a chronic, debilitating illness. Sound sleep at night should be ensured, but during the day the patient is better leading as normal a life as his physical state permits. It is only when a patient sees that he is falling behind his contemporaries that psychological problems arise.

Nutrition

With increased catabolism within the inflamed bowel wall, protein loss from its ulcerated mucosa, and malabsorption from the lumen, the patient's weight falls rapidly. Many females weigh between 35 and 45 kg. (5.5–7 stones) before treatment. An element of subacute obstruction may make eating difficult. An enthusiastic dietician and close co-operation from the nursing staff are essential if an intake of 2,500–3,500 calories per day is to be ensured (Clark and Lawder, 1969). Most of the intake should consist of carbohydrate and protein. Green vegetables, peas, beans and fruit that leave a considerable residue are better avoided. Mechanical obstruction may have to be corrected before weight gain can be achieved.

Correction of Deficiencies

Resection of excessive lengths of intestine is likely to cause more severe deficiency states than untreated Crohn's disease. A moderate degree of iron-deficiency anaemia is common and usually responds to oral ferrous sulphate. Megaloblastic anaemia is rare, but in 9 out of 10 untreated patients in Aberdeen the serum folate level was subnormal. Folic acid in a dosage of 5–10 mg./day may be prescribed for these patients. Although the lower ileum is the principal site of absorption of vitamin B_{12}, its uptake and serum level are usually normal unless more than 80 cm. of small intestine have been removed (Schofield, 1965); patients who have had extensive resections may require monthly injections. Other patients unable to eat fruit and vegetables should be given ascorbic acid, 0.5–1 gm./day, and a few require vitamin B complex. When steatorrhoea is marked it is advisable to give supplementary calcium. Magnesium deficiency has been noted in 10–15 per cent of cases; it responds to magnesium hydroxide suspension, 20 ml. daily.

Anti-diarrhoeal agents

One of the most effective agents in reducing the frequency of bowel action is Lomotil (Searle), 5 mg. given several times per day. Codeine phosphate is a useful alternative. In the author's experience cholestyramine, which lessens colonic irritation by unabsorbed bile salts, and lignin have been less consistently effective.

Sulphasalazine

Salazopyrin (Pharmacia) is the only anti-bacterial drug that has been used in long-term treatment. There have been no controlled clinical trials of its efficacy in Crohn's disease, although one is planned. In addition the mode of action of the drug is not known and even in untreated Crohn's disease remissions and relapses are less clear-cut than in ulcerative colitis. Nevertheless, in a dosage of 1 gm. three or four times per day, sulphasalazine does seem to be beneficial in the more florid stages of the disease.

Steroids

Oral prednisone and corticotrophin by injection have an anti-inflammatory effect, but do not cure Crohn's disease. Given in high dosage, e.g. 30–40 mg. prednisone daily for several weeks, these drugs will diminish diarrhoea and lower the E.S.R. They are more effective in younger patients with short histories, but they do not prevent relapses or recurrences. Short courses may be used with advantage to reduce the toxic manifestations of Crohn's disease before elective resection. Nightly retention prednisone enemata are beneficial when the colon is involved. Prior *et al* (1970) believe that steroid therapy may contribute to the increased mortality in patients with Crohn's disease.

Immunosuppressive Drugs

Azathioprine is the latest drug used in treating Crohn's disease. It works in many but not all cases (Brooke, Hoffman and Swarbrick, 1969). In Aberdeen, eight patients with disease too extensive for resection, or with multiple external fistulae, have been treated to date. Six have responded rapidly. One elderly lady with several associated diseases has not responded at all; in another patient with multiple fistulae arising from partial breakdown of an anastomosis, not unexpectedly the fistulae have remained unhealed. In mid-1970 the optimum dosage and length of treatment with azathioprine are not known. Small doses of 2 mg./kg. per day have been given continuously or 5 mg./kg. daily for 5 days followed by two days' treatment with steroids. While the ill-effects of immunosuppressive drugs were probably over-publicised at the time of the cardiac transplantation failures, undoubtedly they are potent weapons and should only be used when regular supervision is possible.

Surgical Treatment

The need for regular supervision is one of the great disadvantages of conservative management. Very few young people would accept a line of treatment if they realised that it entailed regular attendance at hospital for the next 40 or 50 years. Few people want to be permanent pill-swallowers. The alternative to this type of medicated survival is surgery.

Indications for Operation

The most suitable type of case to operate on is one where there is localised disease which has become quiescent spontaneously or after intensive medical treatment. Inability to enjoy life and the failure of children to thrive are other important considerations. Until the advent of azathioprine, external fistulae would not heal until the underlying disease had been extirpated. Remote toxic manifestations in joints, eyes and skin usually will not subside without intestinal resection.

Mechanical abnormalities such as stenoses and abscesses require surgical treatment. However, if acute intestinal obstruction supervenes emergency operation is better avoided if at all possible – conservative measures should be tried to relieve temporarily the obstruction. The rare complications of free perforation and massive haemorrhage demand urgent surgical intervention.

Operation is not advised when there is very extensive disease, multiple skip areas or rapid progression of the inflammatory process. Further surgery is contra-indicated in those unfortunate patients who develop a recurrence after earlier resection; they should be treated by intensive medical therapy.

Type of Operation

Resection is the treatment of choice. Eighty per cent of patients have ileal involvement. As well as the thickened ileum, the caecum and about 20 cm. of ileum proximal to the upper macroscopic limit of the disease are excised and the ileum anastomosed to the ascending colon. One short skip area can be ignored. Multiple resections are to be avoided. At the proximal line of section the ends should be opened to make sure no luminal ulcers are present (Atwell, Duthie and Goligher, 1968). Gross rectal and perianal disease may necessitate abdomino-perineal resection. Terminal ileostomy works well after colectomy, but there seems little place for double-barrelled ileostomies and attempts to re-use grossly diseased bowel.

When there is a large inflammatory mass in the right iliac fossa, with dense adhesions to iliac vessels and ureter, short-circuit with exclusion is undoubtedly the safer if less dramatic procedure. This operation will give long-lasting relief of symptoms in almost 50 per cent of cases. Earlier fears about the development of blind-loop syndromes and blown ileal stumps have proved largely unfounded.

Prognosis

Crohn's disease has a high morbidity but a low initial mortality rate. Nevertheless in a series of 300 patients followed for up to 30 years, Prior *et al* (1970) found that the mortality among patients was about double that in an age and sex-matched sample from the general population. Half the deaths were directly attributable to Crohn's disease. The Aberdeen experience is almost identical.

The disappointing results of earlier medical regimes, and a possible explanation for their failure, have already been referrred to. The long-term results of azathioprine are awaited with great interest. It is by no means certain that even a long course of the drug will permanently cure a patient of the tendency to react against his own intestines – if Crohn's disease is caused by some auto-immunological process. It would be even more näive to assume that the surgeon's scalpel could eradicate such a self-destructive propensity. Nevertheless resection offers the patient the best prospect of long periods of normal health.

Bcause the ileum is the site most often affected, the results of ileal resection are of particular interest. In Aberdeen, 61 patients had primary resections for ileal disease in the years up to 1966. One patient died following operation, an operative mortality of under 2 per cent. The remainder were followed up for at least two years. The chances of recurrence were then calculated according to the actuarial method of Lennard-Jones and Stalder (1967), which is based on the number of patients at risk at the start of each year. After two years the recurrence rate was

13 per cent, rising to 18 per cent after five years. At ten years the symptomatic recurrence rate was 33 per cent. In other words, when it is technically feasible for ileal disease, resection offers two patients out of three some ten years of active, useful life with freedom from the dangers and inconvenience that are inseparable from prolonged drug therapy.

