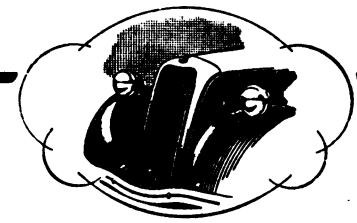
OCTOBER, 1938

THE ULSTER MEDICAL JOURNAL

PUBLISHED BY
THE ULSTER MEDICAL SOCIETY



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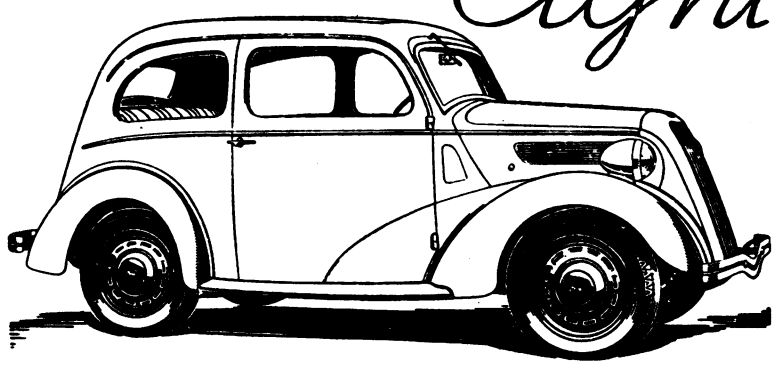

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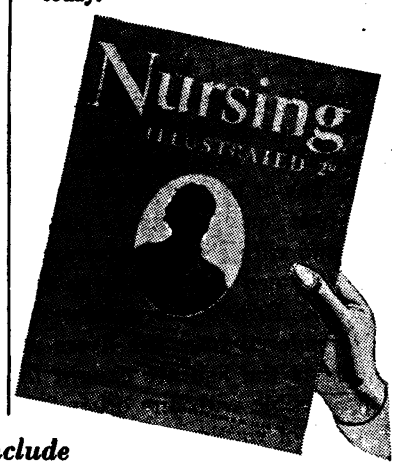

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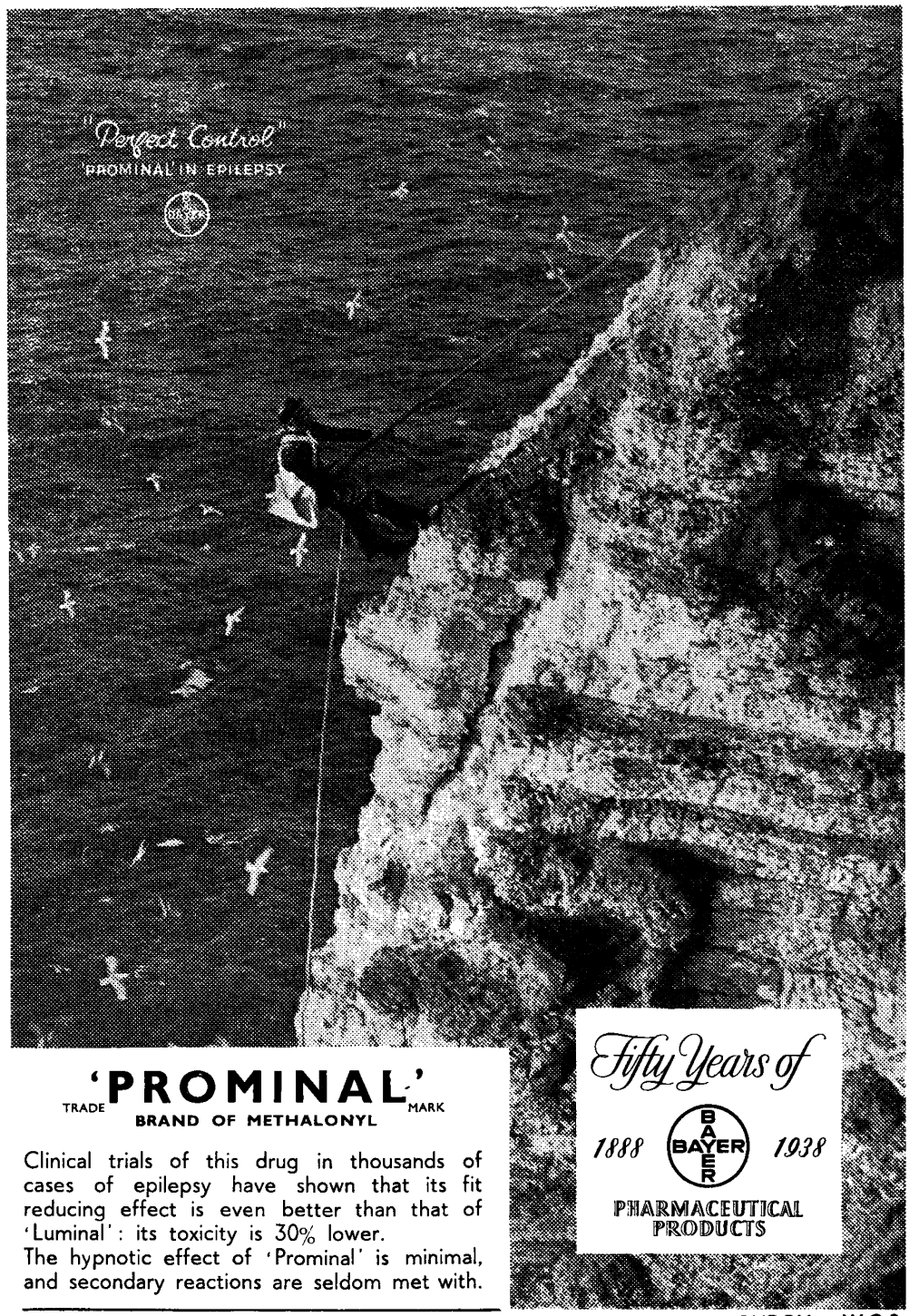

