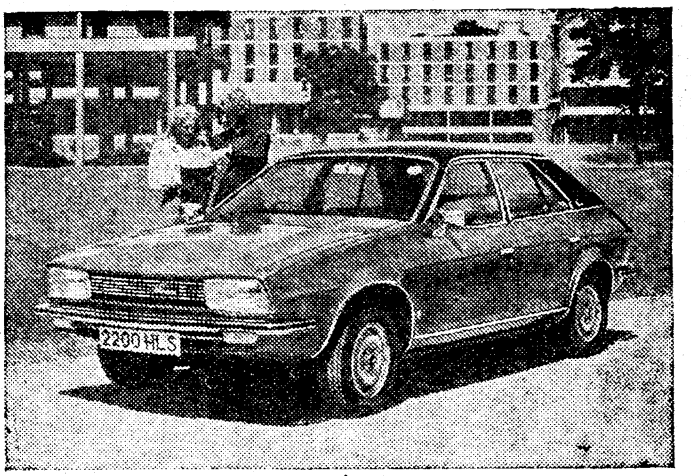
VOLUME 46 1977 No. 1

THE ULSTER MEDICAL JOURNAL

PUBLISHED BY
THE ULSTER MEDICAL SOCIETY

Prescribed Motoring



The luxurious 2200 HLS is the top model of the Princess range. It's the car for those accustomed to the good things in life. And we can offer immediate delivery.

As befits the most exclusive Princess of all, it has much to distinguish it. The front passenger seat is adjustable up-and-down as well as fore-and-aft, in the same way as the driver's seat. Both front seats are fully reclining. There's also extra lighting. Front and rear passenger lights, a light in the glove box, under the bonnet and, of course, in the luggage compartment.

The lively yet economical six-cylinder 2227 cc engine is complemented by a responsive four forward-speed, synchromesh gearbox—or, at extra cost, by an automatic gearbox.

And this great Princess comes with all-independent Hydragas(R) suspension, power-assisted steering, dual-circuit power-assisted brakes, unique Supercover—and much, much, more . . . .

CHARLES HURST
MOTORS LIMITED

10 Adelaide Street, Belfast 2 **Telephone 30566**
Breda, Supermac, Saintfield Road **Telephone 649774**

Princess

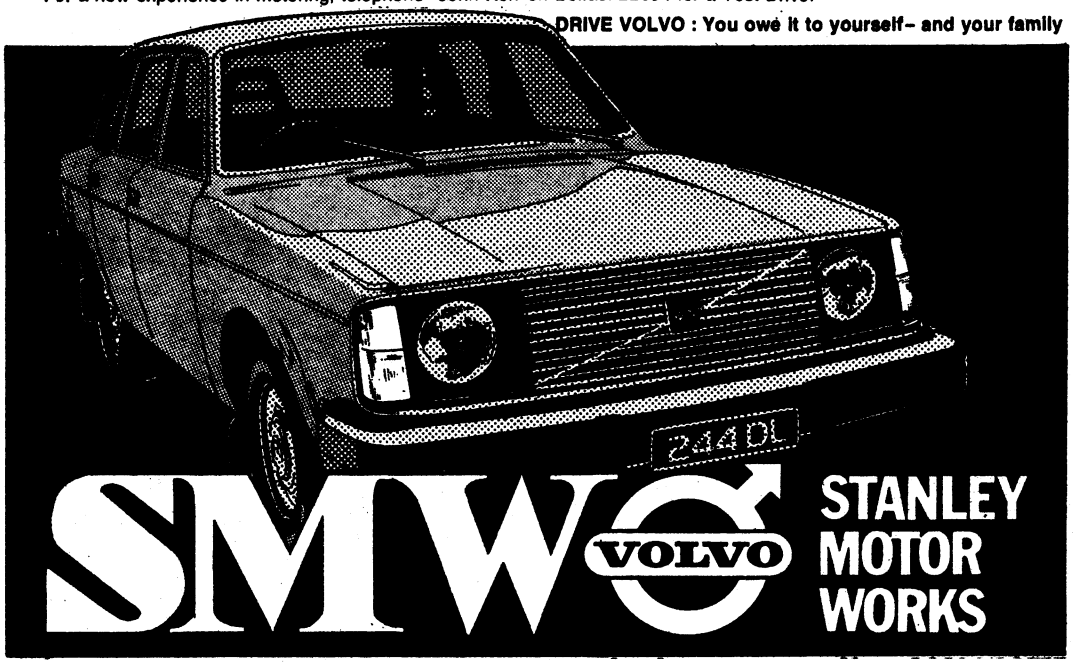
Take a good look at the most unusual 1st in motoring history

Volvo Running lights.

You've probably seen them already. Volvos cruising past with lights shining in daytime. And – go on, admit it – you've flashed them. Well Volvo running lights are deliberate. Linked to the car's ignition system, they are part of the unique Volvo safety policy. Another Volvo first; to see you safely through the traffic. Part of the great Volvo tradition of constructing better cars.

For a new experience in motoring, telephone *John Kerr on Belfast 22694 for a Test Drive.

DRIVE VOLVO : You owe it to yourself– and your family



SMW VOLVO STANLEY MOTOR WORKS

27 PAKENHAM STREET, BELFAST Tel. 29399/23515

Union Street, Coleraine Tel. 52703/52387

Late opening Tuesday, Wednesday and Thursday. Saturday until 1.00 p.m.

CONTENTS

Fellows and Members of the Ulster Medical Society receive the Journal Free. Details as to subscriptions on back page.

This publication is available in microfilm from Xerox University Microfilms, 300 North Zeeb Road, Ann Arbor, Michigan 48106

CONTENTS

Fellows and Members of the Ulster Medical Society receive the Journal Free. Details as to subscriptions on back page.

This publication is available in microfilm from Xerox University Microfilms, 300 North Zeeb Road, Ann Arbor, Michigan 48106

THE ULSTER MEDICAL JOURNAL

NOTICE TO CONTRIBUTORS

1. Authors are reminded that concise and clearly expressed papers are those most welcomed by readers and by the Editorial Board.

2. Manuscripts should be typewritten with double spacing and with wide margins. They should be fully corrected, and contributors will be responsible for the payment of any sum charged for alterations in printer's proof.

3. References should be restricted to those really necessary and useful and cited in the text with the author's name(s) and date. References arranged alphabetically should give the author's name(s) and the year. This should be followed by the title of the paper, the full title of the journal, the volume and page number, and for books the title, the town of publication and the publisher. By arrangement special articles may cite by superior numerals.

4. Scientific measurements should be given in SI units, but blood pressure should be expressed in mmHg and haemoglobin as g/dl. Traditional units may usefully be given in parenthesis and conversion factors may be stated, especially with tables and illustrations.

5. Tables must ke kept simple and should avoid vertical rules. They and illustrations must be kept to a minimum and data should not be given in both text and tables. Line drawings should be used whenever possible. All illustrations must be in a form ready for publication. Authors may be charged for all blocks at cost prices.

6. Orders for reprints must be given when the author returns the printer's proof. The cost of these may be obtained from the printers in advance.

7. Editorial communications should be sent direct to the Editors. The Editors will be glad to advise authors on the preparation of their manuscripts.

ADVERTISEMENTS

Enquiries about advertising space should be directed to:

Mr. Ernest J. McConville,
The Stables, Tudor Park, Holywood.
Telephone: Holywood 2918.

DATES OF PUBLICATION

It is hoped to issue a Winter and Summer Number each year in February and September.

THE ULSTER MEDICAL SOCIETY

P.O. Box 222,
Belfast City Hospital,
Belfast 9.

If you are not a member of the Ulster Medical Society, we would appeal to you to give the question of joining your consideration. The Society has been in existence since 1862 (and is the direct descendant of the Belfast Medical Society founded in 1806), and has always been active in keeping its members interested in the advances in medical science. Meetings are held at intervals of a fortnight during the winter months, and papers are contributed by members and distinguished guests. Facilities are provided for doctors to meet informally afterwards and have a cup of tea. *The Ulster Medical Journal, the official organ of the Society, is issued to all Fellows and Members free of charge.* The Society is now rehoused in its own Rooms in the new Whitla Medical Building of Queen's University at 97 Lisburn Road, and this replaces the Whitla Medical Institute which had to be vacated in 1965.

May we, therefore, appeal to you to join the Ulster Medical Society, and so enable us to widen its influence and sphere of usefulness still further? A proposal form is appended: your proposer and seconder must be Fellows of the Society. If you do not know any Fellows please contact the Honorary Secretary. All persons registered as medical practitioners under the Medical Acts shall be eligible for election as members of the Society (Constitution, Section VI). Temporary membership may be allowed at the discretion of the Council.

If you do not wish to become a member of the Society, will you consider entering your name as a subscriber to THE ULSTER MEDICAL JOURNAL? The subscription is £2.00 per annum, payable in advance to the Honorary Treasurer.

D. A. D. MONTGOMERY, *President.*
D. R. HADDEN, *Hon. Secretary.*
J. D. BIGGART, *Hon. Treasurer.*

MEMBERS **£3.00.** (A Member is one who is less than seven years qualified. He or she will automatically become a Fellow seven years after qualification and be liable to the higher subscription rate.)

FELLOWS—1 (a) Annual subscription of Fellows resident, practising or holding an appointment within ten miles of Belfast, **£5.00;** (b) husbands and wives in the above category who are both Fellows will be entitled to pay a combined subscription of **£7.50;** 2 (a) annual subscription of Fellows resident, practising or holding an appointment outside the above area, **£4.00;** (b) husbands and wives in the above category who are both Fellows will be entitled to pay a combined subscription of **£6.00;** 3, annual subscription of retired Fellows, provided that any Fellow who, by reason of retirement either through age or illness, is no longer engaged either in private practice or in salaried employment, shall be entitled, *on application,* to pay an annual subscription of **£3.00;** only, and provided always that such Fellow has previously paid to the Society a subscription at the current rate for an uninterrupted period of at least ten years, or during such time has been in practice or service abroad.

All Fellows and Members of the Society who have paid subscriptions for 40 years or alternatively having been a Fellow or Member for 20 years and reached the age of 65, or more, shall be exempt from any further subscription.

LIFE MEMBERSHIP—Fellows and Members shall be eligible to become Life Members, **£75.00.**

To DR. J. D. BIGGART,
THE LABORATORIES,
BELFAST CITY HOSPITAL,
BELFAST BT9 7AD.

.....19.....

Dear Sir,

We nominate for $\frac{\textit{Membership}}{\textit{Fellowship}}$ *of the Ulster Medical Society—*

Name of Candidate .....

Postal Address .....

.....

Year of Qualification and Degrees .....

.....

Signature of Proposer .....

Signature of Seconder .....

EXCHANGES: Exchange journals and all relevant correspondence should be addressed to:
QUEEN'S UNIVERSITY MEDICAL LIBRARY,
INSTITUTE OF CLINICAL SCIENCE,
GROSVENOR ROAD, BELFAST BT12 6BJ,
NORTHERN IRELAND.

BOOKSELLERS: All correspondence, orders and payments for institutional and private subscribers, through booksellers, should be sent to:
THE HONORARY TREASURER,
ULSTER MEDICAL JOURNAL,
c/o QUEEN'S UNIVERSITY MEDICAL LIBRARY,
INSTITUTE OF CLINICAL SCIENCE,
GROSVENOR ROAD, BELFAST BT12 6BJ.
NORTHERN IRELAND.

SUBSCRIPTIONS: Individuals who are not members of the Society wishing to take out a direct subscription should send a banker's order for £2.00 payable to the Ulster Medical Society (Northern Bank, Shaftesbury Square, Belfast), Ulster Medical Journal Account, to Dr. J. D. Biggart, The Laboratories, Belfast City Hospital, Belfast BT9 7AD. This covers one volume (two numbers) of the Journal.

THE
ULSTER MEDICAL JOURNAL

PUBLISHED ON BEHALF OF THE ULSTER MEDICAL SOCIETY

VOLUME 46 1977 No. 1

DOCTOR AT WORK

by

G. T. C. HAMILTON, M.D., F.R.C.G.P., D.P.H.

Presidential Address to the Ulster Medical Society, Session 1976-77

TO BE elected President of this august Society is a very great honour. However it also carries certain responsibilities and duties. The first hurdle and probably the most daunting is the presentation of a presidential address. On examining the list of presidents who have held office since I first became a member of the Ulster Medical Society thirty-one years ago I discovered, as I anticipated, that they represented the main branches of our profession. There were nine surgeons, six physicians, six general practitioners, four obstetricians, three pathologists, two medical administrators and one medically qualified dentist. On reading through their presidential addresses I found that thirteen had dealt with historical subjects, seventeen had a medical subject matter of which the orator had special knowledge, and one enterprising general practitioner entertained his audience by having an evening of Gilbert and Sullivan opera during which he sang. I assure you I do not intend to sing, but instead I will talk about one of the smaller branches of the tree of medical knowledge. Though basically a general practitioner I spend a large proportion of my working week providing medical services for industrial organisations, and therefore my talk tonight is on some aspects of the practice of Occupational Medicine, hence the title "Doctor at Work".

I am not by any means the first president to provide medical services to industrial organisations. John S. Morrow, President 1914-15, was Medical Referee to Messrs. Harland and Wolff Ltd. at a time when the shipyard was booming. "Johnnie" Morrow was also Lord Pirrie's general practitioner, and travelled with him on his overseas journeys in a way now reserved for the personal physicians of American presidents and oil sheiks. Foster Coates, President 1935-36, as well as being a physician to the Royal Victoria Hospital, was Medical Officer for the Northern Ireland Road Transport Board and the Great Northern Railway. My very first step in occupational medicine was in the late 1940's when I acted as Deputy Medical Officer for those companies while he was on holiday. William Dickie, President 1943-44, was Medical Officer to the old Midland Railway and the Belfast

Omnibus Company. He was also of interest to me as he was the general practitioner who presided at my birth. Another general practitioner, Kirk Forsythe, President 1970-71, did medical examinations for the Electricity Board for Northern Ireland. None of these referred to occupational medicine in their presidential addresses, in fact only one president has done so. F. M. B. Allen, President 1955-56 and first Professor of Child Health at Queen's University, Belfast, entitled his Address "The Tragedy of Man-made Disease" and referred briefly to the practice of medicine in an industrial setting.

Involvement of doctors with industry commenced late on in the Industrial Revolution when the conscience of enlightened employers was awakened by the high morbidity and mortality often suffered by their employees. Doctors were primarily concerned in those days with the treatment of the illnesses of workers, and only very much later came to deal with the medical dangers of industrial processes and of the industrial environment.

Companies with far flung interests have always been in the forefront of the provision of medical services for their workers. Thus the East India Company first provided medical care for its employees in the Indian sub-continent as long ago as 1764, and had quite a highly developed medical service at its London Establishment in the 1820's (Froggatt 1968). The doctors employed in India later formed the nucleus of the Indian Medical Service, the largest state-run medical organisation in the world prior to the British National Health Service.

Though the Industrial Revolution came later to Ireland than to England and its effects were mostly felt in the Province of Ulster, records exist quite early of doctors working for factories. Thus it is recorded in the evidence given to the Royal Commission on Employment of Children in Factories (1833), and I quote regarding Mulholland's Mills, Belfast, "This is a very favourable specimen of the lately erected mills in point of internal arrangement and ventilation and arrangements for cleanliness. A medical gentleman visits the works at the instance of the Proprietors twice a week". A Dr. Wilson was employed at Stevenson's Mill, Belfast, and a Mr. Shaw, the medical practitioner at Killyleagh was paid by the local company to give "Professional Services for all the workers, whatever their complaint". (Smiley 1971). In the latter half of the nineteenth and the first half of the twentieth century, central and local government showed little interest in the organisation of industry and even less in the health and safety of the worker. Legislation was introduced over the years to decrease gradually the average working hours throughout industry, and to improve working conditions, but enforcement was never rigorous. Successive Factory Acts (from 1844 onwards) did provide for a minimum of medical supervision mostly of young persons and of a few designated dangerous trades, but the scale of fees recommended for doctors was so meagre that it did not encourage these Appointed Factory Doctors to carry out their duties in other than a perfunctory manner.

In the United Kingdom in 1948 the advent of the National Health Service greatly changed the pattern of work done for industry by our profession. Because comprehensive general practitioner and hospital based consultant services were introduced, employers who had previously provided or subsidised medical care for their employees, and sometimes also for their employees' dependants, no longer had to

do so. This provision of medical care for the whole population has meant that those doctors who were still employed by industry could concentrate more on the problems of health and safety in the working environment.

What then are the duties of an occupational health doctor in the United Kingdom in the 1970's? I can illustrate this best by describing to you briefly what I dd for two of the organisations which employ our partnership to provide them with an occupational health service.

The first is the passenger transport industry of Northern Ireland. This is a widely scattered organisation and consists of three main sections, Northern Ireland Railways, Citybus and Ulsterbus (Table I).

TABLE 1

Passenger transport in Northern Ireland 1975

	Total Personnel	*Drivers*	*Vehicles*	*Journeys (Millions) Per Annum*
N.I. Railways	1,100	110	36 trains	6
Citybus	950	530	300 buses	58
Ulsterbus	2,100	1,120	900 buses	85
	4,150	1.760	1,236	149

1. Northern Ireland Railways, who have just completed a modernisation scheme costing £4,000,000 with the opening of a new central station at May's Fields, and with the shut down of two stations at Great Victoria Street and Queen's Quay which had served travellers for more than a century. The railways have a staff of 1,100 of whom just over 100 are drivers. Thirty-six passenger trains are in daily operation. This service carried 6,000,000 passenger units in the year 1975.
2. Citybus. This Company was formerly the Belfast Corporation Transport Department, and employs a staff of 950 of whom 530 are drivers who operate a fleet of 300 red buses. It supplied 58,000,000 passenger journeys in the year 1975, in and close to the city of Belfast.
3. Ulsterbus, which provides passenger transport services to the Belfast suburbs and the rest of the Province outside Belfast, cross-border services to the Republic, some tours to Eire, Scotland and England and a bus service to London via Stranraer. There is a staff of 2,100 of whom 1,120 are drivers and a fleet of 900 blue buses which provided at the last count for 85,000,000 passenger journeys in a year.

In detailing the main duties which we undertake as medical officers for the transport companies, I will first deal with drivers who constitute more than 40

per cent of the work force and form a special category. Here the medical standards required on entry are higher than for the rest of those employed. There is a rejection rate of nearly 10 per cent among those applying to be drivers of public service vehicles. The main causes of failure to pass the pre-entry medical examination include poor vision, especially those with an amblyopic eye, poor colour discrimination, hearing defects, gross obesity, a history of peptic ulceration, epilepsy or severe asthma. Here I would like to commend to interested members of the audience the book "Medical Aspects of Fitness to Drive" published by the Medical Commission on Accident Prevention, and edited by Dr. Andrew Raffle, Chief Medical Officer to London Transport. This book should be compulsory reading for all who give medical advice to those who drive or contemplate driving. Standards are higher for professional drivers than for those who only drive for pleasure or to get to and from work.

It is also part of my job to examine personnel after absence from work through sickness or accident. An absent driver can cost a bus company more than £50 per week in sickness benefit alone, and even more where his shifts have to be worked as overtime by other drivers. It is important to make every effort to ensure that staff are not away from work longer than is necessary for them to be restored to a reasonable state of fitness. Most transport staff are conscientious and do not attempt to stay off longer than is necessary, but our records show that a small minority do have excessive absences which seem not always to be of a legitimate nature. Absentees have been seen painting their houses, servicing cars, or looking after their families during their wives' hospitalisation or even when she has been on holiday. While on occasion there may be a valid reason for this type of absence, it is amazing how rapidly a return to work is made when paint under the finger nails or oil impregnated hands are observed, and are seen to be observed, during the course of a medical examination. On the other hand in quite a few instances discussion with an employee about the reason for his absence may bring to light circumstances which are not known to his employers or even to his own general practitioner. In such cases the examining occupational physician can frequently give advice to hasten recovery. In Belfast since 1969 when "The Troubles" began, a common reason for absence among drivers is what is labelled "Nervous Debility". On many occasions this is due to a driver having been hi-jacked. Usually when this happens he is robbed of his takings and occasionally he is also physically assaulted. A small number of drivers have even been forced at gunpoint to carry bombs in their buses to places where an explosion can cause maximum destruction. Such experiences are most traumatic mentally but it is amazing how resilient people can be to such dreadful happenings. In Citybus it has been found that two-thirds of all drivers who are hi-jacked report for duty within the next day or two, and do not have a higher than normal accident or absence experience in ensuing months. The remaining one-third of drivers report sick and nearly always, as I have said, produce a medical certificate which gives the diagnosis as "Nervous Debility". It is essential that drivers off with this type of illness be examined as soon as possible and at the very latest within a couple of weeks of the incident which has caused their absence. They need time off to recover but not too long or they will never go back to the job. Sympathetic handling of the medical situation combined with strong reassurance that they will quickly be fully restored to normal health works very well and I have found that more than 95 per cent of these

drivers return to work within a month, and subsequently do not show an excessive absence experience. These men do well with reassurance and mild tranquillisers but they must, because of the nature of their work, be completely off tranquilllisers before they can be allowed to resume professional driving. Only a very few fail to go back to their former job and investigation suggests that some of these have been political activists.