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Owing to the postal strike it has not been possible to submit proofs to the author. *Editor.*

A CLINICAL TRIAL OF CHLORHEXIDINE AND NOXYTHIOLIN IN GYNAECOLOGICAL SURGERY

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POSTOPERATIVE bacteriuria occurs in about one-third of patients undergoing major gynaecological surgery and its incidence is related to the method of bladder management (Mustafa and Pinkerton 1968). Although the bacteriuria is cured, in the vast majority of patients, by the time of follow-up in 6 weeks, its incidence adds to the immediate postoperative morbidity and may prolong the patient's stay in hospital. For these reasons various measures for the prevention of postoperative bacteriuria have been introduced. The most effective of these measures are closed bladder drainage (Linton and Gillespie 1962) and the instillation of an antiseptic into the bladder (Paterson *et al*, 1960). The commonly used bladder antiseptics, in gynaecology, are chlorhexidine and, more recently, noxythiolin ("Noxyflex"). The value of these antiseptics in the prevention of postoperative bacteriuria has been assessed in this study.

Patients and Methods

One hundred patients who had vaginal surgery performed during 1969 in the Royal Victoria Hospital, Belfast, were studied in this investigation. The details of the operations are shown in Table I. All these patients had stress incontinence

TABLE I *Operations performed*

Type of operation	*No. of patients*
Vaginal hysterectomy and repair	70
Manchester repair	6
Anterior and posterior repair	3
Anterior repair	21
Total	100

which was treated by a Kelly-Kennedy type of operation and none of them had preoperative bacteriuria. They all had indwelling catheters inserted at the end of operative procedures and the postoperative bladder management was carried out as previously described (Mustafa and Pinkerton 1968).

The triphenyl-tetrazolium-chloride (TTC) test (Simmons and Williams 1962; Pinkerton, Houston and Gibson 1965) combined with colony counting on the urine was used for the diagnosis of bacteriuria.

Bladder Antiseptic

The patients were divided into two groups of 50 patients each. In group 1 chlorhexidine was used: 50 ml. of chlorhexidine digluconate (1: 5,000) were

instilled into the bladder at the end of the operation and 50 ml. were then instilled twice a day for three days after which the indwelling catheter was removed. In group 2 noxythiolin was used: 50 ml. of 1 per cent solution (made by adding the contents of one vial – 2.5 grams – to 250 ml. of cold distilled water and used within 48 hours) were instilled into the bladder at the end of the operation and 50 ml. were then instilled twice a day for 3 days after which the catheter was removed. Alternate patients were chosen for each antiseptic and none of the patients in either group received prophylactic antibiotics. All patients were examined 6 weeks after discharge from hospital.

Results

The results are shown in Tables II and III. Postoperative significant bacteriuria developed in 16 (32 per cent) of the 50 patients who had chlorhexidine instillations

TABLE II *Infecting organisms*

Organisms	*No. of patients infected*	
	Group 1 (*chlorhexidine*)	*Group* 2 (*noxythiolin*)
Coliforms	8	6
Proteus	6	5
Enterococcus	1	1
Klebsiella aerogenes	1	0
Total	16	12

TABLE III *Incidence of postoperative significant bacteriuria*

Group	*Total number of patients*	*Number of infected patients*	*Percentage*
Group 1 (chlorhexidine)	50	16	32
Group 2 (noxythiolin)	50	12	24
Total	100	28	28

$\chi^2=0.79$ d.f.$=1$ $0.50>P>0.30$

Difference not significant at $P=0.05$

and 12 (24 per cent) of those who had noxythiolin instillations. Postoperative haematuria occurred in 2 patients, one from each group, and in both cases disappeared within 48 hours.

The bacteriuria was treated by ampicillin and in all patients, except one, had disappeared by the time of follow-up. This patient had an intravenous pyelogram which showed appearances of chronic pyelonephritis on the left side with slight compensatory hypertrophy on the right side. She was referred to the urological unit for further treatment.

Discussion

As the patients in both groups had similar operative procedures performed by the same medical staff, and as the postoperative bladder management, except for the antiseptic used, was carried out on identical lines by the same nursing staff, it is reasonable to accept the difference in incidence of postoperative bacteriuria in the two groups as a measure of the difference in the efficacy of chlorhexidine and noxythiolin as bladder antiseptics. Although the rate of incidence of postoperative bacteriuria with noxythiolin (24 per cent) was lower than that with chlorhexidine (32 per cent), there was no statistically significant difference between these figures ($\chi^2=0.79$, d.f.$=1$, $0.50>P>0.30$).

Although noxythiolin seems to be a slightly better bladder antiseptic than chlorhexidine, its range of bactericidal action *in vivo* is not as good as that *in vitro*; noxythiolin was found to be active *in vitro* against a wide range of antibiotic-resistant Gram-negative bacteria (Horsfield, 1967) and yet 11 of our patients who had noxythiolin instillations were infected by Gram-negative bacteria which responded readily to ampicillin treatment.

Two patients, one from each group, developed haematuria apparently due to chemical irritation of bladder mucosa by the antiseptic, for in both patients when the instillations of antiseptic was discontinued the haematuria disappeared within 48 hours. A similar finding was reported by McFadyen and Simmons (1968).

In this study the overall incidence of postoperative significant bacteriuria was 28 per cent and in all patients, except one, the bacteriuria was easily eradicated by ampicillin treatment. This is in agreement with our earlier findings and emphasises further the importance of urinary tract infection as a cause of postoperative morbidity in gynaecology.

Summary

The efficiency of chlorhexidine and noxythiolin as bladder antiseptics in gynaecology was assessed. Significant postoperative bacteriuria occurred in 32 per cent of patients who had chlorhexidine instillations and 24 per cent of those who had noxythiolin instillations. Two patients, one from each group, developed haematuria. The overall rate of postoperative bacteriuria was 28 per cent and all patients, except one, responded promptly to ampicillin treatment.

We thank the medical and nursing staff in the gynaecological wards and outpatients of the Royal Victoria Hospital, Belfast, for their co-operation; Dr. D. L. Gibson for his bacteriological help; Messrs. Geistlich Sons Ltd. for supplying the noxythiolin used; and Miss M. Weller for typing the manuscript.

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INTRODUCTION OF EXPERIMENTAL GLOMERULONEPHRITIS BY ANTI-KIDNEY MITOCHONDRIAL ANTISERUM IN THE RABBIT

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THE SIGNIFICANCE of auto-antibodies in the initiation and progression of certain types of kidney diseases in man and in experimental animals has often been considered to be of little or of no importance. It is often suggested that antibodies, which can be detected by various in vitro techniques, are the consequence of the immuno-pathological processes rather than the cause of the kidney disease (Boss, Silber and Nelken, 1968; Mathur et al., 1968).

In spite of controversy it is well established that glomerulonephritis in man and in experimental animals can be produced either by anti-glomerular basement membrane antibodies or by antigen antibody complex depositions in the glomeruli (Dixon, 1968).

An experimental model produced by Heymann and his co-workers (1959) facilitated the understanding of one type of disease process involved in the so-called auto-immune nephrosis of rats. Since morphological and clinical features of the experimentally induced autologous immune complex nephritis (Lannigan et al., 1969) show remarkable resemblance to membranous nephropathy in man, further studies which might shed light on the initiation of this disease would be desirable. In one experiment (Barabas and Lannigan, 1969) it was observed that a temporary phase of proteinuria proceeds the establishment of a chronic serum sickness type of nephritis in rats. The suggestion was considered that circulating anti-kidney antibodies (Barabas, Elson and Weir, 1969) might come in contact with and liberate the nephritogenic antigen which in turn would be responsible for the chronic progressive kidney disease. Subsequent experiments proved this assumption to be correct. Barabas, Nagi and Lannigan (1970) showed that autologous immune-complex nephritis can be induced in rats by the injection of a heterologous anti-rat kidney mitochondrial antiserum into rats made temporarily proteinuric by various means.

The present experiment describes a preliminary observation made in rabbits. The effect of a heterologous anti-kidney mitochondrial antiserum was studied in rabbits to ascertain whether this experimental procedure would produce a similar disease to that induced in rats.