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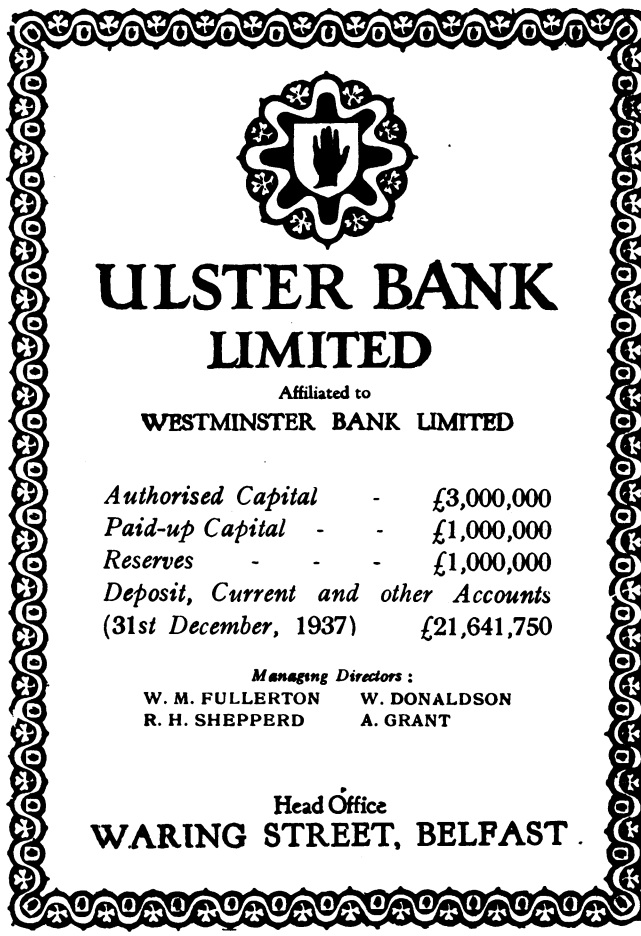

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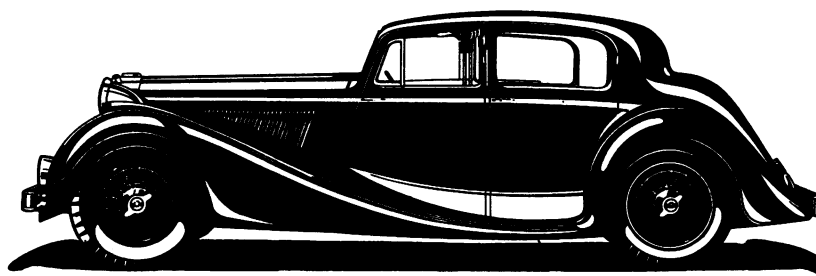