When examining drivers who are absent from work my normal objective is to encourage them to resume work as soon as they are fit, but in a few instances the nature of their incapacity can make this impossible. The Medical Commission on Accident Prevention has advised that no professional driver should resume this occupation if he has had a coronary thrombosis or if examination shows definite E.C.G. stigmata of coronary artery ischemic degeneration. A similar prohibition is necessary for those with progressive neurological disorders such as Parkinson's disease or multiple sclerosis. Other absolute bars to professional driving include diabetes mellitus, requiring insulin for its control, severe deafness or the development of cataract. Within the limits of a transport organisation it can be difficult to get alternative employment for those who become medically unfit to drive. Many drivers are educationally unsuitable for clerical occupations. Some can be used for jobs such as token clerks, bus cleaners or security guards but a number unfortunately have to be prematurely retired. It is also part of our job to re-examine operational staff at regular intervals to make sure that their health has not deteriorated, even though they have had no sickness absence. The drop-out among those not known to have had a serious illness when routinely re-examined is very small. Only about five a year, out of a driving staff of 1,760, fail in these circumstances to meet the standards required to continue to hold a Public Service Vehicle licence.

While up to now I have talked mainly about drivers, it must be remembered that these comprise fewer than half of the total number employed in the transport industry. All vehicles have to be serviced, bus depots and workshops are necessary and in the case of the railways, the track, and signalling system and the stations, have to be maintained. We undertake the medical oversight of a dozen workshops and an engineering organisation employing several hundred persons, and a maintenance section to keep the stations, bus depots and other buildings in repair.

The criteria for acceptance for those on clerical and administrative duties in the transport industry are that the candidate should have a normal expectation of living to retiring age without experiencing excessive sickness absence. Few candidates are rejected in these categories.

Some other grades of employee need special medical attributes. Railway signalmen and train conductors require good vision, colour discrimination and hearing. Those employed in precision engineering must have good binocular vision. It is also essential that workers who are at special risk of eye injury should have two good seeing eyes, for example, blacksmiths and those engaged in the cutting and buffing of metal. In addition to the examination of personnel before entry and during their careers, it is also necessary to give advice on such diverse subjects as the organisation of a first-aid service throughout the industry, to monitor and

attempt to reduce the hazards to health and safety of the many different occupations, and to examine those at special risk, such as lead battery workers, those exposed to asbestos, to mineral oils and other hazards.

The physical and mental stresses of management have also to be taken into consideration and it is the policy of the transport industry to offer a comprehensive screening medical examination annually to senior managerial staff. The staff themselves are very keen on this facility and it has yielded some interesting medical facts. I feel also that the opportunity to talk to a doctor other than one's own general practitioner is quite a good thing where an industry can afford to make this service available. It is also a two-way traffic, not only from the medical facts which are gleaned, but also from the close personal contact made by me with senior management. This helps me greatly in my approach to the job of medical advisor as I get a better insight into the working of the organisation at top level and close co-operation with senior staff improves my efficiency as medical officer to the group.

The second industry with which I wish to deal and for which our medical partnership provides a service, is the textile machinery manufacturing firm of James Mackie & Sons Ltd., situated on the Springfield Road about half a mile from the Royal Victoria Hospital. This firm has been in existence for more than 100 years and is one of the largest privately owned businesses in the United Kingdom. There is a labour force of 4,500 of whom just fewer than 1,000 are administrative and clerical staff, while there are rather more than 3,500 persons engaged in machine manufacture. There are two separate main factory blocks, one where most of the components of the machines are made, and the other where they are assembled, tested and adjusted before being taken down, packed and despatched to the far ends of the earth. When they reach their destinations the machines are re-assembled by erectors sent out from Belfast by the firm. While some of the machines are relatively small others are large and complex and some single machines contain more than 20,000 individual parts.

The firm originally made machinery for the linen trade but later expanded into machines for jute spinning and weaving. Recently machines have been built for the extrusion of polypropylene and for the twisting and weaving of this nearly indestructible fibre. Machinery is also made for the weaving of other synthetics such as nylon, especially the fibres used in synthetic tufted carpet making. The processes involved in the manufacture of these machines are such that the workers are subject to fairly frequent minor and occasionally to major injuries. The average degree of severity of injury in Mackies is much less than in a shipyard where heavier components are used, but is rather more severe than is experienced in the aircraft manufacturing industry.

My first task as Occupational Health Doctor in Mackies is to organise an efficient casualty service. We have a medical centre at the main works and small first-aid departments in other subsidiary works units. We have an establishment of five Industrial Nursing Sisters (in industry all S.R.N.'s have the title of sister). They are normally the persons of first contact when any minor or major injury or illness occurs to an employee. The sisters quickly and efficiently cope with a heavy work load and exercise much judgement and skill in dealing with many of the

medical problems of the work force. The annual attendance rate at the medical centre and first-aid rooms was 12.2 per employee per year in 1975. This is not as heavy a work-load as might at first appear because a simple cut on a finger usually requires several attendances for re-dressing. If the nature of the injury or disease is more severe the nursing sister will refer the patient, usually to the works medical officer, or in his absence to the casualty service of a hospital, normally the Royal Victoria Hospital because of its nearness to the main works, or to the patient's own general practitioner if this is appropriate. If the nursing sister has found it necessary to refer a patient to hospital the works doctor always sees this patient at the firm's medical centre at a later date to ensure that treatment is continuing satisfactorily, and also as a check that the hospital is not being asked to undertake tasks within the firm's medical competence. This sorting operation carried out by our nursing sisters requires considerable skill and experience and we in Mackies have always been fortunate to have had dedicated nursing staff who have done this work exceptionally well.

Industrial nursing can at times be monotonous with only a series of minor cuts or headaches to treat but there always lurks the possibility of having to deal with a major emergency, e.g., we have had to send for the cardiac ambulance on average five times per year during the past seven years. Our nursing sisters do a variety of jobs. Among others they continue treatment ordered by the work's medical officers, by employees' general practitioners, or by hospitals. They also assist the doctors in history taking, urine and eyesight testing, and other preliminaries of medical examination. In addition we have a number of trained first-aiders who man first-aid posts in branches of the works where small numbers would not warrant the employment of a nursing sister.

As well as organising a casualty service we carry out pre-entry examinations, as in the transport industry, and examine employees after absence from work through illness or injury. We do not examine all prospective employees. This would not be a practical proposition because of the large numbers involved and the high rate of labour turnover in manufacturing industry. Prospective employees are interviewed at the Personnel Department. If considered suitably qualified from an engineering point of view they complete a medical questionnaire. If any history of serious illness or disabling accident is revealed they are referred to the medical department for a final decision as to their suitability for employment.

Certain special categories of employee are however routinely examined before acceptance for employment:—

All young persons under the age of eighteen years. This is still a requirement of the Factory Acts, still the operative legislation in Northern Ireland, though we are awaiting the introduction of the Northern Ireland equivalent of the much more widely ranging "Health and Safety at Work, etc. Act of 1974" which became operative in the rest of the United Kingdom two years ago. The delay in the application of this Act here is one of the casualties of direct rule and the lack of a Northern Ireland legislative assembly.

I have now been an Appointed Factory Doctor for nearly thirty years and as an aside may I say how much the general health of young people has improved in that time. This is in great measure due to the National Health Service and the Welfare

State. In the early post-war years adolescents who presented themselves for employment showed much disease. Many had untreated squints, chronic otitis media or rheumatic heart disease, and the ravages of poliomyelitis and tuberculosis were not uncommonly found. There was also a much poorer standard of general nutrition than now. In the late forties and early fifties even though I then adopted lower standards for acceptance to industry more than 5 per cent of these young people had to be rejected on medical grounds. Now failure to pass the pre-entry medical examination is a rarity, the commonest cause still being the presence of an amblyopic eye. Precision engineers require adequate binocular vision as there is also still a potential danger of eye damage in manufacturing processes. If damage occurs to an amblyopic person's good eye it can make him virtually blind. This risk must never be run. We examine routinely those entering the firm in the salaried and clerical staff groups as a satisfactory medical examination is a condition of acceptance into the firm's pension scheme. We also examine those who are to be employed in jobs which carry a risk of industrially induced disease, e.g., all machinists who are constantly exposed to mineral oils, because of the risk of skin epitheliomata, and those in contact with lead and chromium.

A close eye is kept on those working with materials such as epoxy resin glues and nickel alloys, both well known causes of contact eczema, and such mechanical irritants as fibreglass and moulding sand. In several of these trades frequent re-examinations are performed. Examination and routine re-examination is necessary for all drivers, including crane drivers. Also, in co-operation with the firm's safety officer, we advise and co-ordinate the safety precautions necessary for those exposed to other physical hazards such as dust, heat and excessive noise. I spend a lot of time going around the works in company with the safety officer observing working conditions to try to decrease the actual and potential hazards of the many occupations of this complicated industry. Decisions have to be taken daily about such things as making available types of protective clothing, including asbestos gloves, protective aprons and footwear and other aids to safety such as unbreakable glasses and ear muffs.

Efforts are continually being made to reduce risks of working situations by changing working methods, by enclosing potentially dangerous processes, by use of remote control or by substituting different and safer methods of working. It is necessary to monitor continually new processes for potential hazards, e.g., during the past few years Mackies have developed machines for the extrusion of polypropylene fibre, a material which is increasingly in use for such things as sack making where it is now in serious competition with jute. The material is extruded at a high temperature and is cut into thin tapes. This extrusion process causes the emission of a dense vapour. Though a very efficient system of exhaust ventilation has been developed to reduce human exposure to this vapour, it will be necessary for us to watch carefully the health of the workers involved for many years to make sure that the vapour has no ill effects. After all it took a long time for the detrimental effects of asbestos fibre on the lung to become known, and for bladder cancers to be recognised as a hazard of the rubber industry.

Another interesting field of activity is to give advice and medical prophylaxis for those who go abroad in the service of the firm. Several hundred are away from Belfast at any one time. Sales directors and more junior sales staff are continually

travelling the five continents to get new orders, to maintain contact with purchasers and to provide a satisfactory after-sales service. A large number of men are constantly employed overseas erecting new machinery and servicing machines in foreign factories. It is necessary for these employees to have a high state of general fitness, and we examine them before they go abroad for the first time, and thereafter at intervals not exceeding three years or sooner, if they have any significant morbidity. If a firm's employee becomes ill when abroad, not only can it result in a loss of business, but it may be very dangerous to the sick man, especially when problems of communication arise through language difficulties. Medical treatment abroad is often expensive and can add to the company's costs. We always check the immunisation status of those travelling abroad and keep them up to date with inoculations for smallpox, typhoid, cholera, yellow fever and poliomyelitis We supply malaria prophylactics to last throughout their stay abroad and we also give to each man a supply of drugs for the self-medication of traveller's diarrhoea.

Over the years we have gained much knowledge of the health hazards peculiar to different countries and we brief potential travellers on local situations. We continually get a feed-back of medical news from those who have returned from overseas. This can be very useful. A few weeks ago the firm was sending three men to erect textile machines in South Korea. These men heard a rumour that there was an outbreak of bubonic plague in the capital. This made them very unwilling to travel. I was able to contact a member of our sales staff who had come home from Seoul three days previously and he was able to reassure the three erectors that the plague rumour was false.

It should also be mentioned that I keep in close touch with senior executives and the directors and do executive examinations for them from time to time.

Time has only permitted me to give you a very sketchy outline of the type of work my partners and I do in two branches of industry. Each job has differing medical problems and the details of a medical service will vary widely in the different sectors of industry. A new industry will often need a larger research content in its medical service than one using long established manufacturing processes, and the use of potentially hazardous materials and processes often necessitates continued sophisticated medical supervision.

How many doctors work for industry and what are their problems? Occupational medicine is a numerically small speciality as is illustrated by Table 11. In Great Britain in 1974 there were 26,000 general practitioner principals in the National Health Service and 8,800 surgeons (Owen 1976). Working for industry were 120 doctors employed full-time by the Employment Medical Advisory Service, while those employed full-time by industry numbered about 700, and this number was thought to have been slowly rising until recently. Thus there are in total just over 800 doctors working full-time in occupational medicine in Great Britain.

TABLE II

Medical manpower in Great Britain 1974

Principals in General Practice	26,000
Surgeons in N.H.S. (from S.H.O. up)	8,800
Full-time employment—Medical Advisory Service	120
Full-time in industry	700
Substantial part-time in industry	700+
Minimal part-time in industry	5,000+

Perhaps I should explain to you something about the Employment Medical Advisory Service (Gauvain 1975). It was established in Great Britain by the Employment Medical Advisory Service Act of 1972 and its doctors are attached to the Department of Employment. Thus its functions and personnel are not directly connected with the National Health Service. It is the medical arm of the Commission on Health and Safety set up by the Health and Safety at Work, etc. Act of 1974. Its main objectives have been stated as follows:—

1. To identify hazards related to employment.
2. To advise on the extent of the environmental control required to minimise the health hazards related to employment.
3. To monitor continuously the effects of the action taken to reduce the risks to workers.

The service has a scientific policy and a research function as well as field responsibilities which are an enlargement of the functions formerly provided by Medical Inspectors of Factories. Because of the small number employed, one hundred and twenty spread over the whole of Great Britain, the main objective of the service is to provide guidelines which should decrease the medically preventable hazards of industry. There is at present no equivalent service in Northern Ireland.

The 700 doctors who are directly employed full-time in industry are very unevenly spread (Duncan 1976). A disproportionately large number work in two sectors:—

1. The nationalised industries such as The Atomic Energy Commission, The British Steel Corporation, the National Coal Board, the Post Office and the Transport Industry.
2. Large industries with multinational interests, e.g. the car industry, Imperial Chemical Industries, The oil companies and Unilever.

In Northern Ireland there are only fifteen full-time jobs in occupational medicine, not all of which are filled at present.

In addition to the 700 doctors employed full-time by industry in Great Britain there are at least as many more who spend a substantial part of their working week dealing with occupational health problems. In Northern Ireland, to the best of my knowledge, the practice of which I am a partner has wider experience in this branch of medicine than any other group. It must be noted that in Great Britain there are also several thousand doctors, mostly general practitioners, who spend a small part of their time giving advice to industry, mainly by examining persons for their fitness for employment.

Up to now the mode of entry into occupational medicine has been unsatisfactory. Many doctors were, and are, appointed to full and part-time jobs without any previous industrial experience. Most learn the job while in post and it is obvious that standards of knowledge and practice vary widely. The facilities for academic postgraduate training are very sparse. Only about forty doctors a year take the Postgraduate Diploma in Industrial Health. Courses are held only in five cities, London, Manchester, Newcastle-on-Tyne, Glasgow and Dundee. The programme

of study to qualify to sit for the Diploma of Industrial Health is one full academic year or its equivalent of part-time attendance spread over two or more years. Only a very few trainee posts are available, mostly within the nationalised industries. Thus it is almost impossible for those already employed full-time in industry to attend the course of training leading to the Diploma of Industrial Health, and there is even less incentive for those engaged part-time to gain a formal academic diploma in this speciality.

The Society of Occupational Medicine (membership 1,150) and especially its Council have been well aware of the vulnerability of their speciality and they, with others, have made efforts towards the establishment of an academic qualification which would be of wider appeal, and more possible of attainment, than the Diploma of Industrial Health. It was hoped that the Royal College of Physicians of London might set up a Faculty of Occupational Medicine on the same lines as their Faculty of Community Medicine. So far the London College has been less than lukewarm and there has been little positive action. However the Royal College of Physicians of Ireland has been more forward looking and in recent months has founded a Faculty of Occupational Medicine. It is hoped soon to get training courses under way. These will be designed to suit the special requirements of those already working in industry in Ireland as well as those wishing to gain an academic diploma before appointment to a job in industry. The need for a widely recognised academic base for occupational health practice is also of great importance for the future, as specialist registration to harmonise medical qualifications in the European Economic Community is likely within a year or two, and the Merrison Report has also advocated the setting up of specialist registers for the different branches of medicine. I regret to say that at the moment there is little incentive for anyone to enter the field of occupational medicine either on a full or on a substantial part-time basis. The crisis is not only of training, it is also economic.

Entrants to the hospital based specialities and to general practice now have in-service training with reasonable salaries, and what is also important during this time, they are acquiring pension rights. In this country where very high rates of taxation and the effects of inflation make it impossible for anyone to save, possession of a pension linked to the cost of living is essential if one is to try to provide adequately for retirement or even premature death. Industry does not in general provide these safeguards, and there is also the added danger that one may find employment in an industry which will not survive the working lifetime of the doctor who enters its service. In the past I have been offered a number of full-time jobs in industry, and two of those organisations who wished to employ me and which appeared to be very viable at the time it was suggested that I should join their staff, have now disappeared. What would my position be now had I taken up full-time employment with either?

Every occupational health physician knows that if he does his job adequately he pays for his keep many times over and this makes his firm more competitive, yet on the whole employers do not pay their medical personnel rates competitive with those which can be obtained in the Health Service. This is partly the fault of our own profession in that the scales of remuneration recommended by the British Medical Association for jobs in industry have always been too low.

Unless drastic action is taken very soon a major crisis is looming up for industry, as I do not see how in present circumstances it can attract medical men of ability and knowledge to do the jobs which industry needs. Neither the Confederation of British Industry nor the unions are likely to be able or willing to take the necessary action to avert this impending manpower crisis. What is the solution to this dilemma?

A Government sponsored Industrial Health Service would appear to be the best answer. It should include an Occupational Health Nursing Service. Training posts must be established on the same lines as those for the National Health Service Trainee General Practitioner scheme, and could form an extension of the present general practitioner trainee course. Those wishing to practice Occupational Medicine should have an additional period of in-service training in industry as well as time for didactic courses in Occupational Medicine. Thus trainees could be adequately prepared to take the appropriate postgraduate qualification, either Membership of a Faculty of Occupational Medicine or the Diploma of Industrial Health. The scheme of postgraduate training I have just outlined is less rigourous than some senior occupational health physicians think to be necessary. Lee and Mills (1976) have recently detailed a proposed programme of study which extends for seven years after full registration: three years of general training in medicine, culminating in the trainee taking the M.R.C.P. examination and followed by four further years of specialist training. Such a scheme implies a minimum of thirteen years from entry to medical school before one can think of applying for a permanent appointment in occupational medicine.

Next a large number of part-time posts in industry should be made available for those who have been trained, on a sessional basis, and these jobs should be within the framework of the National Health Service. Doctors doing these part-time jobs would spend the rest of their working week, normally in general practice, though a few might like to mix occupational medicine with a hospital based speciality. There would also be a smaller number of full-time posts in occupational medicine mostly in fields such as administration and where the job is largely non-clinical or has a large research content. It is not sufficiently realised that the doctor at work needs the knowledge of a good general practitioner as well as a specialised knowledge of the industrial scene. This is the reason why I advocate that an Occupational Health Service should be manned by doctors with a continued interest in general practice. Such a service would be of benefit not only to their patients but it would undoubtedly improve the productive capacity of the nation.

In conclusion I would like to say how much I have enjoyed my time spent working in industry. It has been stimulating and mentally rewarding and I can strongly commend it as a most challenging way to spend at least part of one's professional working week.

REFERENCES:

ALLEN, F. M. B. (1955) The Tragedy of Man-made Diseases. *Ulster Medical Journal, 24,* 69.
DUNCAN, K. P. (1976) Health Care of People at Work in Britain. *Journal of the Society of Occupational Medicine, 26,* 31.