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Materials and Methods

Ten adult rabbits were used in the experiment. In all of them acute serum sickness was induced by a single intravenous injection of 250 mg bovine serum albumin (BSA) per kg body weight. Eleven days after the BSA injections two groups of rabbits were treated as follows: Four rabbits received 3 ml of inactivated and normal rabbit red blood cell absorbed, normal rat whole serum intravenously. The remaining six rabbits received a similarly treated rat whole serum preparation with an anti-rabbit kidney mitochondrial antibody activity. Protein estimations (Weichselbaum, 1946) were carried out on nine 24 hr specimens of urine from each animal during the first ten weeks of the experiment. Ten weeks after the start of this experiment four rabbits from the test and two rabbits from the control groups were biopsied. Kidney specimens obtained were examined by histological, fluorescent-antibody and electron microscopical techniques.

Table I – *Fluorescent antibody studies*

		BSA	*Rat γ-G*	*Rabbit γ·G*
Test animals	1	—	—	4+
	2	—	+	3+
	3	—	—	4+
	4	—	+	4+
Control animals	5	—	—	—
	6	—	—	—

+ – 4+ = the intensity and the extent of fluorescence is indicated by an arbitrary scale.
— = no fluorescence.

Results

At the time of biopsy proteinuria in the control group of rabbits was within normal limits, whereas in the test animals it ranged between 21–890 mg/day.

Fluorescent antibody studies are summarised in Table I. It can be seen that no control rabbits had fluorescent glomeruli due to localisation of BSA, autologus γ·globulin or the injected normal rat whole serum containing γ-globulin. On the other hand, all the test animals manifested the presence of rabbit γ-globulin in the glomeruli. This autologous serum protein was localised in a linear fashion along the glomerular capillary blood vessel walls (Figure 1). Often only a part of the glomerulus was fluorescent, presumably because the rest of the glomerular tissue was replaced by epithelial crescent formation. The intensity and the extent of fluorescence in

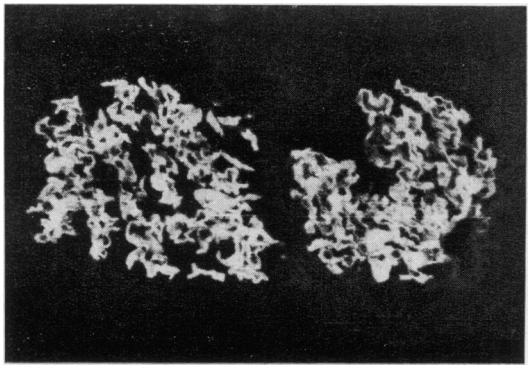

Fig. 1. *Section of kidney from a test rabbit The fluorescent antibody technique shows linearly distributed autologous γ-globulin in the glomeruli.*

all the glomerular blood vessels indicated a moderate to severe glomerulonephritis. In this test group no animals had localised BSA in their kidneys, although two of the test rabbits had some rat γ-globulin localised in a linear fashion along parts of a few glomeruli.

In the kidneys of those rabbits, which were injected with anti-kidney mitochondrial antiserum, gross histological abnormalities were observed by all the staining methods employed. By the haematoxylin and eosin stain a severely damaged kidney was characterised by the following changes: Proliferation of the endothelial cells and epithelial cells of the Bowman's capsule, thickened capillary basement membranes and in some areas partial or complete replacement of glomeruli by hyaline or granular casts. Often such chronic lesions were surrounded by periglomerular fibrous tissue. In many cases a few glomeruli appeared to be preserved. Proximal convoluted tubules around severely damaged glomeruli also showed marked degenerative changes revealing abundant hyaline casts and grossly dilated lumens. Mononuclear cell infiltration of the interstitial tissue was sometimes observed. PAS stained sections confirmed the changes described above and indicated that the material in the glomeruli and some of the tubules was periodic acid Schiff (PAS) – positive (Figure 2). By the methanamine silver stain irregularly thickened capillary basement membranes were noted similar to those observed in Masugi-type nephritis (Figure 3). Membranes appeared to have double walls in an occa-

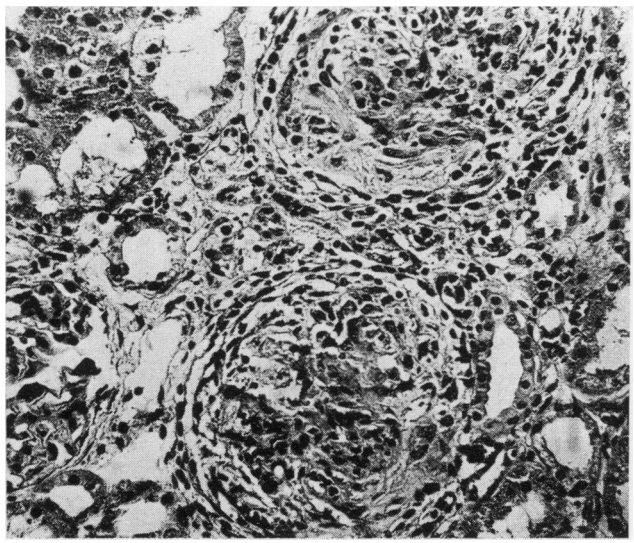

FIG. 2. *Changes described in detail in the text can be seen on this PAS stained kidney section.*

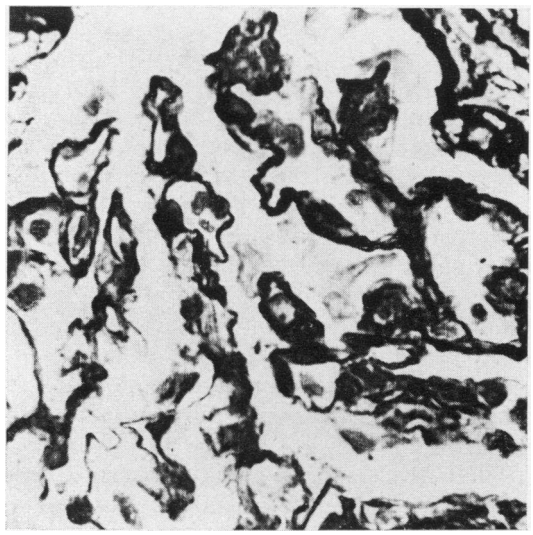

FIG. 3. *Irregularly thickened capillary blood vessel walls can be observed in the glomerulus. Methanamine silver stain.*

sional glomerulus giving a "frilly" appearance. There were a few silver positive elevations present along some of the glomerular capillary walls. None of the control rabbits manifested any of these abnormalities.

By electron microscopy glomerular lesions were characterised by morphological features of nephrotoxic nephritis (Figure 4). Basement membranes were swollen and osmiophilic material was visible within the membrane. In severe lesions a dark osmiophilic band, probably representing the autologous anti-glomerular basement membrane antibody complex, split the membrane and caused considerable thickening with irregular undulations of the lamina densa. Foot-processes were preserved in most areas, but had broader bases at the area of glomerular capillary blood vessel contacts. None of the control rabbits manifested ultrastructural abnormalities.

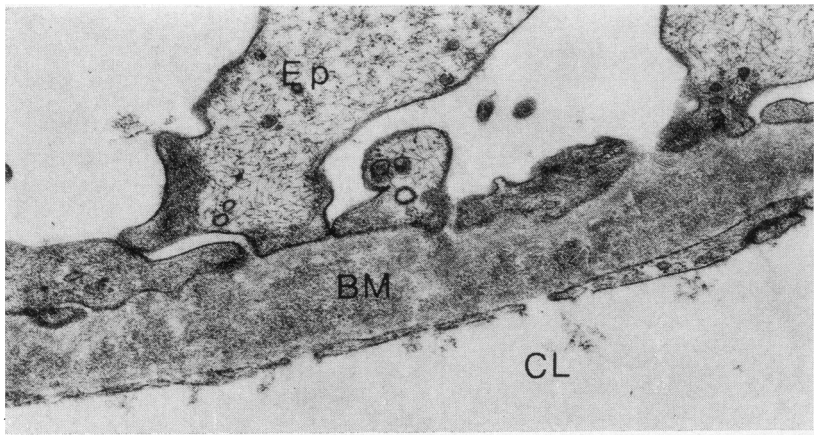

FIG. 4. *Osmiophilic material within the thickened lamina densa can be seen. Foot-processes preserved but have broad bases. Electron micrograph.*

DISCUSSION

Renal disease in rabbits can be induced by the injections of homologous and heterologous renal antigens (Unanue, Dixon and Feldmann, 1967; Unanue and Dixon, 1967). On the other hand, nephritis due to immune complex depositions on the epithelial side of the capillary basement membrane by intra-peritoneal injections of homologous rabbit kidney preparations can not be produced (Heymann, Hunter and Hackel, 1962).