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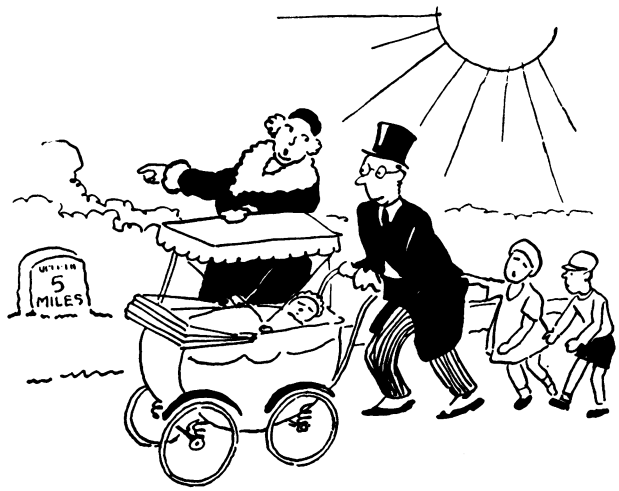

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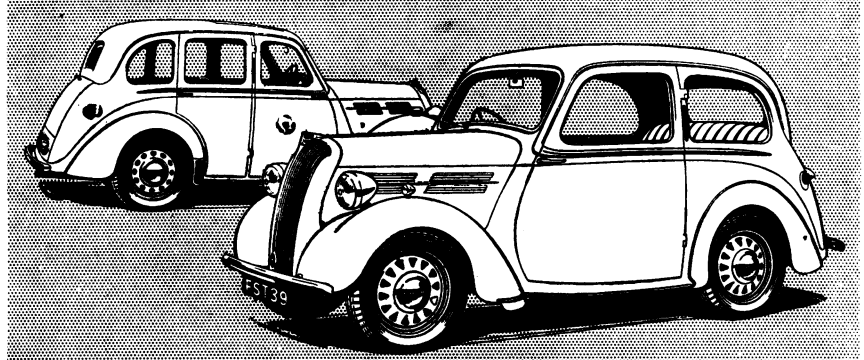

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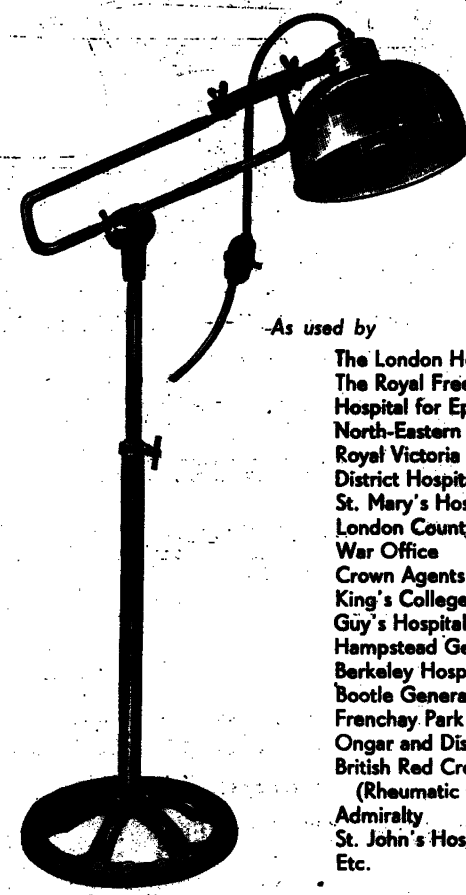

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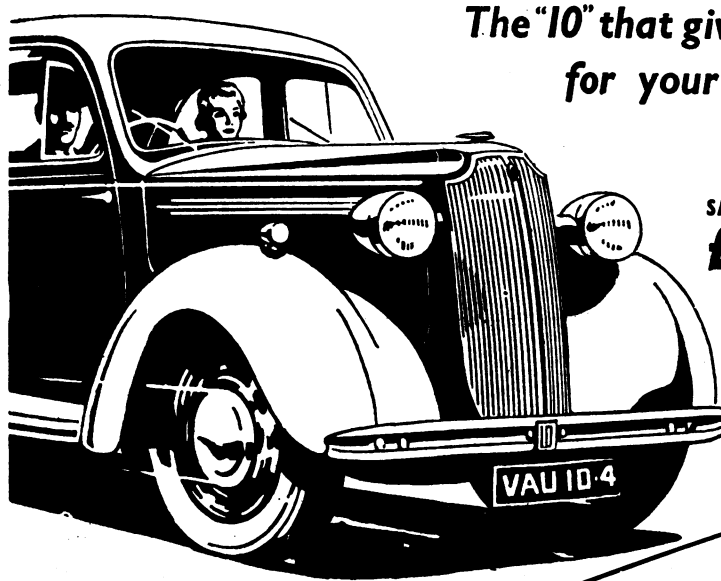