FROGGATT, P. (1968) The East India Company (London Establishment). *Transactions of the Society of Occupational Medicine, 18,* 111.

GAUVAIN, SUZETTE (1975) Recent Developments in Occupational Medical Services. *Journal of the Society of Occupational Medicine, 25,* 78.

HEALTH AND SAFETY AT WORK etc. ACT (1974). London, H.M.S.O.

LEE, W. R. AND MILES, S. (1976). Postgraduate preparation for occupational medicine. *Journal of the Society of Occupational Medicine, 26,* 115.

MERRISON, A. W. (1975) Report of the Committee on the Regulation of the Medical Profession, London. H.M.S.O.

OWEN, D. (1976) *Hansard* 26th July 1976, quoted from *British Medical Journal, 2,* 377.

SMILEY, J. A. (1971) Some aspects of the early evolution of the Appointed Factory Doctor Service, *British Journal of Industrial Medicine 28,* 315.

RAFFLE, A. (1976) Medical Aspects of Fitness to Drive, Third Edition. London, Medical Commission on Accident Prevention.

STICKS AND STONES

R. I. WILSON, M.B.E., M.B., F.R.C.S.(Ed.), F.R.C.S.I.

Consultant Orthopaedic Surgeon,
Royal Victoria Hospital, Belfast

Annual Oration at the opening of the Winter Session,
Royal Victoria Hospital, 1976

THIS Oration is given annually to welcome students to the Hospital. In the past, students spent the first two years of study at the University and often wondered when they would ever see a patient. Then they came to hospital and were welcomed at the annual oration. With the new curriculum, students have been in hospital already, but the welcome is no less genuine. I am going to address my remarks to you. However, I see amongst the audience students who could only be classified as mature students. This is, of course, what one would expect. In medicine, one always remains a student, long after acquiring many degrees and qualifications.

Some years ago, I inherited a writing bureau. It has some built-in secret drawers. In one of these were some papers. They identified the owner to have been Captain Narcissus Batt. He had lived in Donegall Place, a residential area in the 19th Century, but moved to a new house he built at Purdysburn. Eventually, Belfast Corporation bought this house and grounds to start a mental hospital. The previous Belfast Asylum was in the grounds where this Royal Hospital complex stands and these grounds were purchased from the Corporation by the Board of Management of the Hospital. Parts of the boundary walls still exist at the Children's Hospital and on the east side close to the Blackwater River, and at the north west corner. Dr. Norman Graham who became superintendant of the Purdysburn Hospital told me that, when he was a doctor at the Asylum here, he used to ride his horse round the grounds daily.

In this bureau there was a letter. It was written by a man to his daughter, Margie, who was on a grand tour of Europe. The address is The Linen Hall, Belfast, and the date 14th March, 1890. He sends her news of friends, sick and well, of visits and of fashions. "Within the past month I have noticed a nice fashion affected by quite a lot of young ladies. Dark blue serge trimmed with a darker blue shade of silk, close to the figure behind, but like a cape in front and very wide long sleeves. Bonnet of the same two shades, close to the head, Salvation Army style, but far smaller and no bows whatever. I thought they were nurses or Church Army, but they are neither. I thought it would have been a nice costume for the lady students of medicine, but these were no students. They were got up to kill, not cure".

As a true Ulsterman, he continues to observe, advise and criticise, and goes on, "I met James Colville in Royal Avenue this morning on his way to the Royal Hospital. He was taking Mr. Cooke a bottle of Fellowe's Syrup at his request as he wants picking up. I think he wants kicking up if somebody would be charitable enough to do it. James says there isn't a thing wrong with him". An interesting paradox of being charitable and kicking him.

As you have heard, I am an orthopaedic surgeon. This means I specialize in a subject which deals with diseases and injuries to the musculo-skeletal system. Cynics have said that a specialist is someone who knows more and more about less and less, until he knows everything about nothing. This could well apply to me and I could be called an educated moron. When I was a child, I remember that games often broke up because of arguments, with abuse being thrown by differing factions. This abuse often ended with the chanting of a rhyme. This was "Sticks and stones may break my bones, but words will never hurt me". Here in this city sticks and stones, and indeed many other things, will break bones, but I am hoping my words to-day will not hurt any one.

While it must be obvious that the earliest surgical treatments were applied to fractures, including fractures of the skull, and so orthopaedic surgeons and neurosurgeons must rate as the first specialists of any kind, it must be appreciated that orthopaedic surgeons deal with many other conditions as well as fractures.

Those among you who are Greek scholars—and I look around and do not see see very many—will know that the term *orthopaedics* arises from the use of two words. These were joined into one by a doctor, Nicolas André, in 1742 when he introduced the term *orthopaedia,* meaning a straight child. "As to the title, I have formed it of two Greek words, viz orthos, which signifies straight, free from deformity and pais, a child. Out of these two words I have compounded that of orthopaedia, to express in one term the design I propose, which is to teach the different methods of preventing and correcting deformities of children". He was treating crippling conditions which produced severe deformity of the spine and limbs, like rickets, tuberculosis and infantile paralysis. The spinal deformity of scoliosis, producing a very twisted spine seen in hunchbacks, was often caused by infantile paralysis, tuberculosis or congenital defects. But most cases of scoliosis are said to be idiopathic. Idiopathic is a medical cover-up term meaning the cause is unknown. An alternative explanation of idiopathic is that the doctor is an idiot and the patient is pathetic.

The treatment of fractures as first recorded in western literature was by Hippocrates. Hippocrates was said to have been born on the Greek island of Cos, now more widely known as the home of a well-known type of lettuce. There, in the square, one can see an enormous plane tree. Under its shade, Hippocrates expounded his medical teachings. It is very noticeable that this particular tree requires continuing arboreal orthopaedic surgery. The wide-spreading branches are supported by a series of crutches. There was little change and certainly little new written after the time of Hippocrates until well into the Middle Ages. Then a professor at the University of Montpellier in the middle of the 14th Century called Guy de Chauliac produced a book indicating the treatment of fractures. In it, he laid down ten necessary criteria, rather like the Ten Commandments. Some of these remain remarkably up to date:

First—A suitable place.

Second—Suitable assistants.

Third—Whites of eggs in good quantity and red oil, and a bandage steeped

in it, which may be in size according to the size of the injured organ.
And so he progresses about the splintage.

Eight—Let one have a cradle or suspensory in which the limb will be firmly and evenly placed.

Nine—A mattress bed on which the patient sleeps and if it is necessary let it be perforated so that he may go to stool.

Ten—A cord hanging over the bed or some other thing for him to catch and help himself when he wishes to go to stool or straighten or turn himself.

As can be easily understood, most treatment of orthopaedic conditions was by splintage. Open operations by surgery were not performed until late in the 19th Century. The methods of splintage were often ingenious, many bizarre, and sometimes completely ridiculous. The ideals of treatment were often mixed with more material or even business-like procedures.

The Barber Surgeons of Edinburgh who later founded the Royal College of Surgeons of Edinburgh produced a Seal of Cause in 1505. In it was a paragraph stating that one of their privileges was the sole right of making and selling whisky within the burgh. This clause was allowed to lapse. An unfortunate lapse, because otherwise those of us who are fellows of this College might be drawing dividends instead of making an annual subscription.

As I have mentioned, much of the early splintage was designed to help straighten out crooked spines. Often this meant putting some form of pull or traction on the patient's back by using some combination of struts, cords and weights to pull on the patient's head. This pulling was arranged so that the patient could continue, as normally as possible, the daily task. They could walk around in the splintage. Interference with cultural pursuits had to be avoided and special splintage had to be devised to allow treatment, even during music lessons. The patient must be allowed to get out in the fresh air and visit friends, so different arrangements of splintage were required for this.

Although André devised the term orthopaedia, orthopaedic surgery, as known to-day, did not exist. Surgery of all types was still primitive. Except for sporadic attempts by ingenious individuals, little progress had been made from the days of Hippocrates. The real advancement in the specialty of orthopaedic surgery occurred in the British Isles. The first orthopaedic hospital was the Birmingham Orthopaedic Hospital opened in 1817. The Royal National Hospital in London was the brain child of a physician called William John Little. He had poliomyelitis as a child and developed a paralytic club foot on the left side. This was treated eventually by Stromeyer, a surgeon, in Hanover by the simple method of dividing the Achilles tendon. This operation of tenotomy was done through a minute incision in the hope that the wound would not become infected. Little is best known for his description of cerebral palsy or Little's disease.

Much of the treatment of orthopaedic disease had been carried out by bone setters who were not trained medically. One family of bone setters, who lived in Wales, had for generations been treating fractures and other conditions. Eventually,

one decided that his son should study medicine and surgery, so that he could add such knowledge to his hereditary instincts of bone setting. This was Hugh Owen Thomas, the real founder of modern orthopaedic surgery. He started practice in 1858 in Liverpool, where he treated many thousands of cripples. He devised and made all sorts of splints and his name is still remembered for the splint used for injuries and diseases of the leg, and also the Thomas hip-flexion test which is a part of the basic clinical examination of the hip joint. He treated patients with diseases of joints by a "New and efficient method of enforced, uninterrupted and prolonged rest". His assistant and nephew was Robert Jones. He became Sir Robert Jones and organised the first accident service in the British Isles, to cope with the injuries sustained by the workers building the Manchester Ship Canal. His contribution to the treatment of the injured was recognised during the First World War. He was given a high rank in the Medical Corps. He organized several special hospitals throughout the British Isles to deal with the military casualties. One of these hospitals, in wooden huts, was erected in the grounds of Queen's University, Belfast. Some of these were still in use for other purposes until a few years ago.

The first professor of orthopaedic surgery in the British Isles was Thomas Porter McMurray. He was appointed professor at Liverpool University. He was born in Belfast, where his father, Samuel, was the Headmaster of St. Enoch's Public Elementary School. He graduated at Queen's University in 1910 and devised the operation for hip disease to which his name is attached. He also described a clinical test for tears of the cartilages of the knee joint.

Now, what happened to the development of orthopaedic surgery in this part of the world? When was the first orthopaedic hospital conceived and when was it built? In the year 1872, a Mr. John Martin of Shrigley, Killyleagh, suggested to the Board of Management of the General Hospital, Belfast, that there should be a convalescent hospital in the country so that the patients could be moved from the "vitiated and smokey atmosphere of the town to the pure country air". Mr. Martin gave the grounds called the "Throne Lands" which are situated along the Antrim Road of Belfast to the Board. A charity was set up to collect the necessary money to build the hospital, and it was opened in October, 1874, just two years later. What a contrast to the time required from conception to birth of a hospital, or even a part of a hospital, one hundred years later!

It began with 32 beds for children, and of these one ward was called the "Martin Ward." It was named in memory of the benefactor's son, Samuel, and contained 12 beds to treat diseases of the spine in children. Admission to these beds was not by application to the doctors, but by application to one of the Board of Governors, Mr. Alec Maclaine, who decided which patient should be admitted. Was this system of admission the precursor of what present hospital administrators desire?

Gradually, admissions increased and eventually more than one hundred patients were treated. An analysis of these shows that more than half were orthopaedic patients. Since then the function of the hospital has changed many times. It can be said that the General Hospital, which by 1875 had become the Royal Belfast Hospital, inaugurated and established the first separate hospital accommodation for the treatment of orthopaedic patients. There was no such person as an ortho-

paedic surgeon. Many years passed before any atempt at specialization occurred. As far as I can see, the first surgeon who spent a large part of his time dealing with orthopaedic problems was Harold Price Malcolm. He returned after service in the First World War. He had a large experience of treatment of war injuries. He wrote a thesis for his Mastership of Surgery of the Queen's University of Belfast, in which he described a method of dealing with fractures of the shaft of the femur. This was submitted to the University in June, 1920. It was based on nine month's work under the supervision of Major M. Sinclair at the Number 8 Stationary Hospital, Boulogne, in 1918. He had treated 261 cases of fractures of the shaft of the femur. The basis of the treatment was the use of the Thomas splint, which has been mentioned already. It was introduced into service in 1916 on the recommendation of Sir Robert Jones. After this, the mortality rate from wounds of the thigh bone fell from fifty per cent to fifteen per cent. The details of the application of the splint are given in great detail by Malcolm. One of the necessities, aspiring to almost magical properties, was a substance called Sinclair's Glue. This consisted of glue, water, thymol and glycerine. It provided a very adhesive substance which was painted on the leg and over it bandages were applied. From these bandages strings were attached to the splint to hold the leg firm. The splint was tied to weights to pull on the leg and hold the fracture in position, and the foot was fixed to a wooden footpiece with strips of flannel. If, for some reason, it was not possible to use the glue, then some form of screw or nail was inserted into the bone so that a pull could be maintained on the fracture. What becomes crystal clear is that the detailed meticulous application and careful supervision made the method succeed. Once again, the dictum of Lister that "Success depends upon attention to detail" had been proven.

When I first became a student at this Hospital in the 1930's, Mr. Malcolm was the Surgeon-in-Charge of wards 9 and 10. You may think it a peculiar coincidence that over the door of Ward 10 is inscribed the word *"Sinclair"*. However, this does not apply to the originator of Sinclair's Glue, nor indeed to the senior surgeon who has just moved from the unit, Mr. Sinclair Irwin. It is named after the Right Honorable Thomas Sinclair whose nephew, Thomas Sinclair Kirk, or "Surgeon Kirk", was in charge of the unit for many years. The interesting thing about these wards in Malcolm's time was that only male patients were allowed, as he would not treat female patients. He would never have agreed to the Sex Discrimination Act!

The fractures of the shaft of the femur were all lying in Thomas splints applied by Sinclair's method. In those days there were no antibiotics and so the infected fractures had a rather obnoxious smell. When one walked into the ward, the most obvious feature was the presence of many ill patients with legs hanging in splints. This was followed very rapidly by the odour of a mixture of infected flesh and Sinclair's Glue. Mr. Malcolm also was appointed Surgeon to the Graymount Hospital for long-stay patients, which opened on 23rd July, 1922, and he worked there until it closed and also at Greenisland Hospital.

As far as the speciality of orthopaedic surgery was concerned, Northern Ireland remained a backwater. No serious attempt was made to organise a fracture and orthopaedic service in this Hospital. In 1936, Lord Nuffield granted money to stimulate orthopaedic development in backward areas. Twenty-six thousand pounds

was allocated to Northern Ireland, but this was not utilised. In 1940, representatives of hospitals and other organizations formed the Northern Ireland Council for Orthopaedic Development. Prominent in this organization were S. T. Irwin, later Sir Samuel, and Professor J. H. Biggart, later Sir John. S. T. Irwin was a leading surgeon in this Hospital and he had always taken a keen interest in orthopaedic surgery. He gave invaluable help and advice to embryonic surgeons whom he called "young fellows". He was a highly respected fellow of the British Orthopaedic Association and became its Vice-President. He was a member of Parliament for some years. Those of us who knew him will never forget him and the Sir Samuel Irwin Lecture Theatre keeps his memory fresh. Sir John Biggart is still with us. His administrative ability and foresight played a most important part in establishing orthopaedic surgery here.

In 1941, the Board of Management decided to organise the treatment of fractures and allied injuries. An out-patient fracture clinic was built and named in memory of Colonel A. B. Mitchell, who had been interested in orthopaedic surgery throughout his career as a general surgeon. The Surgeon-in-Charge of this clinic was R. J. W. Withers who was the first specialist in orthopaedics in this hospital and indeed in Northern Ireland. His background in general surgical training was reinforced by special training in orthopaedic surgery in Manchester under Sir Harry Platt and Sir Henry Osmond-Clarke. He was meticulous in technique and had perfected the "No touch method" devised by Sir Arbuthnot Lane.

The treatment of fractures by putting splintage inside the body with the use of metal plates, screws and rods had been thought of for many years. The introduction of infection by such methods was the great danger, which produced terrible results. Arbuthnot Lane introduced the technique of applying such plates by using instruments only. The surgeon's hands did not touch the patient's skin or flesh or bones. This he called the "No touch technique". By this method, it was possible to cut down the rate of infection.

Jimmy Withers, as everybody knew him, was a tremendously hard worker, with an amazing memory and an alert mind, which he kept sharpened by the diligent study of a wide spectrum of subjects. He would not tolerate hypocrisy and he abhorred what he called "pseudo-science". He was an excellent teacher and was unselfish in the generous help he gave to his junior colleagues. He enjoyed life, loved meeting people and revelled in listening to, and above all, telling stories. He was a mine of profound knowledge, known to and appreciated by only his closest friends. With his energy and enthusiasm, there gradually developed the Fracture and Orthopaedic Service of this hospital. In addition to his work here, he fought for the establishment of a long-stay orthopaedic hospital. The nucleus of this was begun in Musgrave Park Hospital, Balmoral. Here, an Emergency Medical Service Hospital had been built during World War II on the site of the Balmoral Home for Boys, the local borstal. In 1945, some beds were allocated to orthopaedics. These were in army huts which were designed to last for ten years, but many are still in use over thirty years later. Eventually a new wing was planned and built for orthopaedics, but Jimmy Withers never saw it. His infectious laugh was silenced and his bustling activity stilled by his premature death in 1965. The Orthopaedic Wing in Musgrave Park was completed and opened in 1970 by his widow, Dr. Helen

Withers, who is here to-day. It is named the "Withers Orthopaedic Centre" and is a fitting tribute to the architect of orthopaedic surgery in this province.

There was no in-patient unit in the Royal Victoria Hospital for fracture patients until 1957. Prior to this, the patients were scattered in wards from one end of the hospital to the other. The peripatetic orthopaedic team walked what at times seemed miles to do a ward round. Many of the patients were in the surgical units and on their visits to the orthopaedic team were made as welcome as the flowers in May. They were not just so welcome the other eleven months of the year.

In 1957, an in-patient fracture unit was completed beyond Quinn House. Mr. R. T. Corry, a timber merchant who was a member of the Board of Management, had much to do about its construction, and an excellent structure it is. It did not match the original hospital architecturally and was unkindly called "Corry's cow-sheds." When it was finished, it was realised that fracture beds, with their overhead beams, would not fit under the roof which was too low in places. Then came a magnanimous gesture from the gynaecologists. They offered to give their unit, wards 17 and 18, to be used for fractures and they moved into the new accommodation (wards 23 and 24).

Eventually, a new building was planned to deal mainly with injured persons. This is now finished and is called "Block A". The fracture unit moved into one floor of Block A in September, 1975. There are 60 beds in this first-class accommodation, with excellent operating theatres. Here, the most up-to-date methods of treating patients with fractures and allied injuries can be performed by the team of four consultant orthopaedic surgeons and other staff. An orthopaedic surgeon is only one of a team—John Donne's "No man is an island" certainly applies here. Highly trained nursing staff, excellent physiotherapists, occupational therapists, social workers and clerical staff are all essential. Up to date, there has been no move to name Block A or any of its wards, except the ward perched on top and appropriately named the Heron Ward.

When the fracture unit moved, there were 29 female patients. Of these, only five were under the age of 60. The remainder had an average age of 82. When the day comes to name Wards 41 and 42, these are the fracture wards, I hope the female ward will not be named after an administrator—good as he may be at his work. Instead of, say, the "Sir Thomas Brown Ward", I would suggest it be called the "Struldbrug Ward". Struldbrug was one of a class among Luggnaggians in Swift's "Gulliver's Travels", endowed with immortality, but doomed to decrepitude after eighty and most wretched.

This speciality had made many advances, with more and more sophisticated techniques developing all the time. The evolution of any speciality owes much to the advances in other specialities. Anaesthesia has transformed surgery and has made possible procedures previously impossible, and many patients about to speak to Saint Peter have been brought back from the "Pearly Gates" by the wonderful treatment administered in the Respiratory Failure and Intensive Care Unit. Aseptic surgery, the successor of Lord Lister's antiseptic surgery, forms one of the keystones. Radiology is invaluable, being almost the eyes of the orthopaedic surgeon. Antibiotics changed the fate of orthopaedic patients, practically wiping out tuberculosis

and preventing other chronic infections. Vaccines can prevent tetanus and have almost eradicated poliomyelitis, which was a major disease producing orthopaedic deformities.