We have previously described an experimentally induced autologous immune complex nephritis in rats (Barabas, Nagi and Lannigan, 1970). In an attempt to reproduce this disease in another species, rabbits were injected with anti-kidney mitochondrial antiserum during a phase of temporary proteinuria. The kidney lesion produced was unlike that in rats and morphologically resembled nephrotoxic nephritis.

Fluorescent antibody studies revealed linear deposition of autologous γ-globulin along the glomerular capillary basement membrane. By electron microscopy osmiophilic depositions were observed, which split and occupied the centre part of the lamina densa in most of the glomeruli examined. On histological examination one could note changes usually associated with severe nephrotoxic nephritis.

The reason for the initiation of a Masugi-type nephritis after the injection of anti-kidney mitochondrial antiserum in rabbits is not clear at the present time. It is tempting to suggest, however, that the antiserum injected had antibody activity against certain components of the kidney which might have initiated the anti-basement membrane antibody activity and resulted in the disease.

Summary

Rabbits injected with rat anti-rabbit kidney mitochondrial antiserum during a phase of BSA induced proteinuria developed a renal disease characterised by morphological features of nephrotoxic nephritis.

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BM=Basement membrane. *CL=Capillary lumen.* *Ep=epithelial cell.*

SERIOUS EYE INJURIES CAUSED BY THE CIVIL DISTURBANCES IN BELFAST

By **STEWART JOHNSTON,**
Eye and Ear Clinic, Royal Victoria Hospital

Introduction

Trauma is the commonest cause of eye disease. In the five years up to August 1969, 376 perforating eye injuries were treated in the Eye & Ear Clinic, Royal Victoria Hospital, the main causes being accidents and play in children, and road traffic accidents in adults. Only twenty-one were due to assault, usually with the fist or broken glass, one was due to a butt with the head and one with the toe of a boot. Four were due to explosions—two exploding cartridges, one firework and one detonator. These four eyes were lost or rendered sightless. Three eyes were lost due to accidental shotgun injuries, and two were lost when hit by air gun pellets.

In contrast, in the year from the 15th August, 1969 till August, 1970, sixteen cases were seriously injured in the civil riots and treated in the Eye & Ear Clinic. Nine were hit by shotgun pellets, three by bullets and four by other missiles or blows. These injuries occurred in rioting on four separate occasions: 13th, 14th and 15th August 1969 in West Belfast; 11th and 12th October 1969 on Shankill Road; 2nd April 1970 at Ballymurphy; 27th and 28th June 1970 in Springfield and Lower Falls areas.

It is proposed to describe the injuries and their consequences which took place on the above dates. Excluded are numerous minor contusions, lid injuries, trauma due to chemical burns such as C.S. gas and acid.

Case Histories

The first ten cases were injured on the 14th and 15th August when the initial rioting was taking place in West Belfast. Cases 11–13 were injured on 11th and 12th October, 1969, Case 14 on 2nd April, 1970 at Ballymurphy and Cases 15–16 on 27th and 28th June, 1970 at Springfield and Lower Falls area. For various reasons a detailed history is not given and follow-up was difficult.

Case 1. Age 24. Admitted 15.8.69.

Right perforating eye injury caused by stone or piece of pavement. A corneal wound with iris prolapse was present which was repaired surgically under general anaesthetic the same day. Grit was removed from the wound but no intraocular foreign body was present. Post operative course was uneventful and he was discharged on 29.8.69 when right visual acuity (R.V.A.) was $\frac{6}{60}$ and left visual acuity (L.V.A.) $\frac{6}{6}$.

Follow-up: Last seen 31.12.69. R.V.A. – $\frac{6}{12}$. The eye was well healed except for developing traumatic cataract.

Case 2. Age 15. Admitted 15.8.69.

Shotgun injury, multiple pellets to legs, trunk, chest and face. Right periorbital haematoma, globe intact. Right eye lower half field loss, defective abduction and

elevation. Corneal reflex present. Pupillary reactions normal. Mediae and fundi normal. X-ray: Pellet in right orbit behind globe affecting 2nd, 3rd and 6th cranial nerves. Elevation of eye restored. Discharged 25.8.69. Pellets later removed from forehead, chin and right shoulder.

Follow-up: 2.10.69 R.V.A. – $\frac{6}{6}$. Lower field loss. Optic atrophy and defective abduction present.

Case 3. Age 50. Admitted 15.8.69.

Shotgun injury, multiple pellet scatter, four pellets were found in chest—two anterior to manubrium sterni and two in right lung tissue giving rise to small apical pneumothorax and haemothorax. Five pellets were found in the region of left elbow. Skull—one in left frontal sinus, one in right orbit—extraocular. Pellets in region of left infraorbital margin and right ear and two on either side of mandible. Right perforating eye injury at limbus with vitreous loss. The vitreous was full of blood. This was repaired surgically the same day under G.A. On 26.8.69 a shotgun pellet worked its way to the surface under the conjunctiva in the lower fornix of the right eye and was removed. Discharged 27.8.69.

Follow-up: 9.10.69. R.V.A.—Hand movements. Blood still in vitreous and retinal detachment present. L.V.A. $\frac{6}{18}$. Blood in vitreous. Traumatic choroido-retinal scarring below.

Case 4. Age 37. Shotgun injury 15.8.69 admitted from Mater Hospital 16.8.69.

Scleral perforating wound left eye with vitreous loss. X-ray showed pellet outside and behind globe, above the optic nerve at apex of orbit. Scleral wound repaired 16.8.69. Discharged 28.8.69.

Follow-up: 5.1.70. R.V.A. – $\frac{6}{6}$ .L.V.A. – Hand movements, vitreous haemorrhage and detachment.

Case 5. Age 27. Shotgun injury 15.8.69 admitted from Mater Hospital 16.8.69.

Pellets were found in the left side of chest, left arm and shoulder, left side of face and left ear. A fairly large fragment was found in the outer wall right orbit—extra-ocular. Pellet in upper maxilla below orbit right side, two small fragments in outer wall of left antrum, scleral perforating wound left eye, vitreous haemorrhage. The scleral wound was repaired 16.8.69. Discharged 29.8.69.

Follow-up: 6.10.69. R.V.A. – $\frac{6}{4}$. L.V.A. – No light perception, total detachment of retina.

Case 6. Age 43. Shotgun injury 15.8.69.

Multiple pellets were found in chest and right forearm. The right eye was intact. Left eye: no light perception, no entrance wound found but lead pellet (?) seen in vitreous. Difficult to see because of haemorrhage. Oedema and haemorrhage of retina below. The X-ray report stated that the pellet in left orbit was outside globe, behind and below. Treatment was conservative. Discharged 28.8.69. Pellets removed from left scalp, right clavicular region and right elbow under local anaesthetic 30.9.69. The patient was re-admitted 3.3.70 with a blind painful eye. Large hyphaema. 4.3.70 eye enucleated and sent for pathological report.

Pathological Report: (Institute of Ophthalmology, London). Shotgun pellet

present intraocularly lying posteronasally, hyphaema. No definite entrance wound found. Total detachment of retina with haemorrhage in sub-retinal space and vitreous.

Case 7. Age 13. Shotgun injury 15.8.69.

Hit by fine pellet scatter mainly on left side of face. Three deep corneal foreign bodies were present in left cornea. X-rays showed multiple small fragments projected on the left parietal region, one lying in the medial aspect of the left orbit extraocularly. The foreign bodies were removed from the cornea and left side of face under general anaesthetic on 15.8.69. They were non-magnetic, smaller than the usual shotgun pellets, rather like fine buck shot. Discharged 25.8.69.