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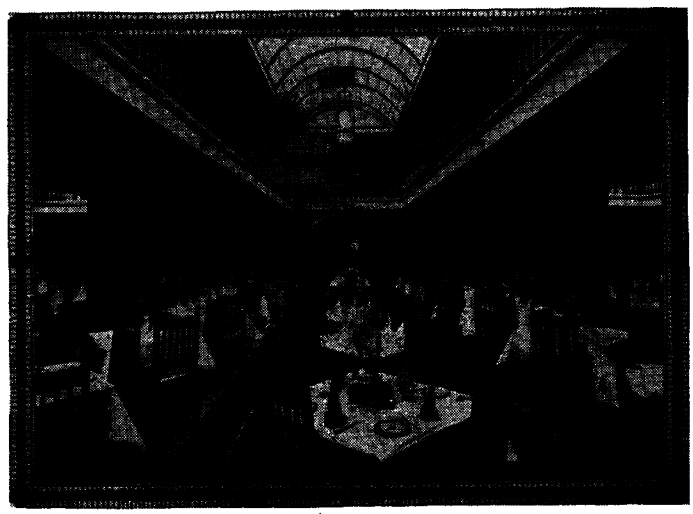

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WARDELL v. KENT COUNTY COUNCIL

In recent court proceedings — Wardell v. Kent County Council —the statement was made that a tin of Antiphlogistine had exploded.

As the case has aroused a good deal of interest and some comment, we should like to call attention to a letter from the Clerk to the Kent County Council.

ADMINISTRATION OF THE COUNTY OF KENT

SESSIONS HOUSE,
MAIDSTONE,
2nd August, 1938

Dear Sirs,

With reference to your letter of the 22nd ultimo, you will appreciate that the County Council does not accept responsibility for the statements made in the press reports regarding the above case.

I would say, however, that the article being handled by Miss Wardell at the time of the incident which formed the basis of her claim against the Council was not manufactured by the Denver Chemical Manufacturing Company.

Yours faithfully,

(Signed) W. L. PLATTS,
Clerk of the County Council.

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CONTENTS

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THE ULSTER MEDICAL JOURNAL

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A Ministry of Health for Northern Ireland

By LEONARD KIDD, M.D.

A paper read before the Ulster Branch of the British Medical Association, Belfast, March, 1938

REVIEWING the numerous enactments passed during the gradual evolution of our present system of public health administration, one is struck by the multiplicity of authorities, both central and local.

(*a*) *Central.*—The Minister of Labour is responsible for the health of about 417,000 "insured persons" between 16 and 65 years of age, rather more than one-third of the total population.

The Minister of Education is responsible for the medical inspection and care of school children.

The Minister of Home Affairs is responsible for the remaining public health matters, hospitals, Poor Law medical services, etc., and apparently something like one-sixth of the total population comes within these services.

(*b*) *Local.*—In addition to the two Borough Councils of Belfast and Londonderry, there are thirty-one Urban and thirty-two Rural Council, Public Health, and Sanitary authorities; a total of sixty-five authorities for a population of a million and a quarter, which is less than the population of the City of Glasgow.

Another impressive character of our public health administration is the permissive character of all the old Public Health Acts, e.g., The Infectious Diseases Notification Act of 1889 has been adopted by all the authorities except one; *it costs nothing to notify.*

On the other hand, the Infectious Diseases Act of 1890 has been adopted only by nineteen of the thirty-two rural and thirteen of the thirty-one urban councils; *the adoption of this act costs money to provide preventive measures.*

The overlapping of the various acts is another strange anomaly :—

(*a*) In domiciliary treatment of disease, it is possible under existing circumstances for three or more doctors, in the employment of the local authorities, to be in attendance at the same time on patients living in the same house.

(*b*) In institutional treatment, hospital accommodation may be provided by Boards of Guardians, District Councils, and County Councils.

The County Councils are not public health authorities except for certain purposes, such as the maintenance of county infirmaries, mental hospitals, tuberculosis and veneral disease services, maternity and child welfare, and the supervision of midwives.

The Boards of Guardians, whose personnel is practically the same as that of the District Councils, are neither sanitary nor public health authorities, yet they afford both indoor and outdoor medical relief; they pay and appoint the dispensary medical officers and district midwives; they manage the Union Hospitals, and also the District Hospitals by a separate board of governors chiefly elected from their own number; they appoint the local registrar of births and deaths, and the public vaccinator. It was not until 1934 that the Guardians were given power to send patients (who were not resident in the Union) "afield" for special treatment; before this date they had to apply to the District Council for this service.

Tuberculosis Service.