Gradually, over the years, the surgery of orthopaedics has become more complex. It is now possible to carry out operations which a few years ago would have been unthinkable. Recently the advances in surgery have been so rapid that each year would represent about 1,000 years in the past. Now children with gross deformities can be straightened and cured often by operative techniques. The sufferers from crippling arthritis, and they are vast in numbers, can be given great relief by various forms of surgery, and of these the most startling advance has been the replacement of joints with artificial joints. These have been perfected by technological advances in the use of plastic material and metals, so that metallurgy and other scientific advancements help in the speciality. It is nearly possible to replace any joint in the human body. Now it is possible to re-attach amputated digits or even limbs. This has been successful in a significant number of cases.

It is only a further step into the future to visualise that, as well as transplanting organs, limbs may be transplanted. This will open up a great field of replacement surgery. But wait, is this all very new? The twin Patron Saints of Surgery, Cosmos and Damien, in the 11th Century reported a case of transplanting a leg of a recently deceased Moor on to a white person or, should I say, Caucasian. The result of the transplantation of this black limb on to the white body is not known. If it had been successful, one is led to the facetious thought that this could have been the original recruit for the "Black and White Minstrel Show".

There are still many problems in orthopaedic surgery which have not been solved—malignant tumours, developmental deformities and severe injuries. What William James said still holds good "We live forward, but we understand backwards".

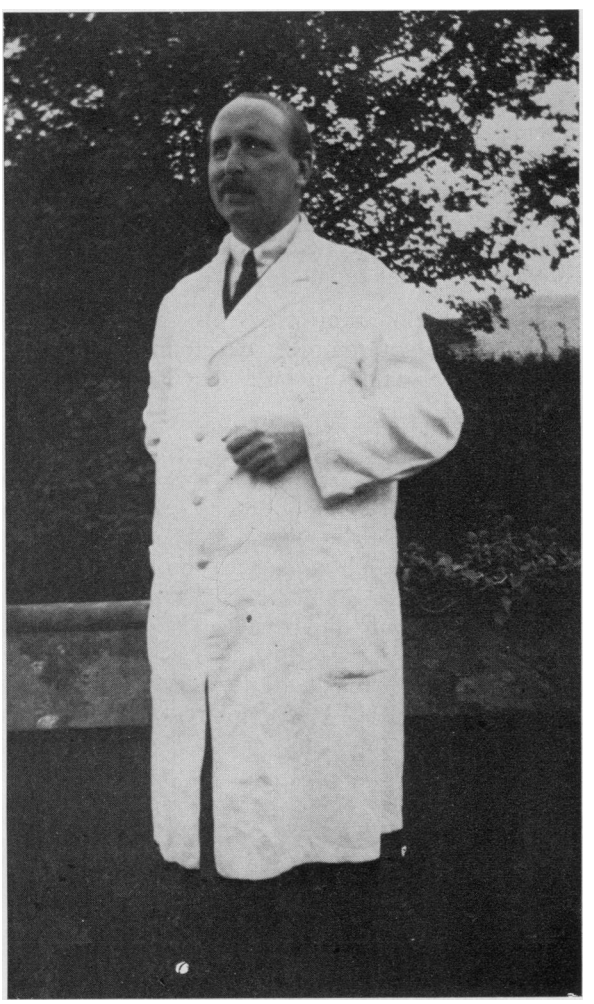
There are in this great hospital complex the three material requirements which you will need for your studies to become doctors and dentists. The first is that the buildings and accommodation are here. The second is that the equipment is available, even the most sophisticated. The third is the highly trained personnel who are willing, keen and anxious to help you. I would ask you to think about three abstract things as well. These are Faith, Hope and Love. The Faith is in the work you are to do and that you will continue to do. The Hope is that you will improve on this work. You are bound to do this, because the future of medicine is in your hands. And the last is Love; that is love for the unfortunate victims of disease and injury who make all this vast hospital complex necessary.

RUTHIN CASTLE: A PRIVATE HOSPITAL FOR THE INVESTIGATION AND TREATMENT OF OBSCURE MEDICAL DISEASES (1923-1950)

by

R. S. ALLISON, V.R.D., M.D., D.Sc., F.R.C.P.
Royal Victoria Hospital, Belfast

A LESSER-KNOWN development in medicine in Great Britain was the opening in 1923 of Ruthin Castle, North Wales, the first private hospital for the investigation and treatment of obscure internal diseases. Apart from the inevitable publicity it evoked, and although the clinic acquired a wide reputation, it remained unadvertised except for a regular notice in the Quarterly Journal of Medicine. This announced simply that patients could be received for investigation and treatment on the authority of their doctor and that mental cases would not be accepted. It also commented briefly on the historic setting of the Castle and the beauty of its environment.



The clinical director was Doctor, later Sir Edmund Ivens Spriggs, K.C.V.O., M.D., F.R.C.P., J.P., who for years had been a consultant physician on the staff of St. George's Hospital, London, following an academic career in which his training in physiology had played a major part. His withdrawal from practice in London in 1910 was brought about by a severe illness: pleurisy with effusion, after which in due course he was persuaded not to return to London but

to take on the clinical directorship of a small private hospital at Duff House, Banff, designed for medical cases rather than tuberculosis, which was managed and financed by a group of doctors, notably Dr. David Lawson of the Torna Dee Sanatorium Group who had invested money in the project. In this setting during the First World War, Spriggs and his assistant, Dr. Dennison Veith Pickering, contributed some papers of note and Spriggs did work on diet for the Ministry of Food. But soon it became evident that Banff was too far removed as a suitable centre and the Company decided to move and acquired Ruthin Castle, North Wales, transferring their patients and staff thence in 1922-1923. Other considerations were the unwillingness of Banff and Macduff Councils to allow additional building at Duff House and also the tragic death by drowning of Dr. Spriggs' two daughters, which had a pronounced influence on him, especially as it was pure chance that dictated his walking on the beach at Banff and being responsible for identifying the bodies of the two children. Ruthin had been the home of a famous family, the Cornwallis-Wests, who had been closely associated with royalty and with the Prince of Wales in the latter years of the previous century.

The adoption of the ancient 13th century feudal castle, complete with its walls and moat and standing in its own grounds on a commanding eminence just beyond the small town of Ruthin, Denbighshire, entailed much capital expenditure. Discreet and becoming extensions were made to its southerly aspect to provide extra rooms for patients, but the original pile was untouched. Spriggs and his family lived in the Castle, occupying part of the original building, and great care was taken to preserve its historical features and maintain continuity with the former establishment of Duff House. No patient was received without a doctor's recommendation. The journey from Chester, 20 miles distant, was made by private car provided by the Castle. Arrangements for their admission were made by Mr. Arthur Watson, B.A., the secretary. Patients came from all over England, Scotland, Wales and Ireland, the chief proportion from London. There was also a steady trickle from the Dominions, especially Australia and India, and from the United States of America, where the advantages offered by Ruthin were soon appreciated.

The new clinic contained enough separate rooms to take 64 patients, these being distributed between the "Castle Wing", the "Moat" and "South" Wings. Charges were high, ranging in 1925 from 30 guineas a week for a room in the Castle Wing to from 19 to 25 guineas in the Moat and South Wings. In effect, when it is remembered that all investigations and treatment were included in this cost they were moderate, no additional expenses being incurred by the patient and no expense being spared over the extent of the investigations made, when necessary, or the treatment given. This, of course, was in 1925 when prices in general were moderate and few people realised just how difficult it was to formulate an "umbrella" type of treatment, and it was probably for this reason primarily that the clinic was so restrained in the form of its advertising.

NURSING, AUXILIARY AND MEDICAL STAFF

The clinic had an expert radiographer on its staff in the person of Mr. O. A. Marxer, a Swiss, a most experienced technician, many of whose original gastro-intestinal radiographs were reproduced in British text-books of medicine. In addition,

the clinic had a fully trained staff of bacteriologists and biochemists under Mr. A. J. Leigh, B.Sc., working under the direction of the medical staff, and a number of masseurs and physiotherapists, capable of administering all the well-tried and acknowledged form of physiotherapy available at the time. Most of the patients were ambulatory and capable of taking advantage of the many opportunities offered for out-of-doors pursuits such as croquet, tennis, fishing, and shooting, the last-named activity being under the direction of a gamekeeper and well-known Scottish ghillie named Mr. Donald Conacher.

The nursing staff was carefully chosen, many of them having previously been at Duff House. They were under the direction of the Matron, Miss Jane Dewar. In charge of the dietetic arrangements was a Miss Davidson.

On his medical staff Spriggs had three assistant physicians, each of whom had charge of a proportion of the patients, the underlying responsibility for all, however, devolving on Dr. Spriggs. First there was Dr. Sydney Wentworth Patterson, deputy to the Director, who had charge of patients in the Castle Wing. Australian by birth, he had before coming on the staff of the Castle been Director of the Walter and Eliza Hall Institute for Medical Research in Melbourne, and before that engaged in physiological research with E. H. Starling, with whom he had already made a contribution on regulation of the stroke volume of the heart (1914), which became well-known.* He had served during the war as a major with the Australian Forces at the famous base hospital at Wimerieux, where he had worked with Sir Almroth Wright, Harvey Cushing, the famous American neurosurgeon, and the equally famous Gordon Holmes. The second assistant physician, formerly Acting Professor of Anatomy at Melbourne, also an Australian, was Dr. John Hubback Anderson, C.M.G., C.B.E. Anderson attained the position of Medical Director of the Australian Land Forces during the war. He was a remarkable man and of the three seniors the most gifted in his practical experience and sympathy with the sick, and in his devotion to their care. In 1925 a third Assistant Physician was added to the staff, Dr. R. S. Allison, previously medical registrar to the West London Hospital Post-Graduate College, after house appointments at the Royal Victoria Hospital, Belfast. The house physician, Dr. Cyril D. Shapland, subsequently took up a career in London in ophthalmology and succeeded to the staff of Moorfields Hospital, becoming famous in his time for his work on detachment of the retina.

Sir Edmund Spriggs retired in 1944, but continued as a member of the Board and Chairman for several years until his death in 1949. His son, Anthony, came on as Assistant Physician from 1951-53 and the Clinical Director became S. W. Patterson, the original company going into liquidation. On Patterson's retirement in 1959 a third company took over with Dr. Picton Davies as Senior Physician. This arrangement continued into the early sixties when, owing to its gradual decline and the introduction of the National Health Service earlier in 1948, it ceased to be a hospital and was taken over by a new concern as a first-class private hotel.

It is now just over 50 years since the writer joined the staff and in retrospect he is still convinced that the qualities which Sir Edmund Spriggs displayed were unique. A big man, with sandy-coloured, greying hair, he was formal in his manner and restrained in his speech, but always thoughtful and patient in listening to what

* Quoted by Singer in F. H. Garrison's "History of Medicine", Vol. IV 1929.

others had to say. He was a purist in his use of language and speech and could be quite sharp in his unequivocal objection to some of our statements which were non-exact or based on unjustifiable physiological conclusions. In the writing of case notes he insisted on understatement and ample proof of one's claims. Further, he encouraged all of us not to look upon our jobs merely as routine matters but in the afternoons to turn our minds to related subjects and to be ever in the position of working on such in addition to our regular clinical duties.

In this sense as a mentor one never found his authority oppressive and one gradually fell into line with routine and could appreciate one's good fortune in having such a man for chief. Thus, I recall many informal dinner parties held in his house and one in particular when Sir Arthur Hurst was also a guest, Spriggs remarking on how good were the opportunities we enjoyed, being privileged to work in such an atmosphere. These were surely the ideal conditions for advancing the science of medicine. Arthur Hurst, also a Guy's man, had begun his career as a neurologist and slipped imperceptibly into internal medicine. He was director of the New Lodge Clinic, Windsor Forest, which had begun work on the same lines as at the Castle.

ORGANISATION OF THE CLINIC

Whilst giving his staff every opportunity to display their originality and effacing as much as possible his qualities as Director, Spriggs was nevertheless a firm disciplinarian, and brought immense care and attention to the running of the Castle. He himself was dubbed "The Chief" by everyone and although autocratic was scrupulously fair. He insisted on a degree of perfection in the work of members of the staff, both medical and nursing, which brooked no carelessness or slovenliness. There was an adequate number of clinical secretaries, and this at a time when such help was scarce in Britain. Each assistant physician was responsible for preparing the case notes which he made, first in longhand, before turning them over to the typist and having them bound in a folder. When a new patient arrived he was promptly seen and his notes written up. The assistant physician had then to make arrangements for all tests required, whether they involved the services of the biochemical, bacteriological, or radiological laboratories. Dr. Patterson was responsible for electrocardiography. All directions relating to these preliminary investigations were made out by the assistant physician on coloured paper slips which were filed in the patient's folder, and duplicate copies sent to all the departments concerned, as well as to the nursing staff and dietician. This meant that at any moment the folder contained an up-to-date statement of the patient's position and avoided errors of omission or reduplication. As regards barium meals, the assistant physicians were encouraged by Mr. Marxer to go down to his department and observe the screening process and progress of the meals, and he himself, being an artist of some talent, made black and white sketches of the relevant appearances at different stages in the investigation, these being included in the notes. When the facts had been assembled the folder was then placed in Dr. Spriggs' consulting room and a consultation with him arranged.

Part of the daily routine also on every week-day was for the assistant physicians to gather at 9 a.m. in Dr. Spriggs' consulting room where, seated around his desk,

they would in turn give progress statements and discuss points of doubt about difficult cases, looking up books of reference, if need be, for assistance. Patterson was always brief, whereas Anderson took trouble to mention any relevant points in detail and "The Chief" brought us up to date with any correspondence that had been received about individual patients, details concerning non-medical matters being kept for discussion with the secretary, Donald Conacher, or Miss Dewar, the matron. These daily conferences we grew to enjoy, although Spriggs rarely permitted himself to relax or to become expansive, the conferences usually lasting not longer than 20-30 minutes before we dispersed to visit our individual patients.

In the afternoons one could usually find something to do in the biochemical or bacteriological laboratories and there was time to make a nine-hole round of golf at Pwllglas with Mr. Marxer, who vainly tried to gain my interest in the game, he himself being a devotee.

Twice a week one was "duty doctor" and remained in the Castle all day, but otherwise one was expected to make an evening round of the patients and whenever one was very ill or required additional help, to stay the night in the castle so as to be on hand in the emergency.

Another informal activity in which the staff as a whole engaged and which Spriggs approved of, although he himself took no regular part in it but would drop in occasionally, was the custom of holding monthly evening meetings at the Castle at which not only the physicians but the radiographer, biochemists and bacteriologists attended regularly. Their purpose was to review current medical literature, and each member of the staff made himself responsible for two or three journals. After citing a list of their contents he would discuss articles of special interest and this was followed by a general discussion. Patterson, who read and spoke German fluently, took on the "Archives für Pathologie", "Deutsche medizinische Wochenscrift" and the "Quarterly Journal of Medicine". Anderson took charge of the "Lancet" and "British Medical Journal" and Allison made himself responsible for "Brain" and the "Journal of Neuropathology and Psychiatry". Meetings were conducted in the big dining room at the Castle and afterwards we were given a cup of tea and biscuits before dispersing. This was one of the best of the many bright ideas emanating from the Castle and on return to Belfast in 1930 one instituted the same practice among the auxiliary and younger consultants at the Royal, and we succeeded in making an arrangement with C. P. G. Wakeley, the editor of the "Medical Press and Circular" to publish a weekly review of the proceedings, Dr. Evelyn Allen acting as secretary and convenor of the meetings.

ORIGINAL WORK

Before the opening of Ruthin Castle, at Duff House Spriggs had published seventeen papers, including one on examination of the stomach with X-rays, another on duodenal diverticula, and a study of sixty-five patients after short-circuiting operations. During my time at Ruthin, being keenly interested in shooting, especially driven pheasants and partridges, he studied the problem of the "towering bird", seeking to find an explanation as to why on being shot some birds did not plummet straight to the ground but instead continued in flight for a few seconds,

rising on outstretched wings rather than falling directly to the ground. Mr. Marxer took X-rays of these dead birds and they were carefully dissected to show where the shot was distributed in the feathers and in their bodies. It was found that the thoracic cavity had usually been penetrated and that a massive haemothorax had resulted. In his subsequent article on the subject, which appeared in the "Field", Spriggs and Patterson presented evidence to suggest that the towering flight had been brought about by cerebral anoxia, triggered off by extensive loss of blood, giving rise to a transient decerebrate rigidity.

In 1930 Spriggs went on a lecture tour of the United States. He gave the Oliver-Sharpey Lectures in 1906 and the Croonian Lectures in 1935, his subject then being "The Clinical Study of Headaches". As his bibliographer in Munk's Roll states "Ever ready to examine fresh ideas, he was cautious in arriving at his own conclusions, although quick to defend them once established. But he was always willing to withdraw from an untenable position. Thus, his work created an impression of far-sightedness and thoroughness". In his assembly of illustrative cases of headaches from his personal files, he worked late into the small hours of the night and for a time could think of little else, all his staff becoming involved so that for each of the points he made adequate support was available.

Patterson interested himself for a time in the history of the Castle and wrote a good account of its development from the earliest days, tracing the various sieges and misfortunes it had sustained before and after England and Wales came under a common monarch. Spriggs continued to interest himself in the study of diverticulosis and with Marxer was the first to draw attention to the characteristic "saw-tooth" appearance of the colon as an early sign of the condition or a manifestation of the pre-diverticular state.

Shapland wrote an M.D. thesis whilst house physician at Ruthin on the subject of diurnal variations in the hourly levels of the human blood sugar, which won him the approval of the University of London. It was at Ruthin, too, between 1927 and 1930 I had permission to conduct a survey in North Wales of patients suffering from disseminated or multiple sclerosis.

SOME CLINICAL RECOLLECTIONS

Spriggs was also especially interested in diabetes mellitus and before the introduction of insulin practised the traditional methods of treatment as outlined by Allen on the basis of the latter's work on feeding of low carbohydrate diets in depancreatised dogs. Thus, in pre-insulin days his patients were given diets ranging from 1,500 to 2,500 calories to which the carbohydrate content contributed only a small proportion—20-30 grams daily or less. Twice daily urine tests were made for the presence of ketones as well as sugar, and by attention to the water requirements he managed to keep patients alive, although balanced precariously often on the verge of diabetic coma. Such a patient I well remember was a Dr. Day, whose home was in the Midlands. For years he had been coming to Ruthin and when insulin was first used it was truly remarkable to note the beneficial effect even small doses had on his metabolism. His breath became free of acetone, and he put on weight; his limbs, which formerly consisted almost entirely of skin and bone,

expanding to their normal proportions, and he himself feeling a return of his former energy. It was this patient who changed radically Spriggs' attitude to the treatment of diabetes mellitus. Instead of limiting the carbohydrate intake, patients were now given moderate amounts of carbohydrate, at first being allowed 250-300 grams daily, although the overall caloric value of the diet was still restricted to 2,000-3,000 calories. To become familiar with the details of this radical departure from standard treatment Spriggs sent Allison for a time to the clinic of Professor von Noorden in Frankfurt, Germany, to study the new methods. One of the principal lessons learned was that larger amounts of insulin were not required, as had been supposed, when more carbohydrate was given. The insulin requirements indeed improved and whereas without insulin the ratio between insulin and carbohydrate had been approximately 1 gram per unit of insulin, with more carbohydrate and the diet still being restricted the ratio improved to 3-5 : 1.

A certain number of patients were received for treatment of their obesity. Spriggs was opposed to harsh dietetic restrictions or to dietetic "gimmicks," pointing out that loss of weight was largely a matter of individual intake and output of energy, especially of the former. Dietitians prepared appropriate and adequate diets consisting of normal foodstuffs in the usual proportions, the total intake of which was restricted to 1,500 calories, this amount being gradually reduced until the patient was living on a dietary of 800 calories daily. He had no time for most patent foods used as substitutes for bread, and was never tired of pointing out to patients the fallacy underlying the supposition that toast was preferable to ordinary bread. If patients insisted on having the former, less could be allowed than of ordinary bread, and this applied to bread made with white, brown or wholemeal flour. In relation to potatoes he had less objections and usually allowed them to have one with their dinner. These fulfilled a need in many subjects, and in any case they had only a low carbohydrate content. It was the prevailing method of preparation by creaming or adding butter which, of course, put up their caloric value to unacceptable levels. Another point: although most patients were regarded as making satisfactory progress on diet when they lost 2-3 pounds per week, if they kept the same weight despite a strict diet, he made no change and neither thyroid nor other medicament was prescribed. Usually, it was found that having remained static for a week their weight began to fall again, persistent failure to lose weight not being a feature of uncomplicated obesity under reduction. The usual explanation was that the patient had been eating on the sly and it says much for his influence over them that such cases were few and far between. Genuine hunger was also uncommon, even on a restricted diet, and Spriggs permitted patients occasionally to have a good meal, i.e. two or three slices of roast beef with plenty of vegetables as a compensation for their strict dieting at other times. We had one patient, a young man in his twenties, whose weight was reduced progressively from over 14 stone down to 9-10 stone in weight and whose photographs before and after treatment he used to display proudly.