Follow-up: 17.11.69. Right and left visual acuities – $\frac{6}{6}$. Fine corneal scarring was present. The eyes were otherwise normal.

Case 8. Age 17. Shotgun injury 15.8.69.

Multiple shotgun wounds on face, three over chin and five in left malar region.

Orbits: Pellet immediately behind right eye in region of optic nerve. Another pellet in nasal part of left orbit extraocularly.

Right eye: Conjunctival wound above cornea, no perforation found, hyphaema and vitreous haemorrhage.

Left eye: Globe collapsed, limbal perforation at 10.00 o'clock with iris, ciliary body and vitreous prolapse. Hyphaema.

A surgical repair of left eye was carried out on 15.8.69 and an excision of the prolapsed tissue. Post-operatively, there was no perception of light in either eye which had fixed dilated pupils. Vitreous haemorrhage precluded any fundus examination. Discharged 14.9.69.

Case 9. Age 50. Injured 15.8.69.

Unconscious, identity unknown for four days. Comminuted fracture right mandible, blow out fracture left orbital floor, facial lacerations. Left perforating eye injury. The globe was collapsed and damaged beyond repair. On 15.8.69 the left eye was eviscerated and the right mandible was reduced and wired. The right eye was undamaged. Discharged for convalescence 31.8.69.

Case 10. Age 56. Shotgun injury 15.8.69.

Multiple pellets in anterior surface of chest and abdomen, eight pellets in face. One pellet localised medial to the eye in left orbit. R.V.A. – $\frac{6}{9}$ L.V.A. $\frac{6}{18}$ Left traumatic iritis present, extensive preretinal and vitreous haemorrhage. Teatment conservative. Discharged 28.8.69.

Follow-up: 19.2.70. R.V.A. – $\frac{6}{9}$ L.V.A. – $\frac{6}{9}$ Still a little vitreous haemorrhage present. Fundus appeared normal.

Case 11. Age 22. Shotgun injury 11.10.69.

Admitted 12.10.69 Ward 21, unconscious. Numerous punctate facial wounds, large stellate laceration left parietal region through which a little brain tissue exuded. Left eye was collapsed and irreparably damaged. Skull wounds repaired 12.10.69. Entry wound and scleral wound repaired left eye and iris prolapse excised. Three sub-conjunctival foreign bodies were removed right eye. 30.10.69

left eye enucleated. No perception of light and danger of sympathetic ophthalmia.

Post-operatively: R.V.A. – $\frac{6}{6}$ Weakness right arm and leg and dysphasia.

Case 12. Age 20. Gunshot injury 12.10.69.

Pellets in left lower lid and left orbit extraocularly. Two pellets in throat which were removed on 12.10.69. Pellets removed from left lower lid under general anaesthetic on 16.10.69.

Follow-up: Vision and visual fields normal.

Case 13. Age 18. Gunshot injury 12.10.69.

Pellets in ethmoidal air cells, medial $\frac{1}{3}$ right supraorbital margin and small fragment in right orbit extraocularly. Pellets removed from right supraorbital margin under G.A. on 16.10.69.

Follow-up: Fields and vision normal but choroido-retinal scarring right eye at 10.00 o'clock in the periphery of the fundus.

Case 14. Age 30. Hit by brick right eye 2.4.70.

Admitted 3.4.70. Perforating injury right globe which was collapsed. Prolapse of iris tissue, vitreous and lens. Corneal tissue lost. The eye was damaged beyond repair. Evisceration of right eye carried out 3.4.70.

Case 15. Age 45. Admitted 27.6.70.

Left eye hit by flying missile on the Springfield Road. R.V.A. – $\frac{6}{6}$ L.V.A. – Hand movements. Two full thickness lacerations left upper lid, one full thickness laceration left lower lid, corneal abrasion, small hyphaema, lens subluxated down and laterally with vitreous in the anterior chamber. Intraocular tension normal. Lids sutured under local anaesthetic 27.6.70. Discharged 9.7.70.

Follow-up: Secondary glaucoma left eye with intraocular tension 50 mm Hg (normal 20 mm Hg). Controlled with oral Diamox. Lens has since become cataractous. Scarrring of retina in macular area, L.V.A. – Hand movements – not improved. Successful lens extraction 9.9.70.

Case 16. Age 45.

No history, possibly hit by sniper's bullet on 28.6.70 Torn right pinna, fracture right parietal bone, zygoma and inferior orbital margin, medial wall of antrum and ascending ramus of right mandible, right lids torn away and eyeball exposed. Surgical repair carried out on 28.6.70 under general anaesthetic 6.7.70. R.V.A. – no perception of light. Left eye normal. Right VIIth nerve palsy, ptosis, flattening of medial canthus, proptosis of eye, limitation of abduction, fixed dilated pupil, mediae clear, avulsion of optic nerve – haemorrhage and oedema around disc. Median tarsorrophy carried out to prevent exposure keratitis.

Discussion

Sixteen patients, of whom fourteen were civilians and two were soldiers, received eye injuries. Nineteen eyes were involved, eight right eyes and eleven left eyes. Gunshot injuries accounted for fifteen out of nineteen eyes injured. Case 16, which may have been due to a bullet, is included in this number.

Six were perforating injuries and in four there must have been a double perfora-

tion (cases 3, 4, 5 and left eye in case 8). This is assumed because the entrance wound was repaired and the X-ray localisation showed the foreign bodies to be lying extraocularly. In Case 3 the pellet worked its way to the surface and was later removed. In Case 6 there was a retained intraocular foreign body. This was suspected clinically but X-ray reported it was extraocular and only the pathology report confirmed that it was indeed intraocular. In these six cases the visual result was very poor, two eyes being removed and in the remaining four the visual acuity was hand movements or worse. This was due to the great disruptive force of a large foreign body passing through a small organ, causing much haemorrhage and retinal detachment. In Case 6 where the eye was ultimately removed with a retained intraocular foreign body, toal detachment was present. There was a recurrent haemorrhage causing secondary glaucoma.

Apart from the precious metals, gold and platinum, and glass and plastic, lead is perhaps the most inert of the metals which commonly form intraocular foreign bodies. It is rapidly covered with a layer of insoluble carbonate which prevents diffusion and any chemical reactivity.

In no cases was infection a problem. Shotgun pellets are probably self-sterilising but all cases were given immediate local antibiotic cover—sub-conjunctival injection of Soframycin 500 mgm, and systemic antibiotics for up to a week.

Nine non-perforating injuries were caused by shotgun blast or bullets. These may be divided into three groups. The first (Cases 7 and 12) suffered no permanent visual loss. In the two eyes of Case 7, the smaller size of the shot did not penetrate the cornea and in Case 12, only the lids were affected.

In the second group of three eyes (Cases 3 (left eye), 10 and 13) pellets penetrated the orbit extraocularly and caused intraocular haemorrhage in two and choroido-retinal scarring in all three. In severe contusion, injuries of the globe commotio-retinae—that is oedema and haemorrhage resulting in choroido-retinal scarring, is common. The damage is indirect resulting from a contre-coup type of injury. Direct choroido-retinal damage from extraocular causes is rare except with very severe injury such as gunshot wounds. In two of these cases the visual acuity was reduced to $\frac{6}{18}$ and in the other case it was normal.

In the third non-perforating group of three eyes (Cases 2 (right eye), 8 and 16) the optic nerve was involved. In the latter two cases the whole nerve appeared to have been directly traumatised, causing immediate and total loss of vision. This was confirmed opthalmoscopically in Case 16. In Case 2, only partial damage to the optic nerve resulted causing an inferior altitudinal field loss. This may be explained anatomically. The subarachnoid space is virtually absent in its upper part near the apex of the orbit where the nerve can be considered as attached to its dural sheath in the optic canal. This makes the upper part of the nerve in this region peculiarly susceptible to such damage because of its immobility, a circumstance which may account for the frequency of the occurence of visual defects in the lower visual field.