The adoption of the Tuberculosis Prevention Act, 1908, was at first permissive. After its adoption it applied to any Urban or Rural Sanitary District; in 1934 its adoption was made mandatory; under this Act notification of tuberculosis in "any prescribed circumstances," "of any prescribed form," "in any prescribed stage," is mandatory, but no forms of tuberculosis were to be so "prescribed" "save such as by reason of infective discharge are liable to communicate the disease to other persons."

Surely such "prescriptions" are out of date!—cases with "infective discharge" are advanced cases of established disease, while owing to the above restriction early curable cases may escape notification. In Scotland tuberculosis cases of *all kinds* must be notified as soon as diagnosed.

The provisions with regard to disinfection as a result of notification may not be satisfactory in spite of mandatory inclusion in the Tuberculosis Act of some sections of the Public Health Act, 1878, as eighteen urban and thirteen rural authorities have not adopted the Infectious Diseases Prevention Act, and some of these authorities have no disinfecting plant.

There does not appear to be any special legislation in Scotland with regard to tuberculosis. All cases are dealt with under the Infectious Diseases Acts, clauses 54 and 55 of the Scottish Public Health Act, 1897, provide for the compulsory removal of persons suffering from any infectious disease (including tuberculosis) who are without proper lodging or accommodation, or so lodged that proper precautions cannot be taken to prevent the spread of the disease, or in a room occupied by others besides those necessarily in attendance on such person. Clause 2 of the Public Health (Tuberculosis) Act (England), 1921, authorises the County Council or Local Authority to procure compulsory removal of a person suffering from pulmonary tuberculosis in an infectious state. I submit that in the public interest, similar powers are required in Ireland, used with discretion and after full inquiry

into all the circumstances. If simple precautions are taken, there should be no difficulty about visits to patients by their friends.

Treatment of Tuberculosis.

Each of the six counties in Northern Ireland has a tuberculosis officer; there are about forty-seven tuberculosis dispensaries from which out-patient and domiciliary treatment is provided, but it is doubtful if all have the necessary modern equipment for diagnosis. Excluding the two sanatoria in Belfast, both crowded, and said to have many country patients and a waiting-list, there are only two small sanatoria (in the counties of Armagh and Tyrone) of about thirty beds each; is it questionable whether such small institutions are an economic proposition. The treatment of tuberculosis has become so highly specialised, partly owing to recent developments in thoracic surgery, that it might be preferable to have one or even two large sanatoria for the six counties, equipped with all modern means for treatment and diagnosis, with a resident doctor and a visiting surgical specialist.

Converted wards or wings added to workhouse or district hospitals in towns should not be regarded as "sanatoria," but rather as a provision for the segregation of advanced and incurable cases.

Surgical Tuberculosis.

There is no special or proper provision for surgical tuberculosis except at Graymount, the property of the Belfast Corporation; the site is not the best possible and is rapidly becoming built in; there are fifty-eight beds and a waiting-list. The treatment of surgical tuberculosis is a special department of orthopædic surgery requiring a surgeon with special knowledge and experience; the institution must be built on a carefully selected site, preferably at the seaside, and with special equipment and facilities. One large institution should be sufficient for the six counties (exclusive of Belfast), so that the resources of this large area might be pooled and concentrated. Alternatively the Belfast Institution might be sufficiently enlarged on a new site to meet the requirements of the whole province, the counties paying for the maintenance of their patients.

Distance, in these days of easy travelling and ambulances, is negligible; the municipality of Paris maintains a hospital of over one thousand beds at Berck, situated at a distance of about one hundred and seventy miles from Paris.

Midwifery and Child Welfare.

The English Act of 1902, the first to establish a central midwives board and a roll, drew up rules under which no unregistered woman could attend childbirth except under the supervision of a qualified medical man.

Unsuccessful efforts were made to have the Act extended to Ireland.

Part 8 of the Belfast Corporation Act, 1911, contained several clauses copied from the English Act, providing for the enrolment and certification of midwives in the city. This part of the Act was repealed in 1918. In 1915 the Scottish Midwives Act was passed, and contained the important addition directing a midwife in certain emergencies to call in a registered medical practitioner, the local supervising authority to pay the fee for this service—with due allowance for mileage. The amended English Act of 1918 contained similar provisions.

The Irish Midwives Act.

In 1918 Ireland got her first Midwives Act, which is, *mutatis mutandis,* the Scottish Act of 1915.