A large number of patients suffering from gastric and duodenal ulcer were received, these being treated with few exceptions on bed rest and a modification of the Sippey or Lenhartz diet, whereby they were fed at frequent intervals and were given repeated doses of alkali over a period of one month. I do not remember seeing any ill-consequences follow this regime in the way of alkalosis or milk

intolerance. Patients who failed to respond, in whom pain kept on recurring, or who had a haematemesis, were always reviewed, a consultation being sought with an experienced surgeon such as Professor Kelly or Mr. Montserrat of Liverpool, or Mr. Burgess of Manchester.

Chronic cholecystitis and gallstones also presented an occasional problem in management and one recalls a consultation between Spriggs and Sir Berkely Moynihan over the case of a famous peer who had been coming to Ruthin for years with intractable dyspepsia due to gallstones and chronic cholecystitis. Sir Berkely Moynihan approached the subject boldly. In his opinion there was only one thing to be done—to have the gallbladder excised at operation, and he quoted statistics which gave the risk involved and the percentage of cures. This advice, however, the reluctant peer decided not to accept and insisted on continuing on his dietetic regime and post hoc or propter hoc he survived for years afterwards.

The mayor of a seaside resort, a man in his fifties, and a bon viveur, with a pronounced hypochondriacal tendency, also presented with a difficult problem. There were no physical signs, the blood pressure was only a little increased and electrocardiography showed only slight ischaemic changes, his heartbeat being regular. For three weeks he was kept on strict rest in bed, and despite this he continued to complain daily of recurring anginal-like bouts of pain. Immediate relief followed the inhalation of a capsule of amyl nitrate, although the introduction of this drug did nothing to lessen the recurrence of his pain. Our minds divided between regarding him as a potential coronary thrombosis and a hypochondriac, we permitted him gradually to resume his physical activities, walking a little more each day and finally reaching the stage when he could play a round of gentle golf on the 9-hole course joining the Castle. His pain continued to recur so that within a matter of weeks the whole of the golf course became strewn with broken used ampules of amyl nitrate. His weight had been reduced and he was on a strict dietetic regime and not permitted rich foods. And then, one day he was discovered lying in a corner of the golf course dead! The post-mortem examination disclosed advanced atheroma of the coronary arteries and the presence of a massive infarct in the myocardium.

Altogether some 4,796 patients were admitted to Ruthin Castle over the 10-year period, 1925-1935 and there was a rapid turnover, the majority leaving within three weeks of their arrival and only a few remaining for a month or longer under treatment. We had several cases of ulcerative colitis and a few of idiopathic steatorrhoea and sprue, with other examples of defective fat absorption and presenting with a picture of coeliac disease, their investigation and treatment involving careful analysis of the faeces and the patient being placed on a Kjeldahl diet because Spriggs was only satisfied to make the diagnosis when repeated laboratory tests showed defective absorption of fat to some 50 per cent and the patient was on a known diet. Even more common types of case complaining of obstinate constipation had to be kept under observation for a week, during which no aperients were allowed and the rate of passage through the bowel was checked by charcoal, the first appearance of the drug in the faeces being taken against the time of its final disappearance. Usually when this was done it was found that delays in the rate of passage for longer than the normal, up to 72 hours, were usual, the complaint arising from the patient's almost invariable habituation to the use of aperients.

Simple cessation of their use produced no ill-effects and was all the treatment they usually required. But one young woman who already had submitted herself to an operation for partial colectomy without success, turned out to be a case of Münchausen's Syndrome. It is unnecessary to go into the strategy employed to establish proof of this without causing loss of face to the patient but the result was most satisfactory and we received a warm letter of appreciation from her own doctor, a Glaswegian practitioner. He sent a copy of a paper he had written some years before when the young woman had presented herself with an incurable dermatitis which he had resolved by demonstrating that the skin lesions were artefacts or self-inflicted.

We had one case of Addison's Disease which proved fatal. Another spontaneous polycythaemia in which the patient's unusually slate-coloured complexion was much at variance with his high number of red cells. There was, too, a planter from the Malay States who was brought into the Castle on a stretcher suffering from a severe polyneuritis and Korsakoff type of syndrome. This latter, which was due to his big consumption of alcohol, was found to have created in his case a syndrome of diabetes insipidus. This would explain his position when, on alcohol being withheld, he continued to drink large quantities of mineral water alone daily. A remarkably pleasant fellow, he retained his spirits and capacity for looking on the bright side of things throughout the long period he remained at the Castle. On his discharge finally on maintenance doses of pitressin and his promise to avoid alcohol in the future, he did so for some 10 years, during which he corresponded with us regularly.

As can be seen, a wide variety of patients were admitted to Ruthin and this was a great advantage to a young physician on the threshold of his practice. Despite the exclusion of frank mental cases, many patients exhibited neurotic or frankly hysterical symptoms and it was always a problem to decide how much this was contributing to their complaint. This was in the days before the appointment of psychiatrists to the staff of hospitals and in the working out of the mental aspects of a patient Spriggs never took much interest, being content to make a full evaluation of the organic aspects and leaving any elucidation of the purely mental side to one of his assistants. Before concluding I should like to mention a young woman, which illustrates this point. She was admitted on account of a so-called idiopathic narcolepsy, her referral being due to the fact that no improvement whatever had followed appropriate drug treatment. "Sleep" attacks came on without warning when she would slump in a chair or on a couch and remain apparently asleep for periods ranging from 1-24 hours.

The patient had not been more than three days in Ruthin before she had an attack. One day, standing talking to her, she broke off in the middle of a sentence and without changing colour, fell back on the bed and lay there breathing naturally. Attempts to rouse her by speaking in a loud or commanding voice; giving her a little ammonia to inhale; tickling her throat with a feather; stimulating the soles of her feet with a sharp pin; or employing a galvanic current had no effect, the patient appearing to be still asleep and utterly unmoved by these procedures. When I called upon the Danish nurse, who had accompanied the patient to Ruthin, and invited her to "bring her round", within a few seconds she responded, opening her eyes again and exhibiting no signs of emotion. So far as I could detect, all the nurse had done was to speak in a low voice into the patient's ear. This was, of course,

in the days before electroencephalography but we did blood sugars, examined the pulse, the cardiogram, and the pupils for any changes, but finding none agreed that the sleep attacks were not genuine but purposeful in their character.

The first step was to get rid of the Danish nurse and isolate the patient from her relatives, our own nursing staff being taken into our confidence. Then, ignoring the patient's conscious state and the fact that she was "sleeping" most of the time, she was treated as if she was fully awake, it being suggested to her that she would have no further inclination to fall asleep by day and as soon as the attacks had disappeared she could be discharged home. Throughout the prolonged period of "sleep" that resulted there was no incontinence of urine or faeces, but during the night the patient would suddenly sit up in bed and mutter to herself in a distraught fashion, like a sleepwalker, before resuming her former state. On the fifth day, as she was not taking food it was decided to introduce tube feeding, the patient suffering a large rubber tube to be passed down her oesophagus without demur, after which an egg and milk mixture, fortified with glucose and vitamins, was poured down, and thus she was fed for three days without there being any alteration in her condition. Indeed, one was becoming worried that we had taken on more than had been anticipated and the nursing staff were beginning to lose faith, although Spriggs kept calm and advised me to carry on as before. The only alteration I made was in getting the nurses to give more particular attention to the state of the skin and to ensure that the patient still was passing urine and faeces, and was in water balance.

One morning when I visited her as usual, she suddenly to my surprise sat up in bed and asked for her clothes so that she might dress and go out of doors. This sudden volte face was totally unexpected so, concealing my surprise, I assumed a nonchalant attitude and had her clothes brought to her so that she could sit out on the terrace and have her meals as usual for a week before her parents were summoned and she was permitted to return home. The patient herself was not submitted to any criticism but reassured that her illness was now a thing of the past and that within a little time she could expect to behave and feel like a normal person, which she undoubtedly was.

This concluded a memorable case, the like of which I was not to see again. Whatever the diagnosis it certainly was not idiopathic narcolepsy but I was satisfied that dissociation of the personality had genuinely taken place and been responsible for her symptoms. If I had ever doubted the possibility of such occurring, this provided adequate proof. We kept in touch with her parents for three months and over this period there was no further recurrence of symptoms.

THE PROFILE OF THE SUSPECT DRUNK-IN-CHARGE DRIVER IN THE BELFAST AREA

by

W. A. EAKINS, T.D., M.B., B.Ch., B.A.O., M.R.C.G.P.

Regional Medical Officer, Post Office, N. Ireland

and

D. FALOON, B.Sc., M.B.C.S.

Principal Lecturer, School of Computer Science, N.I. Polytechnic

THIS PAPER describes some of the facts gleaned from a survey of 578 unselected suspect drunk-in-charge drivers seen over the period between January, 1973, to December, 1974, by one police surgeon in Belfast. In some instances the information is incomplete as the individual refused to be examined or to give a specimen of blood or urine for laboratory analysis. For the purpose of the series results of alcohol levels in urine were converted to equivalent blood levels using the ratio of 1.3 : 1 of urine to blood (Road Traffic Act Northern Ireland, 1970). All alcohol levels in blood are expressed in milligrams per 100 ml. The findings were recorded at the time of examination on a standard proforma and counts and analyses have been carried out by computer.

RESULTS

Age and Sex

The age of groups by decades was recorded and the preponderance of detection of 25-34 year olds can be seen in Table 1. Only 10 of the 578 suspects were women

TABLE 1

Ratio of percentage distribution in the series to that in the general population for each decade of age:

Age in Years	15—24	25—34	35—44	45—54	55—64	65+
Ratio	1.08	1.85	1.50	0.92	0.38	0.01

Social Class

All suspects were divided into the five social class groups in general use: (1) professional; (2) semi-professional and managerial (of large enterprises); (3) skilled tradesmen and clerical; (4) semi-skilled; (5) unskilled.

Those unemployed at the time of detection were considered separately. Table 2 shows the preponderance of social class (4). This may indicate a class of new rich evolving.

TABLE 2

Ratio of percentage of social class and unemployed distribution in the series to that in the general population of Belfast:

Social Class	1	2	3	4	5	*Unemployed*
Percentage in Population	2.7	9.2	46.2	19.5	17.0	5.4
Percentage in Series	4.75	4.95	28.71	43.76	14.26	3.56

Amount of Alcohol Consumed

The figures of the specimen analysis by the Forensic Science Laboratory were used, and the mean blood alcohol for age was calculated from these levels. Table 3 shows an increasing amount to a relatively high level at 35-44 years, indicating an increasing intake with age to produce heavy drinking in this group. There was only 2 per cent variation in mean blood alcohol levels for social class groups within this age range. Blood alcohol levels were below 100 mg in 6 per cent and only 2 per cent were below 60 mg, while in 63 per cent the blood alcohol levels were 180 mg or greater.

TABLE 3

Mean blood alcohol levels for age groups

Age	Under 25	25—34	35—44	45—54	55—64	65+
Mean alcohol level in mg	160	181	229	202	160	193

Type of Alcohol

In general, social classes 1 and 2 drink spirits or wine, whereas the other groups drink beer almost exclusively.

Time of Detection

There was a definite, repeating pattern in time of detection, as shown in Table 4. This varied little over the duration of the investigation. The detection by day of the week was also characteristic, being lowest on Sunday and rising during each day of the week to reach a well defined peak on Saturday. The months containing holidays (March, July and December) had a higher than normal incidence of detection. The various patterns indicate the times of drinking but may also, to some extent, indicate some increased vigilance on the part of the police at specified times.

TABLE 4

Hourly detection percentage of drivers over 24-hour period

Time	1200 to 1500	1500 to 1800	1800 to 2100	2100 to 0000	0000 to 0300	0300 to 0600	0600 to 0900	0900 to 1200
Percentage of Detection	1.21	3.98	13.84	26.30	47.75	6.20	0.36	0.36

Reason for Arrest

The attention of the police is drawn to drivers for many reasons. Most often it was due to a traffic accident, even if it was of a minor nature. Frequently it was due to a minor contravention of the Road Traffic Act laws, such as inadequate lighting of a vehicle or proceeding through traffic lights. A number of arrests were made because of confusion of the driver's mental faculties; for example, driving incorrectly up a one-way street. Erratic driving was also the cause of a large number of arrests. This was often characterised by swaying from side to side on the road. Mechanical inability to control the car, such as stalling at traffic lights, exaggerated braking or swerving, was a frequent cause. There was a group classified as "miscellaneous causes" which were due to such factors as running out of petrol, trying unsuccessfully to enter or start a vehicle, or being asleep in the vehicle. A substantial number of arrests occurred in consequence of routine security road check points.

TABLE 5

Causes for detection with percentage for each sub-group.

Accidents	31.53
Miscellaneous	26.87
Erratic Driving	25.37
Routine Road Checks	11.19
Unspecified	5.04

Accidents

Accidents were the commonest single cause for detection, and a further analysis of this group of 169 suspects was carried out. Table 6 shows that no suspect with a blood alcohol level of less than 100 mg was involved and almost all were over 150 mg. In the 169 accidents many people were injured to a greater or lesser degree and there were three fatalities. As would be expected, the time of accidents followed closely the time of detection (Table 4), since accidents were the most common cause for drivers to be apprehended.

TABLE 6

Matrix table showing mean blood alcohol levels (mg) against age and time of day for drivers involved in accidents

Age (Years)	1200 to 1500	1500 to 1800	1800 to 2100	2100 to 0000	0000 to 0300	0300 to 0600	0600 to 0900	0900 to 1200
Under 25	0	185	119	124	172	161	0	0
25—34	0	198	173	196	164	190	0	0
35—44	206	208	194	213	208	147	281	0
45—54	270	200	211	206	168	162	200	0
55—64	0	107	221	192	201	0	0	0
65+	0	0	195	0	0	0	0	0

Eating Habits

All suspects were asked to state when they had had their last proper meal, other than a snack. This was recorded as the fasting time in hours from time of examination. This is shown in four-hourly intervals with the associated mean blood alcohol level in Table 7. Even though this data is largely derived from statements made by suspects and therefore open to question of accuracy, there emerges a well defined group of heavy drinkers who do not apparently eat. This number (5.2 per cent) may be early or established alcoholics.

TABLE 7

The stated fasting time of drivers and associated mean blood alcohol levels.

Fasting time (hours)	0—4	4—8	8—12	12—16	16—20	20—24	24+
Mean blood alcohol levels	266	185	188	188	169	184	240
Percentage of drivers	13.8	31.3	34.7	12.1	2.2	0.7	5.2

Drugs

Suspects were asked to state whether they had been taking any therapeutic drugs and these were recorded. Each was observed for signs of drug abuse. This was considered when a suspect had taken a quantity in excess of the prescribed dosage, when non-prescribed scheduled drugs had been taken, or where hypnotics had been taken in conjunction with alcohol. If suspected, the laboratory was requested for an analytical scan for the commonly used drugs. Abuse was detected in two cases by clinical signs.

The miscellaneous group contained a wide range of drugs and included many innocuous substances, such as alkali mixtures, etc. However, antihistamines for the symptomatic relief of upper respiratory tract infections, and cough bottles containing codeine and non-scheduled analgesics were frequently encountered.

TABLE 8

Prescribed drugs	*Percentage of total*	*Abuses*
None	85	1*
Valium (diazepam)	2.9	0
Hypnotics	1.5	3
Anti-depressants and other psychotropic drugs excluding Librium	1.3	1
Antibiotics	1.2	0
Hypotensives	0.8	0
Cardiovascular drugs	0.8	0
Librium (chlordiazepoxide)	0.4	0
Miscellaneous	6.1	0

*Tuinal (quinalbarbitone and amylobarbitone).

COMMENTARY ON SURVEY FINDINGS

Many facts and trends can be seen from the figures obtained in this survey and some are worthy of consideration. Drinking by drivers occurs in all the social classes and is more extensive in social class 4. This may be due to social class 4 having more money than financial commitments relative to the other groups. There is an increased detection in the younger groups, especially those 25-34 years old, and that for the under 25 year group was also greater than expected in relation to their numbers in the general population. This reflects an increasing predisposition to drinking in younger people and may be a measure of the increasing affluence and instability of this age group.

The high level of blood alcohol found in the 35-44 age group shows a trend to heavier drinking towards middle age, which then declines with increasing age. The average figure of 229 mg per cent for this group is evidence of hard drinking. In general, a blood alcohol level of up to 50 mg per cent can be achieved by ordinary "social drinking" (Ward Smith 1958). In the survey only 2 per cent of suspects had levels of 60 mg.

Random blood alcohol levels of over 175 mg probably reveal a drinking problem and may be sufficient indication to a general practitioner that something requires to be done for the individual. The association of high blood alcohol levels with prolonged fasting time of six hours and over almost certainly indicates alcoholism. A few of the suspects (5.2 per cent) fall within this group and it could be argued that courts might justifiably offer the offender a more lenient penalty if he agreed to psychiatric investigation and treatment. In certain circumstances this might seem more equitable, as the condition is an illness producing diminished responsibility.

Accidents featured commonly as the cause of reference of the drivers. More than half of those involved (59 per cent) were under 35 years of age and this relates closely to the proportion of this group in the whole series. This may give an indication that inexperience in driving may not play a great part in these accidents. However, this might be true on the premise that most drivers learn to drive while young. No driver with a blood alcohol level of under 100 mg had an accident, and almost all occurred in those with 150 mg or more. Lucas, et al (1953) showed that blood alcohol levels of 150 mg and over were eight times as common in the accident group as in the no-accident group.

The present findings confirm the view of Hargar (1958) that drivers with blood alcohol levels of between 50-100 mg are probably fit, those between 100-150 mg probably unfit, and those with over 150 mg are certainly unfit to drive. The British Medical Association, in a statement produced by the committee reporting on the "Relation of Alcohol to Road Accidents" stated: "The Committee cannot conceive of any circumstance in which it could be considered safe for a person to drive a motor vehicle on the public roads with an amount of alcohol in the blood greater than 150 mg per cent". From time to time suspects were seen who could perform clinical tests quite well with blood alcohol levels of up to 200 mg. However, at this level their judgment must be impaired (Penner 1958).

In the series, the greatest incidence of accidents occurred between 2100 and 0300 hours, particularly on Friday and Saturday nights. This relates closely to the frequency of detection patterns. This increased frequency of accidents occurred in spite of the fact that road traffic was of much smaller volume during the period than in the day time. If the incidence of all hourly accidents is inspected, it can be seen that accidents occur in two waves of frequency. The first starts at 0700 hours and builds up with daily traffic, diminishing at 2000. The second wave starts at 2200 and eases after 0200 hours. Alcohol is a likely major causative factor in the second wave, although fatigue may also contribute and may to some extent act synegistically with alcohol.

A number (15 per cent) of suspects had taken drugs. This is probably a minimum figure. No "hard" drugs were encountered and there was little evidence of drug abuse. Of the 86 drivers who had taken some form of medication, 40 per cent had taken either hypnotics, tranquillizers or anti-depressants. Most of these impair the ability to drive and, when mixed with alcohol, the deterioration can be considerable. Doctors prescribing such drugs should bear this in mind. The availability of anti-histamines in cough bottles and their adverse effect on driving is also noted. Perhaps more control is required in this area.

SUMMARY

A survey has been carried out of 578 unselected suspect drunk-in-charge individuals seen between January, 1973, and December, 1974. The information obtained showed widespread drinking by younger people, increasing to fairly heavy drinking in the 35-44 year old group. There was a high incidence of accidents, and this was mainly associated with blood alcohol levels over 150 mg per cent.

A number of the drivers (15 per cent) had taken drugs in association with alcohol.

There appears to be a small group of alcoholics in the series, and for them psychiatric investigation and treatment may be indicated. The blood alcohol levels of all drivers were well above the level expected for social drinkers.

All aspects of drinking and driving deserve more publicity and research.