Of the four injuries not caused by gunshot, two eyes (Cases 9 and 14) were damaged beyond repair and removed. The other two showed typical complications following severe contusion injury. In Case 1 a posterior subcapsular cataract of the concussion type is developing in the right eye. In Case 15 a subluxated cataractous lens resulted from a direct blow on the front of the eye caused by a flying

missile. Only very occasionally do these eyes remain quiet. Usually they develop cataract, a violent irritative iridocyclitis and secondary glaucoma. Glaucoma has occurred in this case but can be controlled by oral Diamox. Lens extraction is hazardous due to the likely effect of vitreous loss. In this case the prognosis for sight must be guarded as scarring involving the macula is present.

It can be seen that the most common injury was due to shotgun pellets—twelve out of nineteen eyes. These cases were in hospital an average of fifteen days and the prognosis on the whole was very poor. Nine eyes had severe visual loss or were lost. This compares very unfavourably with non-ocular shotgun injuries.

During the period August—October 1969 a total of thirty-five shotgun injuries were admitted to the Royal Victoria Hospital. Two hit at short range died, seven required general anaesthesia, being in hospital on average fourteen days, although their injuries were not serious. Twenty-six required no surgery or had very minor procedures, being in hospital on average three days. This means that beyond a certain range, death is unlikely to result from a shot-gun discharge. Because of the great scatter most injuries are trivial, unless the eyes are involved, when the result is very often blindess.

All these cases had periorbital oedema and ecchymosis, sub-conjunctival haemorrhage and chemosis in the affected eyes. Eight cases (2, 3, 4, 5, 6, 7, 8 and 15) were given bromelein—trade name Ananase—Tabs. II q.i.d. until the oedema and haemorrhage was no longer present. Bromelein is a concentrate of proleolytic enzymes from the pineapple plant (Seltzer, 1962). The other eight cases had no specific anti-oedematous agent. In the group on bromelein, all the periorbital and conjunctival oedema and ecchymosis had cleared by the 2nd or 3rd day after commencing treatment. In the untreated group, none cleared in under a week, some having signs for over two weeks.

Summary

Sixteen cases, which included nineteen affected eyes injured in the civil disturbances in Belfast, are described. Fourteen were civilians and two were soldiers. Fifteen eyes received gunshot injuries and both those with perforating injuries and those with intraorbital but extraocular pellets had very poor visual results. The poor prognosis compared with non-ocular shotgun injuries is stressed. Four eyes suffered contusion injuries. Two with ruptured globes were excised, and two with complications resulted in poor visual acuity.

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BOOK REVIEWS

ROAD ACCIDENTS – MEDICAL AID. By Hans Pacy. (Pp. 136; figs. 30. £1.00). Edinburgh and London: E. & S. Livingstone, 1971.

IT is commonplace to observe that the increasing numbers of deaths and disabling injuries due to accidents on our roads are the cause of concern to the public and the profession, and while much has been written on the subject of such injuries, and their treatment, in well-equipped units and hospitals, in far too few places has any attempt been made to improve on treatment at the site of accident, and to utilise to the best advantage on such site the skilled knowledge of experienced doctors.

Here, in a text of 120 pages, Dr. Pacy has put on record the experiences of himself and others from a considerable bibliography to help the practitioner who may be called to the scene. It is implicit throughout the book that the saving of life in those recoverably injured lies in early and effective medical intervention at the accident site, and his suggestions for clinical recognition of life-threatening conditions, and for the recovery of the victims from wreckage and their subsequent handling are quite apposite.

The text, necessarily compressed, is perhaps, not the most easily readable, while the illustrations could have been improved by the use of suitable photographs in places. Nevertheless, this is a most useful book, which can be strongly recommended to all interested in the subject; the final observations on the organisation of a modern intensive care road rescue service might well be noted by those who plan the overall strategy for accident and emergency services, for much of what is said applies equally to many other forms of accident.

J.W.W.

TREDGOLD'S MENTAL RETARDATION, Eleventh Edition. Edited by R. F. Tredgold and K. Soddy. (Pp. xi+490; plates 25. £5.00). London: Ballière Tindall & Cassell, 1970.

IT is seven years since the last edition of this textbook appeared and was reviewed in this Journal. There are many changes to be found in its pages, both by way of revision and arrangement of the text and an increase in the number of contributors.

This book presents the reader with a composite overview of the multidisciplinary approach to the problems of mental retardation. The chapters dealing with recent developments in genetic and chromosomal anomalies provide comprehensive coverage of these subjects. Epilepsy in the subnormal is described in detail. The greater part of the book, however, is devoted to descriptions of the behavioural repertoire of the retarded child against the background of his many handicaps, affecting as they do the quality and nature of his experiences and the responses of others towards him. This is examined perhaps in greatest detail in the chapter dealing with disorders of relationship formation and forms the basis of a useful approach to the understanding of early infantile autism.

The dynamic approach to the psychological and social problems of the mentally retarded is developed further in this edition and Freudian concepts are frequently invoked to explain the phenomena described. For those who seek alternative explanations, no reference can be found in the index to recent behaviourist concepts and their possible relevance to this field. Some older psychological terms are used in the chapter on mental development; for instance, "faculties" (p. 43) and "sentiments" (p. 44) and the tri-partile description of "mind". Whilst these have descriptive value their frequency of use has declined in recent years.

There is a sense of historical perspective to be derived from reading a book that has been in existence for 62 years and has gone through many editions. It is a source of knowledge, wisdom and understanding in an important branch of Medicine. Graduate students of psychiatry, paediatricians, child psychiatrists and those working in the field of mental subnormality will find it both valuable and informative.

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"The social aspects of clinical practice are becoming increasingly important and whether the young graduate is to become a general practitioner or to remain in the hospital service he must inevitably need to recognise social aspects of disease and to understand how he can help his patients by invoking the many social agencies that are now available and anxious to help."

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This book provides an interesting introduction to social medicine based on the social aspects of the clinical case. It is also a useful short guide to the medical and social services in England and Wales. It would add to its usefulness if in the next edition the authors would insert a short section on the ways in which the services in Scotland and Northern Ireland differ from those in England and Wales.

J.P.

CONCISE ANTIBIOTIC TREATMENT. By W. Howard Hughes, M.D., B.S., F.R.C.Path., and H. C. Stewart, M.D., Ph.D., F.R.C.P. (Pp. xiii+133. £1.00). London: Butterworth, 1970.

There cannot be many books at such a modest price – £1 – that one could so confidently commend to a wide medical readership. Much information, much wisdom and much food for thought have been succinctly compressed in its small compass and this extends even to the appendices which show, for example, equivalent and approved means of drugs and the relative costs of treatment. Minor criticisms can be made. For example, on page 101, not everyone would agree that Staphylococcus 502A should be used to displace other more dangerous strains in carriers, since this strain itself is not entirely devoid of virulence. Everyone having to use antibiotics will find this book useful, and I consider it required reading for students and all kinds of practitioner alike. I would be happy to see it in every ward and unit accessible to the hands of both consultant and house officer.

W.S.

CLEFT PALATE AND SPEECH. By Muriel E. Morley. Seventh Edition. (Pp. xx+307; figs. 107. £2.00). Edinburgh and London: E. & S. Livingstone, 1970.

WITHIN the 25 years since this book was first published great progress has been made in helping the cleft palate patient to acquire normal speech. Plastic surgeons, orthodontists, and speech therapists cooperate to achieve this. The text has been updated – it includes references to Cineradiography, electro-encephalography and its direct visual study by the Taub panendoscope. The book is well illustrated and tabulated. Miss Morley outlines the embryology, anatomy, surgery, orthodontics and prosthetics. Her aim is to help the student and speech pathologist to understand the condition more fully.

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B.S.K.

SOCIAL ASPECTS OF CLINICAL MEDICINE. By Jessie Garrard and Sir Max Rosenheim. (Pp. 174. £1.40). London: Ballière, Tindall & Cassell, 1970.

THIS book was written primarily for medical students starting clinical work. It will also be of considerable value to house officers and those entering general practice. It is concerned primarily with the individual patient, his relationships to his family and community and the relevance of these to the diagnosis and management of illness. As the authors write:

"The social aspects of clinical practice are becoming increasingly important and whether the young graduate is to become a general practitioner or to remain in the hospital service he must inevitably need to recognise social aspects of disease and to understand how he can help his patients by invoking the many social agencies that are now available and anxious to help."