The Borough and County Councils are the supervising authorities, in every County Borough the medical superintendent officer of health *shall* be the medical officer for the purposes of the Act—every County Council *may* appoint a registered medical practitioner to be their medical officer, but as there were and are yet no county medical officers, the Local Government Board sanctioned the provisional appointment of the tuberculosis officer. A medical man called to an emergency by a midwife is to be paid a fee (by the supervising authority) unless the patient is "entitled" to medical relief under the Poor Relief Act, 1851, in which case it would be the duty of the dispensary medical officer to give free attendance to the person "entitled" to the services, and by inference the duty of the midwife to call on the dispensary medical officer if she considered the patient was so *"entitled."* The situation was complicated by clause 2 (1) of the Northern Ireland Midwives Act, 1929, by adding after the words "entitled to services under the Poor Relief Act,"— "and has obtained a ticket for medical attendance under the said Act."

The Home Office was not yet satisfied, and clause 39 of the Local Government Act, 1934, directs that where a dispensary medical officer is called by a midwife to a case arising in his district—"then notwithstanding medical relief has not been applied for a fee shall not be payable to that medical officer if the guardians . . . are satisfied that the patient was a person to whom medical relief might lawfully have been afforded."

There is no definition of a "poor person" "entitled" to poor law medical relief. Emergencies arise so quickly that the midwife may be put in an uncomfortable position—if she is not to lose time and perhaps a life, in deciding what doctor she may call.

Unfortunately, it was found that some district midwives took fees from people who were *"entitled"* to their free services; the several amendments of the law were not made to deprive the dispensary medical officer of the fee for an emergency, but to prevent his being paid twice by two different authorities—(1) the guardians, who pay his salary; (2) the supervising authority, who pay the emergency fee. Recently a dispensary doctor's claim for the payment of a number of fees for emergency cases came before the County Court : the judge referred the matter to the guardians to decide which were cases *"entitled"* to free attendance.

During the year 1933-34, in 955 cases the assistance of a medical practitioner was requisitioned under clause 22 of the Midwives Act, 1918; in 789 cases in the year 1931-32.

Number of Midwives.

There are about 180 dispensary districts, to each of which the boards of guardians *may* appoint a midwife, but only about 143 midwives have been appointed, leaving thirty-five or more districts without the official midwife. The average salary of a midwife is about forty-five pounds per annum.

To repeat, the board of guardians, who are not a public health authority, appoint and pay the district midwives to give free attendance to people "entitled" to their services; the county councils, who are also not public health authorities, are the supervising authority of midwives (through their tuberculosis officers), are the payees of the emergency fee, but have to defer to the decision of the guardians as to whether this fee can be lawfully paid.

This division of responsibility is a very strong argument in favour of a unified or integrated midwifery service.

Maternity Benefit.

The cash maternity benefit under the National Health Insurance Act is given by the approved societies under the general supervision of the ministry of labour. The woman makes her own arrangements for doctor and midwife.

Child and Maternity Welfare.

Under the Children Act, 1908, and the Acts of 1907, 1915, 1918, any local authority, county borough, county council, or urban council (but apparently not a rural council in Ireland, clause 3 (1) c, 1915 Act), *may* make arrangements, etc.

Omitting the county boroughs of Belfast and Derry, of the sixty-three remaining authorities, the acts are operated directly by fifteen; twenty-seven contribute to the funds of nursing societies who undertake the work, while in eleven cases, nursing societies carry on the work alone.

Infant (1-Year) Mortality-Rate, 1934.

In Northern Ireland the infant mortality-rate per 1,000 was ...	70
In England the infant mortality-rate per 1,000 was	59
In Eire the infant mortality-rate per 1,000 was	63

These figures should be considered in connection with the excessive disability rate of married women in Northern Ireland.

The children of to-day are the mothers and fathers of the children of to-morrow; the present generation are the custodians of the health of future generations. Infantile hygiene antedates the birth of the infant, therefore the welfare of the child is wrapped up in that of the mother; in order to secure a healthy motherhood, infancy, and childhood, guidance and assistance are needed alike during pregnancy, at and after childbirth.

United Midwifery Service.

The establishment of a unified or integrated maternity service on the lines proposed in England and Scotland, can only be provided in Ireland by a complete recasting and co-ordination of :—

(1) The poor law medical service.
(2) Maternity benefit under the National Health Insurance Act.
(3) Maternity and child welfare provisions.

Medical Inspection and Treatment of School Children.

The 1919 Act providing for the medical inspection and treatment of school children was repealed by the Education Act, 1923.

Midwives Act (England), 1936.

Directs every local authority to secure a sufficient number of *whole-time salaried midwives for domiciliary attendance*, and to submit their schemes for this to the ministry.