REFERENCES:

BRITISH MEDICAL ASSOCIATION—Statement (1960). *British Medical Journal 1*, 269.

HARGER, R. N. (1958) *Indiana Alcohol and Road Traffic Symposium.* Indiana University, 1958; p. 179.

LUCAS, G. H. W., KALOW, W., MCCOLL, J. D., GRIFFITH, B. A., AND SMITH, H. W. (1953) *Proceedings Second International Conference on Alcohol and Traffic,* Toronto 1953 p. 139.

PENNER, D. W. (1958) *Indiana Alcohol and Road Traffic Symposium, Indiana*: Indiana University, 1958. p. 212.

ROAD TRAFFIC ACT NORTHERN IRELAND 1970 Section 123. H.M.S.O. Belfast

WARD SMITH, H. (1958) *Indiana Alcohol and Road Traffic Symposium, Indiana*: Indiana University, 1958 p. 217.

DYSTONIC REACTIONS TO METOCLOPRAMIDE (MAXOLON)

by

MARK REID

Craigavon Area Hospital, Craigavon

METOCLOPRAMIDE has been used in the treatment of various gastro-intestinal disorders for over a decade. Dystonic reactions to metoclopramide have been reported previously by Casteels-Van Daele et al (1970) and also Witzel (1968). The symptoms of dystonia appeared in their patients following the administration of metoclopramide in doses exceeding 0.5 mg/kg body weight for longer than a 24-hour period.

CASE REPORTS

Case 1: A girl, aged two and a half years and weighing 14 kg was admitted with a history of constipation and vomiting for five days prior to admission. She had been given a single dose of 5 ml (5 mg) of metoclopramide syrup. One hour later she became dysarthic and also dysphagic. The whole episode lasted for one hour. She was admitted to hospital for observation and remained well and was discharged 24 hours later.

Case 2: A girl, aged three and a half months and weighing 5 kg was admitted to hospital with a 48-hour history of diarrhoea and two episodes of vomiting. She had been given 2 ml (2 mg) of metoclopramide syrup. Forty-five minutes after administration of metoclopramide she suddenly had an oculogyric crisis and persisting head retraction. On admission to hospital she had head retraction and a general increase in muscle tone. The whole episode lasted for half-an-hour and then recurred more briefly two hours later. She had no further spasms after this and was discharged 48 hours later from hospital.

Case 3: A boy, aged ten years and six months and weighing 36 kg was admitted to hospital with a history of a flu-like illness and vomiting for the previous 48 hours. He had been treated with metoclopramide 5 mg eight hourly for the previous 48 hours. He suddenly became dysarthic and developed a left-sided torticollis. His fingers became stiff and he was unable to grasp objects. The whole episode lasted one and a half hours. After admission to hospital he had no further spasms and he was discharged 48 hours later.

Case 4: A girl, aged eleven months and weighing 11 kg was admitted with a history of a diarrhoeal illness for 24 hours and had also vomited on five occasions over the same period. She had been given 2.5 ml (2.5 mg) of metoclopramide syrup and five hours after this she had a brief respiratory arrest and then persisting upward deviation of her eyes lasting five to ten minutes. After admission to hospital she remained well and was discharged 48 hours later.

Case 5: A girl, aged nine and a half years and weighing 34 kg was admitted with a 48 hour history of abdominal pain but no vomiting or diarrhoea. She had been treated at home with metoclopramide tablets 5 mg twice a day in the first 24 hour

period and then three times a day in the second 24 hour period. She suddenly developed spinal torsion and an associated right-sided torticollis. She became exceedingly frightened and also was dysarthric. The spasms fluctuated, lasting 10 to 15 minutes over one and a half hour period, and then did not recur again.

None of the above children had evidence of dehydration nor had they any personal or family history of epilepsy.

DISCUSSION

Metoclopramide has been described as having two sites of action (Drug & Therapeutic's Bulletin, 1976). It firstly increases the peristalic activity of the upper parts of the upper intestine. It has been suggested that this is caused by antagonism of a purinergic relaxation system in the intestine. Its effect in causing rapid gastric emptying has lead to its use in the treatment of gastro-intestinal disorders, and also radiological investigations particularly in adults and in children for jejunal biopsy procedures. The drug secondly, has an effect on the central nervous system by blocking dopaminergic reactions which in themselves may lead to nausea and vomiting. It has been suggested, however, (Drug & Therapeutic's Bulletin, 1976) that metoclopramide may block the dopaminergic functions at low doses while only causing disturbances of movement or muscle tone at higher doses. It has previously been suggested that dystonic reactions should not occur in patients receiving less than 0.5 mg/kg body weight of metoclopramide. (Robinson, 1973; Committee on Safety of Medicines, 1975). However, in our patients the amount of the drug per kilogram was less than 0.5 mg/kg body weight, varying between 0.36 to 0.44 mg/kg of body weight. Moreover, three of the five children developed reactions within six hours of having a single dose of the drug. All the children appeared to be frightened by the reaction and their parents were also upset assuming that the children might have had an epileptic fit or in one case a stroke. All our cases occurred over a period of eighteen months in a paediatric population of approximately 40,000. We have had anecdotal reports of other cases having occurred at home but these have either been milder or have been treated by their own general practitioner. It would seem, therefore, the incidence of reaction may have been somewhat higher than is generally appreciated. We would, therefore, suggest that metoclopramide is used cautiously in children and its use be reserved for those children who have persistent vomiting, rather than being prescribed more non-specifically in the treatment of abdominal pain, or diarrhoea as at present apparently occurs. We also suggest that a smaller dose should be prescribed than is presently recommended, and considerations be given to the use of other anti-emetic drugs. Lastly, parents should be warned in advance, that dystonic reactions may occasionally occur following the use of metoclopramide.

SUMMARY

Five cases of dystonic reactions following oral administration of metoclopramide are described. These reactions occurred over an eighteen month period in a paediatric population of 40,000. The reactions occurred despite the fact the drug was administered in the suggested therapeutic quantity. The reactions lasted from

five to forty-five minutes and varied in severity from a brief respiratory arrest to dystharia and torticollis. We therefore suggest that the drug be prescribed in smaller amounts than previously suggested, and parents are warned of the possibility of reaction which may occur after administration.

REFERENCES:

CASTEELS-VAN DAELE, JAEKEN, J., VAN DER SCHUEREN, P., ZIMMERMAN, A., AND VAN DEN BON, P. (1970) Dystonic Reactions in Children caused by Metoclopramide. *Archives of Disease in Childhood, 45,* 130.

COMMITTEE ON SAFETY OF MEDICINES (1975) Current Problems, Extrapyramidal Reactions to Metoclopramide, *1,* 2.

DRUG AND THERAPEUTIC'S BULLETIN (1976) Metoclopramide, *14,* 21, 82.

ROBINSON, O. P. W. (1973) Metoclopramide side effects and Safety, *Post Graduate Medical Journal* (July supplement) *49,* 77.

WITZEL, K. (1968). Extrapyramidal-motorische Storingen bei Kindern als Nebenwirkung der Therapie mit Neuroleptica und dem neuen Antiemeticum Metoclopramide. *Archiv fur Kinderheilkunde, 177,* 277.

THE DISABILITY IN SO-CALLED RED-GREEN BLINDNESS AN ACCOUNT BASED ON MANY YEARS OF SELF-OBSERVATION

by

J. S. LOGAN
Physician to the Royal Victoria Hospital

THIS is an attempt to describe the disability in red-green blindness. It is not an account of the physiology of normal colour vision, nor of the abnormality of the cone cells of the retina in red-green blindness, nor of the genetics of the trait. It does not consider total colour blindness, or colour agnosia, or defects in colour memory. It must be remembered however that the trait is borne as a recessive on the X chromosome. We are dealing with that 6.9 per cent, 1 in 14, of all men who have imperfect, but not absent, perception of red and green (Johnston, Cheeseman and Merrett 1957). For this purpose it is defined as inability to read the figures in the Ishihara test book in good daylight as do normal individuals, and further as misinterpretation of the Ishihara figures in a way standard for the defect or defects. This test seems to identify a group of men each with a similar disability, though the disability cannot be identical because the group seems to include a few pure red blind, a few pure green blind, and a much greater number of men with lesser defects in red and green vision (Rushton, 1975). A more discriminating test would separate these groups and enable one to describe separately the disability in each. It should be noted that without formal testing, very few, or no, red-green blind men come to know they have the defect.

This account does not consider the disability in females. Because red-green blind females are rare, there is little opportunity to study their state. In the only case known to the writer there was no physical defect other than the red-green blindness. One might expect a red-green blind female to be homozygous for the trait, and usually that will be so, but if the Lyon inactivation of one or other X chromosome operates in this disorder, then assuming the inactivation is random, one might expect a range of normality/abnormality in the heterozygote female, varying from normal colour vision to red-green blindness. If a heterozygous female can read both sets of figures on a single Ishihara plate (as seems sometimes to be the case) it may be evidence of mosaicism, and might be consistent with the inactivation of the X chromosome in the cone cells of the retina in an approximately 50/50 proportion.

The disability in red-green blindness (RGB) in ordinary good daylight does not lie in any inability to see red and green colours clearly when the subject is looking at a red or green object which he has already located. There is some difference from normal people in perception of "richness" of colour and there may be in consequence some deficiency of the emotion or feeling-tone associated with the colour. But RGB people can see red and green quite well, and within the reds can

distinguish scarlet, crimson, dull cherry, rose and so on, though pale pink will look off-white, and a very dark green will look black. The disability lies in scanning a background for a red object. The subject may have an equal difficulty with green objects, but that matters less, because one is rarely scanning anywhere for a green object. A RGB person scanning for red objects in a background (as for fuchsia blossom in a hedge, or camellia blossom on a bush, or haws on a hawthorn, or, a better example, wild strawberries on a grassy bank) must scan purposively, slowly, and with attention. If his glance is quick or casual or not purposive, he will miss the red object. In competition with a person of normal colour vision, he cannot win. A normal person will always spot and gather the wild strawberry before him. For another example it is not possible to glance along a street and spot a letterbox instantly, especially if it is a bit dirty with road dust.

In the United Kingdom where traffic lights are always in a standard position on the corner of the footpath at a standard height, there is no difficulty finding the lights, and then no difficulty distinguishing red, orange and green. In New York city, where the lights are affixed to any convenient wall or post in nonstandard positions, the RGB person takes some time to find the lights. Once found they can be interpreted as easily as by a normal person.

In the dusk, unilluminated red objects will look black, and the disability is different, but because one is not usually looking for red objects in the dark, the different disability is rarely noticed and rarely matters. In the dusk or dark a red light has to be intense to be noticeable, and to be identified as red. This is important in all signalling at night. If a military or police picquet on the road at night should attempt to stop cars by showing a red light, one in fourteen male drivers will not see the light easily, or will not see it as red, and drive on. The car may be fired on for failing to stop.

The disability matters in road safety. A red or green car passing from side to side, right to left or left to right, is easily seen and followed because of its movement across the visual field. When such cars, and especially those of certain shades or red and green, are coming directly towards a RGB driver and not moving in the visual field, awareness depends mainly on the colour, and the RGB driver may not see the oncoming car until it is very near him. If the oncoming car were to turn suddenly right at a crossroads, the RGB driver might not see it till too late and drive into it. Or he might on a straight road pull out to pass, and hit the oncoming car, though that is less likely because the oncoming car would move a little in the visual field.

In medicine the medical student will find in the physics class that he can make little of spectroscopy. He will not be able to use the method. In histology eosin stains are hard to see. The RGB student may for long see only the blue-stained nucleus and think that is the whole cell. In haematology the eosinophil granulocyte is hard to find, and in bacteriology the *Mycobacterium tuberculosis* stained by the Ziehl-Neelsen method is faintly seen and not easily located. In the microscopy of urine and faeces red cells do not look very red. In malaria the chromatin dot in the ring form of the parasite and the red Schüffners' dots and Maurer's dots in the red cell are not easily seen. In biochemistry, tests for bilirubin depending on the development of a green colour are hard to assess, and Ehrlich's aldehyde test for

excess urobilin and porphobilinogen in the urine is also difficult. So are the ferric chloride test for aceto-acetic acid and for phenylketonuria, and also the red change in litmus paper in acid solutions. Albustix cannot be used to test for proteinuria. Methods of estimating haemoglobin involving, like the old Sahli method, comparison of haemoglobin solution with red standards are hopeless.

In bedside work assessment of anaemia by skin and conjunctival colour is not so easy as for the normal. The red lines of lymphangitis are not striking and easily overlooked. Red throats do not look so red. The Kayser-Fleichser ring in the cornea is hard to see. It is hard to see the rash of scarlet fever in a fever ward at night. The rose spots of typhoid have to be searched for carefully and also the petechial rash of meningococcal infection. Purpura looks black and not red. A RGB paediatrician is not likely to diagnose pink disease. The cherry red colour of carbon monoxide poisoning is not apparent, and in polycythaemia vera the patient's colour has to be high to be noticed. Microaneurysms in the retina are hard to see. Haemoglobinuria and myoglobinuria look black, and haematuria more black than red. Dark bile in a drainage bag is sometimes very like altered blood. It is not so easy to distinguish fresh melaena (with its black-red colour) from old melaena (totally black). In patients with upper gastrointestinal haemorrhage these are important signs. Venous blood looks more black than red. When giving intravenous iron injections it is hard to tell when the needle is in the vein by withdrawing a little blood in the usual way. Venous blood does not look very different from arterial blood and it would be possible for an unalert RGB person to give an injection into an artery and not a vein, because he might not be warned by the colour of the blood when he withdrew the plunger a little. Red-lined ECG paper is a nuisance. Red lettering on ampoules is hard to read at night, and red graduations on the sphygmomanometer column are faint. Colour codes in red and green on any apparatus especially anaesthetic would be dangerous.

In the ordnance maps of the United Kingdom first and second class roads are not distinguishable. On the London Underground the codes for the Circle (yellow) and Victoria (blue) lines can be seen easily, but the Bakerloo cannot be distinguished from the Central or the Metropolitan, nor the Metropolitan from the Northern, without time, care and a good light.

The RGB golfer on an unfamiliar course will look in vain for the red flag on the next green, and he certainly will not find his red tee in the grass after he drives off. The RGB cricketer will not properly see the crimson colour of the cricket ball and may lose it in its flight. At rifle ranges the red flags are inconspicuous. The big game hunter will not be able to follow easily, or at all, a blood trail in the jungle, and he will not see that red spot through the foliage, occasionally the only indication of a tiger's presence, as is described by Jim Corbett (1947). In early spring the red-green blind will not see the pink flowers on the larch. The bird watcher will not distinguish small birds by colour. He will not see the red colour that gives waxwings and redshanks their name, and he will not see the green of a lapwing's (peeweep's) back. It, like the uniform of the Royal Ulster Constabulary, will look black. The star watcher cannot pick out Mars by its redness. Sunsets and sunrises, while colourful enough, are not the glorious spectacle others describe, and certainly the autumnal and harvest colours, so emotional for some people, leave the RGB unmoved. The rainbow for him is a thing of blue and yellow, and so is chromatic

error in a lens. It is possible, indeed likely, that perception of form and proportion is altered but there seems no way of comparing the perception of the RGB and the normal. One patient of ours with disseminated sclerosis had loss of colour vision in one eye and intact colour vision in the other, but had not the intellectual ability to make use of the remarkable opportunity. Moreover more than perception of red and green was lost in the affected eye.

In the family the RGB husband will never understand why his wife wears the clothes she does, nor can he understand the wife's colour schemes for carpets, curtains and upholstery. Nor will she understand his preference for blues and yellows. The RGB husband should think before buying his wife sapphires or amethysts. She may prefer the rubies or emeralds which seem less brilliant and attractive to him. Parents should know early about their sons' RGB. Otherwise they may be angry and unkind when the boys fail to see things. A boy sent to find a brown or red article in an ill-lit room may not be able to find it, though it is plain and even prominent to a parent of normal vision. He may gain a life-long reputation for either lying or uselessness.

How far RGB is a handicap for a soldier is hard to say but it is certain to be considerable. Colour codes, colour signals by flag, lamp or rocket, red and green markings on maps or on dangerous objects, red reference points on the ground, all make errors possible. Certainly, all recruits of all ranks should be tested and their colour vision recorded. In industry, especially in engineering of all kinds, engineers and managers should remember that red warning signs and marks may not be seen.

SUMMARY

An account has been given of the disability in red-green blindness based on many years of self observation and of testing applicants for employment. The main disability is inefficiency in scanning a background for red objects. Once located the red object can be seen satisfactorily enough. Red-green blind persons should be identified early in life and then the particulars of their disability taught to them item by item both in respect of general experience and of their occupations.

The RGB person is excluded by regulation from being a deck officer at sea, an aircraft pilot, a railway engine driver, or signalman, but the RGB person can have a successful career in almost any other occupation. The difficulties are overcome by awareness, self-training and effort. Nevertheless RGB doctors would be better to avoid careers in haematology, histology and bacteriology. RGB young men should consider well before training as electricians, dyers, paint merchants, painters, drapers, clothiers, upholsterers and curtain supplying. All children should have colour vision tests as soon as possible after entering school and the implication of red-green blindness should be explained to the parents. For road safety, motorcars should not be monocoloured red or green. Blue and yellow would be safer warning colours than red and green.

REFERENCES:

CORBETT, J. (1947). *Man-eaters of Kumaon.* London. Oxford University Press. Page 102.

ISHIMARA, S. (1943). *The Series of Plates designed as Tests for Colour-Blindness.* 9th edition. London. H. K. Lewis & Co. Ltd.,

JOHNSTON, W., CHEESMAN, E. A., MERRETT, J. D., (1957). *British Journal of Preventive and Social Medicine.* 11, 152.

RUSHTON, W. A. H. (1975). *Scientific American.* 232, 64.

ANNUAL REPORT OF THE POISONS INFORMATION SERVICE BELFAST DIVISION 1975

THE CASUALTY DEPARTMENT of the Royal Victoria Hospital has continued to make available information about potential poisons to doctors in Northern Ireland and elsewhere. When the basic information is not sufficient, the enquirers are referred on to a panel of experts who do their best to help. The basic information used by the Service is provided by Dr. Goulding, of the Poisons Information Service, New Cross Hospital, London, and is supplemented by information derived from various specialist reference books. However, the work of the service would be simplified if all Casualty Departments and Health Centres carried a short textbook on the treatment of poisoning (such as "The Treatment of Common Acute Poisonings" by Henry Matthew and A. A. H. Lawson) and two official handbooks in their current editions:

1. Poisonous Chemicals used on Farms and Gardens. Notes for the guidance of medical practitioners issued by the DHSS and revised inserts issued from time to time.
2. Approved Products for Farmers and Growers. Issued every 3 years by the Department of Agriculture, Fisheries and Food.

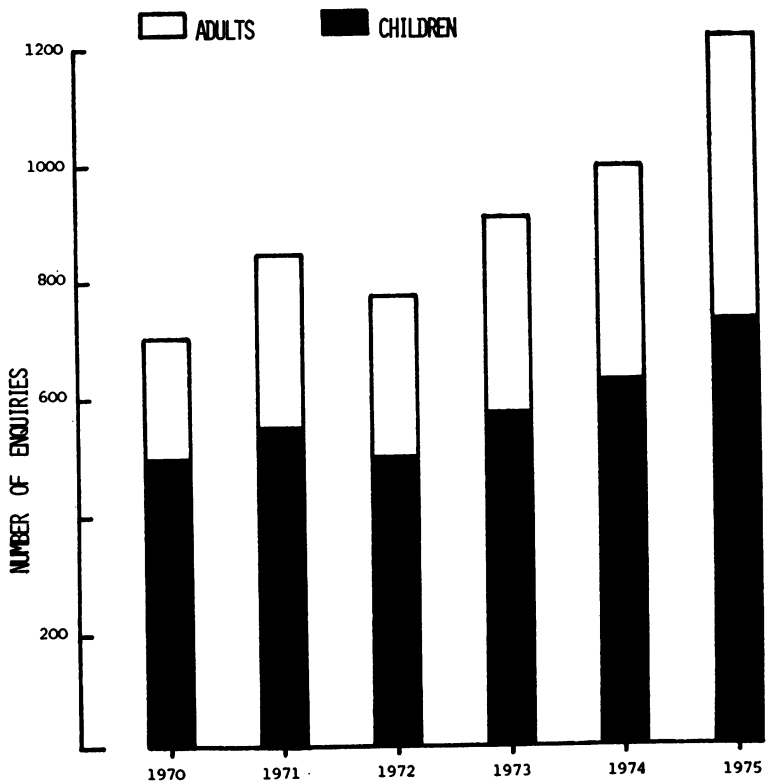


Fig. 1

In addition, special instructions about specific poisonings will be circulated to casualty departments and general practitioners from time to time. These are only sent out when IMMEDIATE ACTION is required by the doctor on the spot. Such an instruction has already been issued concerning all preparations of PARAQUAT. These instructions should be kept permanently on display in all casualty departments and the materials required for carrying them out kept immediately available.