"Social Aspects of Clinical Medicine" is short, readable, relevant and full of useful practical information. It starts with a section on the patient's social history dealing with his family, occupation, finance, housing and attitudes. There follow 14 illustrative social case histories which make compelling reading. The third part deals with the training and function of those who work in the community and hospital medical teams and emphasises that the effective practice of medicine today requires the co-ordinated activity of all those working in the now numerous health and welfare professions. This section also contains a short historical survey of the development of the health and welfare services and concludes with a useful short description of those services today.

This book provides an interesting introduction to social medicine based on the social aspects of the clinical case. It is also a useful short guide to the medical and social services in England and Wales. It would add to its usefulness if in the next edition the authors would insert a short section on the ways in which the services in Scotland and Northern Ireland differ from those in England and Wales.

J.P.

CONCISE ANTIBIOTIC TREATMENT. By W. Howard Hughes, M.D., B.S., F.R.C.Path., and H. C. Stewart, M.D., Ph.D., F.R.C.P. (Pp. xiii+133. £1.00). London: Butterworth, 1970.

There cannot be many books at such a modest price – £1 – that one could so confidently commend to a wide medical readership. Much information, much wisdom and much food for thought have been succinctly compressed in its small compass and this extends even to the appendices which show, for example, equivalent and approved means of drugs and the relative costs of treatment. Minor criticisms can be made. For example, on page 101, not everyone would agree that Staphylococcus 502A should be used to displace other more dangerous strains in carriers, since this strain itself is not entirely devoid of virulence. Everyone having to use antibiotics will find this book useful, and I consider it required reading for students and all kinds of practitioner alike. I would be happy to see it in every ward and unit accessible to the hands of both consultant and house officer.

W.S.

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DATA HANDLING IN EPIDEMIOLOGY. Co-ordinating Editor, W. W. Holland. (Pp. viii+212; figs. 26. £3.25). London: Oxford University Press, 1970.

THIS book deals, in 15 chapters by different authors, with seven topics: asking the question, study design, collection of data, record linkage, data processing, analysis, and implications. They discuss most aspects of epidemiological research, from formulating hypotheses to interpreting statistical analyses of results. Thus, many, if not all, chapters should interest not only epidemiologists but also other medical research workers.

Several authors of the early contributions make the same plea, namely, that rigorous consideration must be given to the design of studies and the data collected in them. Several authors emphasise the need to define study objectives and formulate hypotheses before considering other aspects of a study. As one author comments, "A casual 'look-see' attitude usually leads to nothing but confusion, and the use of data collected during a study to test a hypothesis which is formulated after the event, may invalidate the conventional methods of testing statistical significance."

Part 4, on medical record linkage, includes two contributions. The first is concerned with the possible application of a system of linked medical records; for example, as a tool for measuring morbidity; as a means of retrieving individual records easily and quickly; and as an aid to patient management. The second contribution describes briefly a series of studies undertaken in the last two decades among some French-speaking African communities south of the Sahara.

The fifth part of this book is concerned with data processing. The first chapter in this section describes the use of a computer for processing of information collected during a study carried out in the Greater London Borough of Lambeth (details are also given of the design of the study), while the second chapter deals in general terms with computer's role in data processing and its impact on epidemiological studies.

Analysis of data is considered in Part 6. While not claiming to be fully comprehensive, the three chapters in this section give useful examples of building models for infectious diseases; the use of multivariate analyses in psychiatry; and the use of models to study survival. The non-mathematical reader may find parts of these chapters rather heavy going.

The findings of epidemiological studies may have certain implications with regard to health policies and these are considered in Part 7. The example chosen, automobile accidents, demonstrates the three major ways of attacking health problems, namely, by environmental health measures, by medical care, and by health education. The uses and implications of computerised data processing techniques for automated multiphasic screening procedures are discussed.

In a book which covers so much ground it is obviously impossible for each author to have sufficient space to consider fully all aspects of his topic. An additional bibliography, or recommended reading list, at the end of each chapter would have been a useful addition to help the reader whose interest had been aroused.

The reader's attention is drawn to the following errors in the book:

1. Page 171, item 3, line 1. The formula referred to should be (3) and not (2).
2. Page 186. The "is" in line 20 and the "and" in line 21 should be deleted so that this definition conforms to that of the preceding paragraph.

J.D.M.

A MANUAL OF OPERATIVE DENTISTRY. By H. M. Pickard, F.D.S.R.C.S. (Eng.), M.R.C.S.(Eng.). Third Edition. (Pp vii+183; figs. 213. £1.50). London: Oxford University Press, 1970.

THIS book is obviously written for the undergraduate and let it be said at the outset that the simple principles of mechanical dentistry and the mistakes to be avoided are set forth in a clear, concise, adult fashion often missing from some of the tomes which find their way to use from the other side of the Atlantic. For an outlay of £1.50 it would even be money well spent by the established practitioner. However, one would have wished to read

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The author is somewhat dogmatic in his approach to gold inlays and three-quarter crowns. One can't help feeling that resistance and retention form are better achieved in dentine than in a cavity largely modified by cement, nor is one convinced that a knife-edge finish within the gingival crevice should be sought at all times – more recent opinion seems to favour a chamfer finish at the gum margin wherever possible thus minimising potential periodontal problems. Very little has been written about the technique of elastomer impression materials – certainly they have disadvantages as well as advantages. There is nothing in the text relating to full crowns.

It is the opinion of this reviewer that the teaching of Operative Dental Surgery should be marching away from the purely mechanical procedures and that more emphasis should be placed on the biological factors involved in the treatment of teeth and their related supporting structures.

It may be that price is one of the chief considerations in the publication of such a book and that much relevant information has to be omitted. If so, it is a pity because any real criticism of this book lies in what is omitted.

P.J.S.

UNDERSTANDING MEDICINE. By Roger James. (Pp. 276; figs. 60. 45p). Harmondsworth, Middlesex: Penguin Books, 1970.

THE author after a varied career in the Army worked with maladjusted children and then became a medical student at Oxford. This book arose from the excitement of his newly acquired knowledge and the feeling that it would be of general interest. He has since worked in hospital and for nine years in general practice. He writes well and ranges widely and manages to convey much information on normal body function and disease, heredity and malignancy. There is a useful chapter on medicine in general which discusses with wisdom many of the problems in the doctor-patient relationship.

The interested layman and many in the professions ancillary to medicine should find this an informative and useful book.

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REVIEW OF GERIATRIC SERVICES IN NORTHERN IRELAND HOSPITALS, 1969. A report to the Northern Ireland Hospitals Authority by G. F. Adams, M.D., F.R.C.P. (Pp. 61; figs. 3; tables 4). Belfast.

ALL too often it has been the attitude of the older generation of "attending physician or surgeon" to consider that his responsibility began when a patient arrived in one of "his" beds and ceased when he declared the patient ready for discharge or transfer to some other place. The advances in medical care and social conditions in the last 20-30 years have led to the survival into old age of an increasing number of infirm and mentally deranged citizens and these constitute an increasingly important source of patients requiring hospital care. Hospital care may be needed for an acute illness or simply because progressive infirmity has made independant survival impossible. The diagnosis and specific medical or surgical treatment of these patients provide little to occupy the interest or engage the skill of the consultant of the old school and he has come to resent the prolonged occupation of an increasing number of "his" beds by these patients. Some physicians have reacted to this change by using progressive specialisation to narrow their field of responsibility and may even press an upper age limit on the already narrow category of patients which they will admit to their wards. Of course this places an increasing burden of elderly patients on other doctors both inside and outside hospital. It also makes the job of the health service administrator, who has to provide for the health needs of the community as a whole, more difficult.

Northern Ireland administrators have been particularly fortunate in having the expert and extremely well informed advice of Dr. Adams placed before them with dogged determination and at regular intervals. In this, the latest of the series of reports and documents, Dr. Adams

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is able to record considerable progress, not only since 1950 but even since the last review in 1964. Using the yardstick of 1.5 geriatric hospital beds per 1,000 population and 20 welfare beds per 1,000 elderly, the province is only short of 78 (3½ per cent) hospital and 807 (26 per cent) welfare beds. This overall deficiency in hospital beds will be made up during the next few months and over half the welfare beds needed are already under construction.