The Maternity Service Act (Scotland), 1937, directs local authorities to make adequate arrangements for *domiciliary* attendance by midwives *before, during, and after childbirth*, for doctors—chosen by the patient—when required, medical examination and treatment during pregnancy, examination a month after birth, for the services of anæsthetists and consultants, a scale of medical fees to be fixed, such services *not to be provided by way of poor relief;* schemes to provide all this to be submitted to the department of health.

As in England, any material extra expenditure imposed on local authorities to be met by moneys provided by Parliament.

This service combines the service of midwife, general practitioner, specialist, ante-natal, natal, and post-natal care.

At the last meeting of the Belfast branch of the British Medical Association in February, Captain Iliff stated that in "sickness benefit," men and single women made a better show in Northern Ireland than in Great Britain, "*married women" make a much worse show.* Again, with "married women" the expenditure on "disablement benefit" per head was more than twice as great as in Great Britain."

Query : Is this condition common to all Northern Ireland, or limited to Belfast, where possible textile industries may be a contributory cause? If this were so, one might expect the same increased disability in Yorks and Lancashire?

The Factory Acts and the "maternity benefit" forbid the employment of women within a month after confinement, but surely, if the nursing mother is to discharge her natural functions properly, in the common interest of mother and infant this exemption period should be enforced both before and after confinement and for a longer period than a month (note the high infant mortality in Northern Ireland). The extra expense might be met by an extended insurance.

I understand this prolonged exemption from employment is actually in force in some European countries.

The adjudicating authorities of the ministry of labour are believed to regard the unemployed claimant as not "available for employment" during the last eight weeks before confinement.

Poor Law Medical Service and Hospitals Act.

Established in 1851 by an Act popularly known as the "Medical Charities Act," and still run on much the same lines as when started.

The preamble of the act reads as follows :—

"An Act for the better distribution, support, and management of medical charities . . . and to provide for the execution of the laws for the relief of the poor in Ireland" . . . indicates that the object was rather an extension of the existing relief provided for the prevailing poverty and distress following the famine, than the founding of a public health or medical service.

There are twenty-seven Unions, six of which extend into two or more counties, 180 dispensary districts, about 168 dispensary medical officers with an average salary of about £225 for that service only. Except under the two Borough Councils (Belfast and Londonderry), there are no whole-time or superintendent medical officers of health; the 168 dispensary medical officers are *ipso facto* part-time medical officers of health of their districts, urban or rural, and are not obliged to hold a Diploma in Public Health—the average salary is about £25 per annum. Whole-time county medical officers of health could co-ordinate the health services and do much of the work now carried out by the ministry's inspectors, and the dispensary medical officers might be relieved of a thankless job.

The Dispensary Districts are arranged without any method or system with regard to size, population, or convenience; the average size over all Ireland is forty-two square miles. Here are two unions in Northern Ireland :—

Enniskillen Union.			Antrim Union.		
5 Districts	Area	Population	6 Districts	Area	Population
Lisbellaw ...	23	2425	Antrim ...	21	5878
Tempo ...	37	3701	Connor ...	32	3188
Enniskillen ...	32	7873	Crumlin ...	35	3889
Florencecourt ...	54	4416	Doagh	23	8043
Ely	56	3593	Randalstown ...	31	5159
			Templepatrick ...	32	3895

The area of the Dispensary District is given in square miles. The population is that of 1911, and is somewhat less now.

The Dispensary Buildings are in the vast majority of cases unsuitable, inconvenient, comfortless, wanting in modern equipment, without dressing- or examination-rooms. To quote the words of the late Surgeon-General Evatt :— "Never was the great science of medicine presented in a more wretched or untempting form." No surgeon would attempt even the most minor operation in such surroundings, which must react on patients in such a way as to make them contemn dispensary treatment, believing that no self-respecting member of the profession would work under such conditions, while the effect on any keen ambitious young man fresh from the city hospitals must be to dissipate his enthusiasm.

The Hospitals.—In addition to the out-patient and domiciliary treatment, the poor law provides for institutional treatment in the union and district hospitals; in addition there are the county infirmaries.

There are eleven "district" hospitals, that is, former union hospitals which have been rebuilt or reconstructed on more or less modern lines; these are nominally separate from the poor law, managed by a board of governors nominated by the guardians chiefly from their own number. Each district hospital has a fever wing attached.

The fifteen old union hospitals are antiquated and quite unfit in structure and equipment for modern medical and surgical work; most, if not all, are without a resident or house-doctor and some even without a telephone; and some are still lighted by oil-lamps. A few of these might be converted into district hospitals,

some into county or regional homes to which many of the "chronics" found in the more expensively equipped and served district hospitals might be transferred.