If doctors referred to these before ringing up the Information Service, more than half their problems would be solved.

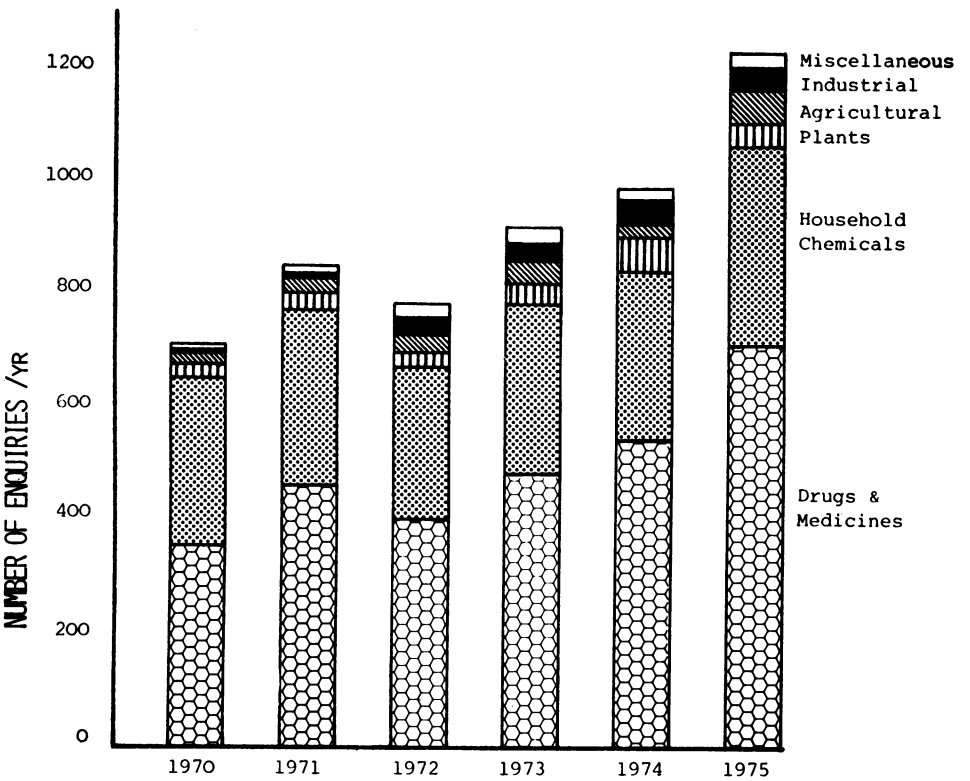


Fig. 2

The gradual increase in the number of enquiries continues as is shown in Fig. 1. It affects adults rather more than children. Although enquiries may be related to a wide variety of substances the bulk of the increase has been about chemicals used in industry and agriculture and about drugs found in the home (see Fig. 2).

Poisoning incidents from household chemicals (disinfectants, lavatory cleaners and the like) have remained constant and are almost exclusively due to the

inquisitive activities of children under the age of two years. Fortunately acutely toxic chemicals like carbolic acid have been replaced by substances which are not immediately dangerous although they may carry delayed hazards which have not been quantified. The rising number of enquiries about complex chemicals used in the factory and on the farm, and about the ever multiplying variety of drugs in the bathroom cupboard is very worrying. While the vast majority of enquiries continue to relate to trivial situations the potential for permanent harm and even death remain.

The Poisons Information Service fulfils reasonably efficiently its main function of providing up-to-date information about poisons and the treatment quickly. It is doubtful whether it can continue to do that in the face of increasing complexity of demand without resort to a more up-to-date method of storage and retrieval of information. The hospital pharmacists, the manufacturing chemists, the Health and Safety Executive and others also attempt to provide information about drugs and toxic substances but each has its short comings. Amalgamation of these systems might allow the use of a more comprehensive and versatile information and retrievable system. The second function of a poisons information service is to identify areas where information is lacking. Here again present resources are not adequate to meet further increases in load.

The third function is to identify those poisons which are giving rise to serious problems. It is necessary to have a follow up to identify which enquiries are associated with serious illness and the outcome in each case. Up to the present this has only been done in a proportion of cases and the response has been poor. Consequently it is not possible to say what proportion of poisonings were clinically significant and what proportion were fatal. This function of the information service is necessary to discover whether it is useful and what can be done to improve it. For instance when a substance is very toxic arrangements can be made for patients to be referred after certain emergency treatment to a specialised treatment centre as is done with paraquat.

TABLE 1

Children and drugs 1975

Drug	*No. of Enquiries*	*No. of Enquiries per 100,000 prescriptions*
Barbiturates	2 (1%)	1
Other sleeping tablets	13 (4%)	4
Minor tranquillisers	22 (7%)	4
Major tranquillisers	4 (1%)	3
Tricyclic antidepressants	17 (5%)	11
M.A.O. inhibitors	1 (0%)	29
Oral contraceptives	27 (8%)	7.5*
Other drugs	233 (73%)	4
TOTAL:	319 (100%)	4

*estimated

TABLE 2

Adult self-poisoning enquiries 1975

Drug	*No. of Enquiries*	*No. of Enquiries per 100,000 prescriptions*
Barbiturates	39 (9%)	26
Other sleeping tablets	50 (12%)	17
Minor tranquillisers	67 (16%)	11
Major tranquillisers	29 (7%)	23
Tricyclic antidepressants	72 (17%)	45
M.A.O. inhibitors	1 (0%)	29
Oral contraceptives	3 (1%)	1*
Other drugs	156 (37%)	3
TOTAL:	417 (100%)	5

*estimated

It has been shown in previous reports that the frequency of self poisonings with drugs is related to the frequency of prescribing. This year's figures (Tables 1 and 2) confirm the findings of previous years. They show that with two exceptions children do not discriminate but will try out any tablet. The rate at which they take tablets is approximately four times for every 100,000 prescriptions. Ignoring the figure for monoamine oxidase inhibitors which is based on only one case, the two exceptions are for the "pill" and for tricyclic antidepressants. On further investigation this last group concerned liquid preparations prescribed for children with enuresis. It might be possible to reduce this risk by making these preparations less palatable and putting a warning to parents on the container, especially as over dosage with one of these drugs has been fatal in a child in Northern Ireland. Treatment can be difficult and time consuming. The "pill" presents no immediate hazard but this figure indicates that the type of bubble pack still used in 1975 was not sufficiently child proof.

In adults self poisoning is often a symptom of depression and it is not surprising that tablets prescribed for sleeplessness, anxiety and depression are most often used because patients with depression frequently receive tablets for these symptoms. The present campaign for the reduction in the prescribing of barbiturates stems from the knowledge that there are substitutes which are less dangerous when taken in overdose. Similarly the replacement of monoamine oxidase inhibitors by tricyclic agents is a move towards a safer drug although no agent is entirely safe when taken in overdose.

The aim should be the development of a more effective Poisons Information Service run by a group of doctors concerned both with the treatment of poisoned patients and the education of other doctors and the general public.

P. C. Elmes

ECHOVIRUS TYPE 19 OUTBREAK IN NORTHERN IRELAND DURING 1974-75

J. H. CONNOLLY & H. J. O'NEILL

Department of Microbiology and Immunobiology,
Grosvenor Road, Belfast BT12 6BN.

DURING 1974-75 there was an outbreak of meningitis associated with echovirus type 19 in Northern Ireland, which was the fourth major enterovirus outbreak during the past seven years. The other outbreaks were associated with echovirus type 6 during 1968 (Connolly and O'Neill, 1970), coxsackie A9 virus during 1970 (Connolly and O'Neill, 1971) and echovirus type 4 during 1970-71 (Connolly and O'Neill, 1972).

MATERIALS AND METHODS

Patients' faeces, CSF or throat swabs were inoculated into primary rhesus monkey kidney and HEp2 cell cultures. Isolated viruses were typed with echovirus diagnostic serum pools and also with an echovirus type 19 neutralising serum. Acute and convalescent sera from patients were titrated in the overnight complement fixation test against adenoviruses, mumps, measles, herpes simplex and varicella-zoster viruses; psittacosis, *R. burneti* and *M. pneumoniae* agents.

RESULTS

In Northern Ireland during 1974-75 echovirus type 19 was isolated from 55 patients. Echovirus type 19 was isolated from the faeces of 44 patients, from the throat of 8 patients and from the CSF of 15 patients. Four of the above patients included a 20 year old woman who also had serological evidence of recent infection with herpes simplex virus and 3 males each of whom had a significantly high antibody titre to either measles, mumps or *R. burneti* which indicated infection with one of these agents in the recent past. Fifty-three patients had meningitis, a 2 year old boy had febrile convulsions and a 5 year old boy with a significantly high mumps antibody had orchitis and pancreatitis. The number of patients with echovirus type 19 infection and the month of onset of their illnesses are shown in Table 1.

TABLE 1

Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.
2	1	1	1	6	4	4	5	9	8	7	4	3

The outbreak began in October 1974 and ended in October 1975 while 24 cases (44%) occurred in June, July and August 1975, with a peak incidence during June. Twenty patients lived in Belfast. There were 35 patients distributed between Co. Antrim (15), Co. Down (11), Co. Tyrone (6), Co. Londonderry (2) and Co. Armagh (1). The clinical attack rate for Northern Ireland as a whole was 4 per 100,000 population.

The age and sex of the patients are shown in Table 2.

TABLE 2

Age in years

	1-4	5-9	10-14	15-19	20+	*Totals*
Male	2	15	4	3	13	37
Female	—	4	5	—	9	18

The youngest patient was 2 years old and the oldest 35 years old. It will be seen that twice as many males were affected as females. The 5-9 year old and 20-35 year old age groups contained the most patients and together they accounted for 75% of all cases.

There were two families where two members of each family developed meningitis associated with echovirus type 19 injection. In one family from Belfast two brothers aged 8 and 15 years had meningitis during July/August 1975 while the other family from Newry had two sisters aged 7 and 13 years who had meningitis during September 1975.

DISCUSSION

Echovirus type 19 is one of the less common enterovirus serotypes isolated but it caused an outbreak in England starting in June 1974 which continued through 1975 (Brit. med. J., 1975 a & b). The outbreak in Northern Ireland began 5 months later and lasted for one year. Echovirus type 19 was last isolated in Northern Ireland between July 1967 and November 1968 when 10 patients were diagnosed. Since the 1974-75 outbreak echovirus type 19 was isolated from a patient with meningitis in June 1976. Like the previous enterovirus outbreaks most cases occurred during the summer months. In Northern Ireland twice as many males were affected as females which was also reported in the outbreak in England (Brit. med. J., 1975a). However, in England many patients were under one year of age. There were no patients under 1 year of age diagnosed in Northern Ireland but we isolated echovirus type 19 from three children (aged 2 months, 4 months and 1 year) with meningitis from the Republic of Ireland. The patients investigated in this study were in hospital and represent the more serious complications such as meningitis. Mild or asymptomatic infections are probably much commoner but were not investigated.

The patients were widely distributed throughout Northern Ireland. The enteroviruses spread by person to person oral transfer of human faeces or from the respiratory tract and this was shown in the two families where two children in each family had meningitis. Also a 26 year old male laboratory technician who worked with patients' specimens developed severe headache, photophobia, vomiting and chest pain and echovirus type 19 was isolated from his faeces.

SUMMARY

In Northern Ireland 55 patients were shown to be infected with echovirus type 19 between October 1974 and October 1975. The peak incidence was in June 1975 and male children were predominently affected. The patients were widely distributed throughout Northern Ireland. Fifty-three patients had meningitis and there were two families where 2 children in each family had meningitis.

We thank Dr. D. A. Canavan and Dr. F. L. Robinson for data on some of the meningitis patients who were under their care at Belvoir Park Hospital; and Dr. C. M. P. Bradstreet of the Standards Laboratory for Serological Reagents, Central Public Health Laboratory, London for supplying antigens and antisera.

REFERENCES

BRITISH MEDICAL JOURNAL (1975a), *2*, 346.

BRITISH MEDICAL JOURNAL (1975b), *3*, 50.

CONNOLLY, J. H. & O'NEILL, H. J. (1970). Ulster Medical Journal, *39*, 43.

CONNOLLY, J. H. & O'NEILL, H. J. (1971). Ulster Medical Journal, *40*, 146.

CONNOLLY, J. H. & O'NEILL, H. J. (1972). Ulster Medical Journal, *41*, 155.

ULSTER MEDICAL SOCIETY

QUESTIONNAIRE*

In the autumn of 1975, a questionnaire was compiled by the Council and circulated to all members. While replies were anonymous a member was asked to give his age group, the distance he lived from the Medical Biology Centre, Belfast, and his branch of medicine, and then his opinions on the time and content of meetings, the annual dinner, the role of the Society, the Ulster Medical Journal and for any further comments or views.

159 questionnaires were answered and the results are summarised below:—

Age groups:	25—39	40—49	50—59	60 and over	Total
	24 (15%)	49 (31%)	50 (31%)	36 (23%)	159

Strikingly few members of the Society replying are in the 25—39 age group, 15% as against a prediction of over 40%.

Distance from Medical Biology Centre

Forty-nine per cent of members replying live within 5 miles and thirty per cent come from more than 10 miles.

Branch of Medicine

Community Medicine or Administration	*General Practice*	*Hospital Practice*	*Laboratory Medicine*	*Academic*
5	34 (21%)	92 (59%)	12	16

Note the high proportion of members in hospital practice.

Time

Forty per cent of the poll requested an earlier time, though there was no agreement on whether this should be 5 p.m. or 8 p.m. nor whether this should be sometimes or always.

Of those who lived more than 10 miles away, 45% requested an earlier time.

Content of meeting:	*Satisfied*	*Not satisfied*	*No comment*	*Total*
General content	135	10	14	159
More symposia	78	59	22	
Programme Committee	71	55	33	
Meetings of general interest	74	62	23	
Buffet meal before	108	37	14	

Despite the high level of satisfaction, clearly many are in favour of the proposals suggested. A buffet-style meal before some of the meetings was the most popular idea. There is no marked correlation between persons who favoured one item and persons who favoured another.

* Council and Editors are grateful to Dr. Craig Martin (currently Senior Registrar, Radiotherapy Department, Mount Vernon Hospital, Northwood, Middlesex) for analysing the results.

Annual Dinner:	*Yes*	*No*	*No comment*	*Total*
Satisfactory	76	45	38	159
Shorter speeches and entertainment	28	23	108	159
Buffet-style meal	51	22	86	159

Little desire for change. A buffet-style meal was a popular idea but perhaps less so than might have been expected. "Entertainment" seemed to put off many people, most perhaps objecting to the choice of word; and many stressed that they would not be averse to shorter speeches on their own.

Role of Society

Here a ninety-five per cent poll gave a clear mandate with ninety-four per cent wishing to retain independent status.

There was strong opposition to the idea of forming an Academy of Medicine.

Ulster Medical Journal

	Yes	*No*	*No comment*	*Total*
Satisfied	112	30	17	159
Review articles	41	19	99	159
Research papers	55	20	84	159
Editorials	52	13	94	159

Here again, despite the high level of satisfaction, many were agreeable to change. 78 persons were in favour of some or all of the suggested items, but with very poor correlation, and the impossibility of pleasing everyone is stressed.

General remarks

There were several comments on the lack of younger members and some felt that fork suppers at meetings might encourage some of these to attend. One wrote that "Chiefs should encourage their Registrars to attend".

Some wished for meetings at other venues, such as West of the Bann, or combined with other medical societies, e.g. N. Ireland rural medical societies or West of Scotland medical societies.

As to the content of meetings, there were requests for clinical presentations but these were perhaps "balanced" by those who felt that there already were other societies more specifically geared towards such presentations; some wished to have research papers on original work.

Many wrote that they would like to see the occasional meeting on a topic of general non-medical interest, perhaps with a guest speaker, at which wives and husbands would feel welcome. One suggested an annual outing, e.g. to an exhibition or historical house; another suggested a two-day meeting at Slieve Donard for both medicine and golf; others wanted films on medicine or travel; talks on or displays of "Old Silver"; many felt the need to exercise restraint here.

On the *Journal,* there were several requests for editorials and for correspondence; and for topics of current awareness such as private practice or the J.H.O.'s strike.

On the *Dinner,* few had strong feelings, though one wanted a less "po-faced" dinner.

On the *Role of the Society,* some felt that the U.M.S. could be in the unique position to speak to the Department of Health, but others felt that it was best kept apolitical.

Several said that the questionnaire itself was a good one.

Many felt that the Ulster Medical Society plays a significant role in Ulster medical life and that its traditions should be interfered with as little as possible.

BOOK REVIEWS

MULTIPLE CHOICE (OBJECTIVE) QUESTIONS IN PHARMACOLOGY

By Roger A. Lewis. (Pp. 143; £2.20). London: Bailliere Tindell. 1976.

THIS is a useful little book which contains a variety of multiple choice questions relating to both pharmacology and therapeutics. The author also includes comments both for examiners and potential students on the advantages and limitations of the various ways in which questions of this type may be phrased.

The questions are divided up into groups by systems or diseases, and within each group five different types of test are presented. Medical students (certainly local ones) might have difficulty using the book, as the level of pharmacological information required is often greater than that expected of them, and selective use is not possible. However, it should provide a stimulus to teachers to consider the application of more variable multiple choice question techniques to examinations in this subject.

D.G.McD.

A HANDBOOK OF TREATMENT. Edited by H. W. Proctor and P. S. Byrne.

(Pp. X + 434. Illustrated. £9.95). MTP Press, Lancaster, Lancs. 1976.

THIS book attempts to provide general physicians with a conveniently sized work for daily reference. It is divided into three main sections—therapy of common diseases, drugs in current use and then selected aspects of therapy, including such subjects as common emergencies, pain and terminal care, and contraception. Inevitably, a book of this type is trying to condense information as much as possible in order to keep the size within reasonable proportions. The result is 433 pages long and this modest size sometimes produces frustration in the area of individual subjects about which advice is being sought. In fact, I would think in most instances where general physicians are consulting the literature about therapy, they are seeking very specific information and require more detailed appraisal of the topic than is possible here. Their source will be monographs, review articles or a textbook of pharmacology.

However, assuming that broad guidelines in general areas of treatment are used by some, this book appears to be reasonably comprehensive and it is useful that it considers drugs as well as diseases. The difficulty is that information about a specific drug or treatment may appear in various places and it may be necessary to read them all to get a complete picture. It may also be useful as a reference book for the medical student or postgraduate student who wants a broad view of treatment in a particular area. I am not convinced that in a book of this type with a premium on space, the use of 120 pages to discuss selected aspects of therapy is a good idea. The extra space would have been more advantageously utilised in expanding the general views of therapy in the earlier chapters. The chapter on prospects in medical treatment was neither perspicacious nor helpful.

The price is comparable to Dunlop's Textbook of Medical Treatment and the differences between these two books may be largely a matter of individual preference.

D.G.McD.

BOOK REVIEWS

MULTIPLE CHOICE (OBJECTIVE) QUESTIONS IN PHARMACOLOGY

By Roger A. Lewis. (Pp. 143; £2.20). London: Bailliere Tindell. 1976.

THIS is a useful little book which contains a variety of multiple choice questions relating to both pharmacology and therapeutics. The author also includes comments both for examiners and potential students on the advantages and limitations of the various ways in which questions of this type may be phrased.

The questions are divided up into groups by systems or diseases, and within each group five different types of test are presented. Medical students (certainly local ones) might have difficulty using the book, as the level of pharmacological information required is often greater than that expected of them, and selective use is not possible. However, it should provide a stimulus to teachers to consider the application of more variable multiple choice question techniques to examinations in this subject.

D.G.McD.