Needless to say Dr. Adams is not satisfied yet, and for three reasons:

(1) There is a marked inequality of distribution of both hospital and welfare beds so that one large teaching hospital complex is 109 beds short and one county has only 11.5 beds per thousand elderly.

(2) There are areas of the province which are not provided with the services of a geriatric physician. Many of those already in post are working with scattered antiquated and under-staffed accommodation. As a result the development of a properly organised domiciliary, outpatient, progressive inpatient and rehabilitation geriatric service is occurring very slowly.

(3) There is still a tendency both amongst administrators and doctors to regard the care of the elderly as someone else's business. One hospital management committee with a gross shortage of geriatric beds has actually deferred plans to make good the numbers provided during the years under review in spite of advice to the contrary. Welfare services are still administered separately from the hospital services and within the hospital services the care of the elderly confused is regarded as separate from the elderly sane. Perhaps the introduction of the Area Health Boards will break down the administrative barriers. But it is only by constant teaching from people like Dr. Adams that the barriers in people's minds will be broken down.

In this document the sector plan for geriatric services for Belfast is described in detail. It is basic to Dr. Adams' thinking that the care of the elderly should be carried through from beginning to end as close as possible to the patient's old haunts, relatives and friends. It is therefore natural that he should insist that accommodation for geriatric patients should be built within the area where they live and be administered by the hospital which provides the acute medical (and ultimately psychiatric services).

Similarly it is Dr. Adams' contention that geriatritians are advisers and teachers of their subject. As such they should have the backing of a university department with research facilities and should provide teaching for all kinds of professional staff. By giving all doctors some training in geriatric techniques Dr. Adams hopes that all doctors, general practitioners, physicians, surgeons and psychiatrists included will carry their share in the provision of a health service for the aged as well as the young in the community.

This is an admirable report and the profession in Northern Ireland should be very grateful for Dr. Adams' continued guidance in the development of this aspect of the province's health service.

P.C.E.

HUMAN GROWTH AFTER BIRTH. By David Sinclair, M.A., M.D., D.Sc., F.R.C.S.E. (Pp. x+180; figs. 64. £1.40). Oxford University Press, 1969.

THIS book should interest all concerned with the broader biological aspects of medicine. The author claims it has been written specifically for pre-clinical medical students to provide a general idea of the principles of growth after birth. It goes far beyond this and is a useful introduction to many aspects of biology of special interest and importance in medicine. There is a discussion in terms of simple mathematics of growth in height and weight. The growth of tissues and systems is then described. Chapters relate to changes in shape and posture, factors influencing growth and maturation and those concerned with growth and repair and with disturbances of growth and with old age. This is all illustrated by many apt examples which must broaden the reader's knowledge of human biology. Some of these are from the classical work of D'Arcy Thompson, "Growth and Form", which was an inspiration to many thirty years ago, but the work is a modern exposition rich in basic biological concepts and not over-burdened with details. The modern student is fortunate to have such a book bridging biology and medicine.

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THE EYE IN GENERAL PRACTICE. By C. R. S. Jackson, M.A., B.M., F.R.C.S. Fifth Edition. (Pp. viii+174; figs. 44. £1.50). Edinburgh and London: E. & S. Livingstone, 1969.

A further edition of this book two years after its predecessor evinces its popularity. The subject is presented in a very acceptable manner and the format of the volume with good print and informative illustrations, many in colour, make it a pleasure to handle and read. The opportunity has been taken to insert in appropriate places reference to new developments in treatment or technique, for example, the value of 5-iodo-2-Deoxyuridine in herpes simplex keratitis, and, as in the previous edition, a timely warning is given against the use of steroid in these conditions.

In detachment therapy the use of cryopexy and light coagulation is referred to. From these examples the reader can feel that he is handling a book which within its field is well up-to-date. Reference may perhaps be made to the chapters on Squint and Errors of Refraction which have helpful diagrams and give a lucid account of matters that can be at times puzzling.

In a concise textbook of this nature the beginner on this subject should recognise that while it contains nearly all he needs to know it is requisite for him to know *all* that it contains and as with any clinical subject the full import of many statements can only be appreciated in conjunction with clinical experience.

J.A.C.

MODERN TRENDS IN PAEDIATRICS – 3. Edited by John Apley. (Pp. x+347; illustrated. £4.20). London: Butterworths, 1970.

THIS book consists of a collection of up-to-date review articles on important recent developments in paediatrics. Thirteen subjects are discussed: The Epidemiology of Congenital Malformations (Smithells), The Prevention of Rhesus Haemolytic Disease (Finn), Oxygen-Conserving Adaptation of the Foetal Circulation (Saling), Neonatal Surgery (Zachary), Screening Procedures for Inborn Errors of Metabolism (Komrower), Intensive Therapy Units (Jones), Chemotherapy of Malignant Disease (Kay), Child Health and Nutrition (Wharton), Malabsorption (Anderson), Nephrology (Edelmann and Barnett), The Care of Handicapped Children (MacKeith), Autistic and Hyperkinetic Syndromes (Ounsted), and Paediatric Education in Britain (Neligan and Jackson).

In an allegorical reference to the war against disease, the Editor comments '. . . advances are continually being made on many fronts, not only by organised forces but by guerillas. The Paediatric front itself is so broad and so scattered that complete and detailed coverage is hardly possible; more practicable and more immediately relevant is front-line reporting from salient points'. Dr. Apley is to be congratulated on his wide ranging choice of salient topics and on his selection of front-line reporters. Each contributor is an acknowledged expert in his subject which has resulted in a high standard of authoritative 'reporting'. The subject matter is generally well presented and comprehensive, often practical and stimulating and at times speculative. This book is without question a most valuable addition to present day paediatric literature.

I.J.C.

SUDDEN INFANT DEATH SYNDROME. Edited by A. B. Bergman, J. B. Beckwith and C. G. Ray. (Pp. xix+248; figs. 27. $10.00 or £4.75). Seattle and London: University of Washington Press, 1970.

THIS is a record of the proceedings at the Second International Conference on Causes of Sudden Deaths in Infants held in Seattle, Washington, in 1969. The conference was attended by active investigators who presented their work and also by some scientists not so directly involved who took part in critical discussion. The editors are to be congratulated on how they have welded the papers and the spirited and informal discussion into a very readable and acceptable publication.

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In detachment therapy the use of cryopexy and light coagulation is referred to. From these examples the reader can feel that he is handling a book which within its field is well up-to-date. Reference may perhaps be made to the chapters on Squint and Errors of Refraction which have helpful diagrams and give a lucid account of matters that can be at times puzzling.

In a concise textbook of this nature the beginner on this subject should recognise that while it contains nearly all he needs to know it is requisite for him to know *all* that it contains and as with any clinical subject the full import of many statements can only be appreciated in conjunction with clinical experience.

J.A.C.

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Though a devotee of breast feeding, Dr. Gunther is by no means a slavish, intolerant advocate of this mode of infant feeding. Her considerable experience gained from thirty years' study of the subject is evident in the authoritative, sympathetic, practical and commonsensical manner with which she deals with her subject. Though the book is intended primarily as a guide for expectant and nursing mothers, it could be read with advantage by all who have to advise mothers both before and after the birth of their babies, for, as the author so rightly emphasises, ". . . where there *are* difficulties in the first days of feeding from the breast, success or failure depends largely on the knowledge and understanding of the attendant and seldom on the mother or baby."

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In the course of a busy country practice his persistent enquiry led him to unravel many problems of the spread of infective disease and he earned a world-wide reputation as a practical epidemiologist after the publication of his book, "Epidemiology in Country Practice". His fame stands with that of Jenner, Budd and Mackenzie and his keen perception combined with "Continuity of Observation" led to his outstanding contributions to our knowledge of infective hepatitis, Bornholm disease and many other infectious conditions.

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