A HANDBOOK OF TREATMENT. Edited by H. W. Proctor and P. S. Byrne.

(Pp. X + 434. Illustrated. £9.95). MTP Press, Lancaster, Lancs. 1976.

THIS book attempts to provide general physicians with a conveniently sized work for daily reference. It is divided into three main sections—therapy of common diseases, drugs in current use and then selected aspects of therapy, including such subjects as common emergencies, pain and terminal care, and contraception. Inevitably, a book of this type is trying to condense information as much as possible in order to keep the size within reasonable proportions. The result is 433 pages long and this modest size sometimes produces frustration in the area of individual subjects about which advice is being sought. In fact, I would think in most instances where general physicians are consulting the literature about therapy, they are seeking very specific information and require more detailed appraisal of the topic than is possible here. Their source will be monographs, review articles or a textbook of pharmacology.

However, assuming that broad guidelines in general areas of treatment are used by some, this book appears to be reasonably comprehensive and it is useful that it considers drugs as well as diseases. The difficulty is that information about a specific drug or treatment may appear in various places and it may be necessary to read them all to get a complete picture. It may also be useful as a reference book for the medical student or postgraduate student who wants a broad view of treatment in a particular area. I am not convinced that in a book of this type with a premium on space, the use of 120 pages to discuss selected aspects of therapy is a good idea. The extra space would have been more advantageously utilised in expanding the general views of therapy in the earlier chapters. The chapter on prospects in medical treatment was neither perspicacious nor helpful.

The price is comparable to Dunlop's Textbook of Medical Treatment and the differences between these two books may be largely a matter of individual preference.

D.G.McD.

TRENDS IN HAEMATOLOGY. J. B. Chatterjea Memorial Volume. Edited by N. N. Sen and A. K. Basu. (Pp. 506. Illustrated. $60.00). Calcutta: K. P. Bagchi & Co., 286 B.B. Gànguli St., Calcutta 12. For J. B. Chatterjea Memorial Committee. 1975.

THIS book is a memorial to Dr. J. B. Chatterjea who died in 1972. Dr. Chatterjea was Professor of Haematology at the Calcutta School of Tropical Medicine and well known to all haematologists. His bibliography of 372 references listed in the volume attests to the many significant contributions he made to the subject.

Trends in Haematology contains review articles on selected topics by distinguished authors. The 25 subjects covered are wide-ranging and embrace clinical haematology, genetics, immunology and cytochemistry. Dr. Rosemary Briggs outlines the development of the present day theory of blood coagulation, Professor Herbert gives an excellent description of folic acid and vitamin B_{12} metabolism and Dr. Mathè and his colleagues an interesting account of the results of immunotherapy in acute lymphoid leukaemia. Other chapters deal with fibrinolysis, the porphyrias and the preservation of blood. The editors have managed to instil a distinctively Indian flavour into the book by including chapters on the effect of snake venoms on haemostasis, abnormal haemoglobins in India and an account by Dr. Beutler of glucose-6-phosphate dehydrogenase deficiency due to a new enzyme variant in an Indian subject. Eash article is well endowed with references which are given at the end of the chapter.

Although this book is certainly of value to haematologists and of interest to those studying for higher examinations it is unfortunately severely handicapped by its price. It is doubtful if many will consider it worth such a sum and its main home is likely to be in libraries.

J.H.R.

SELECTED TOPICS IN CLINICAL BACTERIOLOGY. Edited by J. de Louvois. (Pp. 262; figures 21. £6.50). London: Bailliere Tindell. 1976.

OF the eight chapters in this book only one, "Advances on Bacterial Taxonomy", seems out of context with the title. The thoroughness with which the chapters have been prepared is reflected in the fact that in 256 pages of text the reference lists occupy no less than 43 pages.

Reviews of such volumes must reflect the interest of the reviewer but without bias; thus I would suggest that the chapter "Bacteroides Infections: Diagnosis and Treatment" should be read by clinicians as well as microbiologists. Similarly "The Viridans Streptococci" contribution should stimulate even further the re-awakened interest in this largely neglected group of bacteria and the chapter "Assay of Antimicrobial Agents" should be compulsory reading for all practising clinical bacteriologists and their technical colleagues.

There are few errors (? of editing) e.g., in Table 1.2 (p. 7) where the percentage at the top of the centre column should read 75 and not 7; on p. 139 (1st line) the table reference is to p. 156 and not 126 as stated. There are several typographical errors including transpositions.

In these days of escalating book (and other) prices the volume is attractive and can be recommended.

R.R.G.

TRENDS IN HAEMATOLOGY. J. B. Chatterjea Memorial Volume. Edited by N. N. Sen and A. K. Basu. (Pp. 506. Illustrated. $60.00). Calcutta: K. P. Bagchi & Co., 286 B.B. Gànguli St., Calcutta 12. For J. B. Chatterjea Memorial Committee. 1975.

THIS book is a memorial to Dr. J. B. Chatterjea who died in 1972. Dr. Chatterjea was Professor of Haematology at the Calcutta School of Tropical Medicine and well known to all haematologists. His bibliography of 372 references listed in the volume attests to the many significant contributions he made to the subject.

Trends in Haematology contains review articles on selected topics by distinguished authors. The 25 subjects covered are wide-ranging and embrace clinical haematology, genetics, immunology and cytochemistry. Dr. Rosemary Briggs outlines the development of the present day theory of blood coagulation, Professor Herbert gives an excellent description of folic acid and vitamin B_{12} metabolism and Dr. Mathè and his colleagues an interesting account of the results of immunotherapy in acute lymphoid leukaemia. Other chapters deal with fibrinolysis, the porphyrias and the preservation of blood. The editors have managed to instil a distinctively Indian flavour into the book by including chapters on the effect of snake venoms on haemostasis, abnormal haemoglobins in India and an account by Dr. Beutler of glucose-6-phosphate dehydrogenase deficiency due to a new enzyme variant in an Indian subject. Eash article is well endowed with references which are given at the end of the chapter.

Although this book is certainly of value to haematologists and of interest to those studying for higher examinations it is unfortunately severely handicapped by its price. It is doubtful if many will consider it worth such a sum and its main home is likely to be in libraries.

J.H.R.

SELECTED TOPICS IN CLINICAL BACTERIOLOGY. Edited by J. de Louvois. (Pp. 262; figures 21. £6.50). London: Bailliere Tindell. 1976.

OF the eight chapters in this book only one, "Advances on Bacterial Taxonomy", seems out of context with the title. The thoroughness with which the chapters have been prepared is reflected in the fact that in 256 pages of text the reference lists occupy no less than 43 pages.

Reviews of such volumes must reflect the interest of the reviewer but without bias; thus I would suggest that the chapter "Bacteroides Infections: Diagnosis and Treatment" should be read by clinicians as well as microbiologists. Similarly "The Viridans Streptococci" contribution should stimulate even further the re-awakened interest in this largely neglected group of bacteria and the chapter "Assay of Antimicrobial Agents" should be compulsory reading for all practising clinical bacteriologists and their technical colleagues.

There are few errors (? of editing) e.g., in Table 1.2 (p. 7) where the percentage at the top of the centre column should read 75 and not 7; on p. 139 (1st line) the table reference is to p. 156 and not 126 as stated. There are several typographical errors including transpositions.

In these days of escalating book (and other) prices the volume is attractive and can be recommended.

R.R.G.

EXERCISE IN WATER—SECOND EDITION. Edited by M. H. Duffield. (Pp. 135; figures 50. £2.50). London: Bailliere Tindell. 1976.

THIS book is a well-illustrated, comprehensive and descriptive guide to hydrotherapy. It should prove invaluable to both students of physiotherapy and qualified staff as a reference to treatments in water. It should also be an excellent guideline to the initial stages of planning a hydrotherapy pool for a physiotherapy department.

E.McK.

CUNNINGHAM'S MANUAL OF PRACTICAL ANATOMY, Vol. 1, Upper and Lower Limbs. By G. J. Romanes. Fourteenth Edition (Pp. 218, 226 illus., £3.00). London: Oxford University Press. 1976.

A CHANGE in the format of this long-established text signifies an intention to make the Manual "adequate in itself as a textbook of gross anatomy for the medical curriculum" (to quote the Preface) and to suit the reduced time available for study of the subject. The pages have been increased in size and reduced in number, and the excellent figures, many of which use colour, have been increased in number. The text has been rewritten. It is less wordy than formerly, without loss of content. The clear typography is enlivened by bold type effectively used. The principal new feature is the provision of tables summarising the attachments and actions of muscles, the muscles contributing to particular movements, with their innervations, and the motor distribution of peripheral nerves, with effects of paralysis. Bones are described in this edition as well as figured. The figures of bones and of muscle attachments to them are repeated, for easy reference, at the end of the volume. This edition of "Cunningham's Manual" invites comparison with the best of the one-volume texts, which may be similar in content but generally require simultaneous use of an atlas for clarity. The Manual of course retains its dissecting instructions, which make few concessions to the reduction in time for the subject. As a textbook, Vol. 1 succeeds in its intention, quoted above. Volumes 2 and 3 are awaited with interest.

J.W.C.

OTHER SEXUALLY TRANSMITTED DISEASES by C. S. Nichol (24 Colour Slides. £8.50) London: Bailliere Tindell. 1976.

THIS set of slides completes another set of common lesions published 3 years ago. The previous set showed lesions found in syphilis, gonorrhoea and chancroid. This group of 24 slides included nonspecific urethritis, Reiter's disease, Trichomoniasis, Candidiasis, scabies and pediculosis.

The slides are well presented and definition excellent. Some of the conditions shown are not often seen in clinical practice such as granuloma inguinale. The collection is, therefore, suitable for teaching.

T.H.

EXERCISE IN WATER—SECOND EDITION. Edited by M. H. Duffield. (Pp. 135; figures 50. £2.50). London: Bailliere Tindell. 1976.

THIS book is a well-illustrated, comprehensive and descriptive guide to hydrotherapy. It should prove invaluable to both students of physiotherapy and qualified staff as a reference to treatments in water. It should also be an excellent guideline to the initial stages of planning a hydrotherapy pool for a physiotherapy department.

E.McK.

CUNNINGHAM'S MANUAL OF PRACTICAL ANATOMY, Vol. 1, Upper and Lower Limbs. By G. J. Romanes. Fourteenth Edition (Pp. 218, 226 illus., £3.00). London: Oxford University Press. 1976.

A CHANGE in the format of this long-established text signifies an intention to make the Manual "adequate in itself as a textbook of gross anatomy for the medical curriculum" (to quote the Preface) and to suit the reduced time available for study of the subject. The pages have been increased in size and reduced in number, and the excellent figures, many of which use colour, have been increased in number. The text has been rewritten. It is less wordy than formerly, without loss of content. The clear typography is enlivened by bold type effectively used. The principal new feature is the provision of tables summarising the attachments and actions of muscles, the muscles contributing to particular movements, with their innervations, and the motor distribution of peripheral nerves, with effects of paralysis. Bones are described in this edition as well as figured. The figures of bones and of muscle attachments to them are repeated, for easy reference, at the end of the volume. This edition of "Cunningham's Manual" invites comparison with the best of the one-volume texts, which may be similar in content but generally require simultaneous use of an atlas for clarity. The Manual of course retains its dissecting instructions, which make few concessions to the reduction in time for the subject. As a textbook, Vol. 1 succeeds in its intention, quoted above. Volumes 2 and 3 are awaited with interest.

J.W.C.

OTHER SEXUALLY TRANSMITTED DISEASES by C. S. Nichol (24 Colour Slides. £8.50) London: Bailliere Tindell. 1976.

THIS set of slides completes another set of common lesions published 3 years ago. The previous set showed lesions found in syphilis, gonorrhoea and chancroid. This group of 24 slides included nonspecific urethritis, Reiter's disease, Trichomoniasis, Candidiasis, scabies and pediculosis.

The slides are well presented and definition excellent. Some of the conditions shown are not often seen in clinical practice such as granuloma inguinale. The collection is, therefore, suitable for teaching.

T.H.

EXERCISE IN WATER—SECOND EDITION. Edited by M. H. Duffield. (Pp. 135; figures 50. £2.50). London: Bailliere Tindell. 1976.

THIS book is a well-illustrated, comprehensive and descriptive guide to hydrotherapy. It should prove invaluable to both students of physiotherapy and qualified staff as a reference to treatments in water. It should also be an excellent guideline to the initial stages of planning a hydrotherapy pool for a physiotherapy department.

E.McK.

CUNNINGHAM'S MANUAL OF PRACTICAL ANATOMY, Vol. 1, Upper and Lower Limbs. By G. J. Romanes. Fourteenth Edition (Pp. 218, 226 illus., £3.00). London: Oxford University Press. 1976.

A CHANGE in the format of this long-established text signifies an intention to make the Manual "adequate in itself as a textbook of gross anatomy for the medical curriculum" (to quote the Preface) and to suit the reduced time available for study of the subject. The pages have been increased in size and reduced in number, and the excellent figures, many of which use colour, have been increased in number. The text has been rewritten. It is less wordy than formerly, without loss of content. The clear typography is enlivened by bold type effectively used. The principal new feature is the provision of tables summarising the attachments and actions of muscles, the muscles contributing to particular movements, with their innervations, and the motor distribution of peripheral nerves, with effects of paralysis. Bones are described in this edition as well as figured. The figures of bones and of muscle attachments to them are repeated, for easy reference, at the end of the volume. This edition of "Cunningham's Manual" invites comparison with the best of the one-volume texts, which may be similar in content but generally require simultaneous use of an atlas for clarity. The Manual of course retains its dissecting instructions, which make few concessions to the reduction in time for the subject. As a textbook, Vol. 1 succeeds in its intention, quoted above. Volumes 2 and 3 are awaited with interest.

J.W.C.

OTHER SEXUALLY TRANSMITTED DISEASES by C. S. Nichol (24 Colour Slides. £8.50) London: Bailliere Tindell. 1976.

THIS set of slides completes another set of common lesions published 3 years ago. The previous set showed lesions found in syphilis, gonorrhoea and chancroid. This group of 24 slides included nonspecific urethritis, Reiter's disease, Trichomoniasis, Candidiasis, scabies and pediculosis.

The slides are well presented and definition excellent. Some of the conditions shown are not often seen in clinical practice such as granuloma inguinale. The collection is, therefore, suitable for teaching.

T.H.

A SHORT TEXTBOOK OF PAEDIATRICS by Pincus Catzel, (Hardback £6.25, Paperback £3.45). London: Hodder & Stoughton, 1976.

One's first reaction in receiving this book to review was that here is yet another textbook of general paediatrics. Having said this however, one is bound to say that Dr. Catzel has written a textbook for both students and paediatricians in training which soundly and comprehensively surveys the range of knowledge in the areas of child health and paediatrics. The author gives due prominence to the common disorders of childhood not forgetting unusual conditions which have important lessons to teach.

The book is written in an easy readable style, punctuated here and there with the author's personal views of the topics being discussed. It is illustrated with simple line drawings which generally demonstrate their points more satisfactorily than clinical photographs. Each of the 23 chapters are concluded with a list of references for those interested in persuing the subject further. There is a table for converting conventional biochemical data to S.I. units and the work is concluded with a comprehensive 18-page index.

This textbook is to be commended to the undergraduate and early postgraduate student who alike will find it both comprehensive and easy to assimilate. The paperback edition must be good value for money.

J.F.T.G.

EMERGENCY AND ACUTE CARE by A. J. Harding Rains, K. W. Reynolds, Valerie Hunt (Boards £3.95 and Unibook £1.95), London: Hodder and Stoughton. 1976.

THIS book starts from the assumption that most emergencies require a team which will include doctors, nurses and ancillary workers, and that all of them need to be able to understand thoroughly the nature of the emergency and the rationals of treatment. It is written primarily for the nurses, but with the suggestion that ancillary workers and doctors may find it equally useful. While I thoroughly agree in the importance of the whole team being well educated, I feel that the best books are written for a clearly defined readership with a specific aim. The chapters on making a diagnosis seem somewhat confused to me. Because of the simple language one feels that they are intended for nurses. But whether they are meant to help the nurse to understand what the doctors are doing, or are suggesting that she herself should take a history and make an examination is not clear.

Once the book moves on into details of treatments, and examples of emergencies affecting various systems, it becomes much more lucid. There is a lot of information in a small compass. The diagrams are clear and helpful.

If the authors are looking for things which could be omitted from the next edition, I would suggest the paragraph on Smallpox, which appears in a section entitled "Examples of effects of specific bacterial toxins". With under a dozen cases of Smallpox left in the world, it does not seem an essential part of the training about nursing emergencies.

This is a small quibble. By and large it is an excellent book for nurses and paramedicals.

W.H.R.

A SHORT TEXTBOOK OF PAEDIATRICS by Pincus Catzel, (Hardback £6.25, Paperback £3.45). London: Hodder & Stoughton, 1976.

One's first reaction in receiving this book to review was that here is yet another textbook of general paediatrics. Having said this however, one is bound to say that Dr. Catzel has written a textbook for both students and paediatricians in training which soundly and comprehensively surveys the range of knowledge in the areas of child health and paediatrics. The author gives due prominence to the common disorders of childhood not forgetting unusual conditions which have important lessons to teach.

The book is written in an easy readable style, punctuated here and there with the author's personal views of the topics being discussed. It is illustrated with simple line drawings which generally demonstrate their points more satisfactorily than clinical photographs. Each of the 23 chapters are concluded with a list of references for those interested in persuing the subject further. There is a table for converting conventional biochemical data to S.I. units and the work is concluded with a comprehensive 18-page index.

This textbook is to be commended to the undergraduate and early postgraduate student who alike will find it both comprehensive and easy to assimilate. The paperback edition must be good value for money.

J.F.T.G.

EMERGENCY AND ACUTE CARE by A. J. Harding Rains, K. W. Reynolds, Valerie Hunt (Boards £3.95 and Unibook £1.95), London: Hodder and Stoughton. 1976.

THIS book starts from the assumption that most emergencies require a team which will include doctors, nurses and ancillary workers, and that all of them need to be able to understand thoroughly the nature of the emergency and the rationals of treatment. It is written primarily for the nurses, but with the suggestion that ancillary workers and doctors may find it equally useful. While I thoroughly agree in the importance of the whole team being well educated, I feel that the best books are written for a clearly defined readership with a specific aim. The chapters on making a diagnosis seem somewhat confused to me. Because of the simple language one feels that they are intended for nurses. But whether they are meant to help the nurse to understand what the doctors are doing, or are suggesting that she herself should take a history and make an examination is not clear.

Once the book moves on into details of treatments, and examples of emergencies affecting various systems, it becomes much more lucid. There is a lot of information in a small compass. The diagrams are clear and helpful.

If the authors are looking for things which could be omitted from the next edition, I would suggest the paragraph on Smallpox, which appears in a section entitled "Examples of effects of specific bacterial toxins". With under a dozen cases of Smallpox left in the world, it does not seem an essential part of the training about nursing emergencies.

This is a small quibble. By and large it is an excellent book for nurses and paramedicals.

W.H.R.

TWO CENTURIES OF AMERICAN MEDICINE 1776-1976 by James Bordley, III, M.D. and A. McGehee Harvey, M.D. (xv + 844: figures 171. £16.25). Philadelphia, London, Toronto: Saunders, 1976.

THIS book succeeds in its aim of relating to both physician and layman the extraordinary advances in medical education and in prevention of diseases over the two hundred years of independence of the United States. It well shows how the country progressed from a follower to a leader in medical education and medical research.

The work is well organised into three sections covering the first century, the period of scientific advance 1876-1946 and the period of explosive growth 1946-1976. In the first section there is a selective account of medical education and practice and of hygiene and hospitals and of the conflicts and stresses in a country where varied standards prevailed. In the period of scientific advance the development of medical education, the foundation of the great teaching centres and especially Johns Hopkins, and the impact of the Flexner report are all well presented. This is followed by an organised survey of medical research presented in terms that a layman could understand. In these and in chapters on hospitals and medical practice mention is made of nearly all the notable events and figures of American medicine up to 1946. In the period of explosive growth there is less about education and more about government involvement. Advances are described under such headings as modern drugs, cardio-vascular diseases, enzymes and hormones, genetics, immunology, cancer and the neurosciences. Of course the emphasis is on the American contribution, but in general it is fair. All in all it is a fascinating account of the growth of modern medicine and a worthy tribute to the bicentennial year.

J.E.M.