The Fever Hospitals attached to the old union hospitals are also quite unfit for modern requirements; are without the proper facilities for classification, segregation, and observation; their number might be reduced by at least a third.

It would result in economy and less overlapping if the dispensary and hospital services were so co-ordinated that, in every town where there is a hospital as well as a dispensary, the latter might be transferred to the out-patient or extern section of the hospital.

There are six county infirmaries (founded 1765) now generally called hospitals, semi-charitable institutions, but now chiefly maintained by a county council grant, and managed by a joint committee of county council and subscribers.

Private and Pay Wards.—Both the district and county hospitals have wards set apart for private or pay patients, the usual charge being from £3. 3s. to £4. 4s. a week.

Complaints of Poor Law Service.

There have been and are still many complaints of the poor law medical service.

One division of the branch, British Medical Association, has asked for a commission of inquiry. May I say there have been many inquiries; in 1903 I persuaded the late Dr. Dawson Williams, then editor of the "British Medical Journal," to send a commissioner in the person of the late Surgeon-General Evatt; he issued a scathing report published by the "British Medical Journal" in 1904; many of the faults he referred to have been since rectified, but others remain.

The Vice-Regal Commission, which reported on the same subject in 1906, made further recommendations.

The Northern Ireland departmental report in 1927 made many suggestions which met with general approval, and included the removal of the abuse of ticket relief, provision of suitable and properly equipped dispensary buildings, increased and graded salaries, refresher courses, recognised a system of modified or reduced fees, extension of the nursing system, abolition of boards of guardians, and the whole system to be worked under the county councils.

It is fair comment to say that, if all these grievances still remain, nevertheless the ranks of the dispensary doctors are full—and the only remedy appears to be to refuse to join the ranks.

Report Against Medical Benefits.

The Departmental Commission, 1927, reported against the introduction of medical benefits which only provide for the "insured persons," their dependants, and institutional treatment was not included.

Government Action on Departmental Report.

In 1931, as the result of the Departmental Report, the Home Office, in order to give the local authorities the opportunity of considering the proposed changes, issued a circular informing them that a Bill was in preparation to deal with poor law and public health reform, and announced that the government approved of

broadening the basis of administration, of divorcing medical and hospital services from poor relief, that boards of guardians as such should be abolished, that a "regional" area rather than purely county area was preferred for hospitals and homes, that county medical officers of health should be appointed "to replace the existing disjointed system of dispensary medical officers for rural and urban areas at nominal salaries"; a register or nominal roll of those entitled to the service to be kept; that adoptive acts should be made mandatory, the county councils under certain conditions to have power to remove compulsorily cases of tuberculosis.

To which might be added the periodic visits of a compounder to make up stock mixtures, and "collective" buying of drugs supplied by the central control, so that all drugs would be sent out to standard and save the medical officer returning samples for analysis. Routine and clerical work was to be reduced to a minimum.

Here then is a scheme embracing many of the reforms we are now demanding, but for some reason the circular was withdrawn and nothing was done but to add one more to Ireland's list of commissions and reports.

In a neighbouring State, boards of guardians and district councils have been abolished, the county is the rural sanitary authority, and its duties performed through a board of health; each county has a whole-time medical officer of health, with one or more assistants in accordance with the size of the county.

Alternative Service to Poor Law Medical Service.

The introduction of medical benefits in 1930 has greatly modified the administration of the poor law medical service, and if one could get over the reluctance of interfering with old-standing services, affords the opportunity of amalgamating and co-ordinating the two separate services into one "National Service," free of what is called the pauper taint and with choice of doctor.

The admission contained in the following extract from the local government report, 1930-31 (after the introduction of medical benefits), clinches the argument for one new service :—

"Only such appliances as are ordinarily provided in general practitioner treatment are provided under the scheme, any special appliances such as trusses or artificial limbs have to be obtained by the patient. If the patient is poor, these may be obtained under the dispensary system, so that in fact the boards of guardians are not altogether relieved of the responsibility of the treatment of insured persons."

Omitting those engaged in educational work in the medical school, consultants and specialists, there will be about 650 to 700 general practitioners in the province, of whom 514 are engaged in the poor law medical service and under the national health insurance act, thus showing the important relation of medicine to the state.

If the national health insurance act could be extended to include the dependants of the insured and other persons of similar social and economic status, and the insurance extension be linked up with the existing institutional services, the component parts could be fitted together to build up an efficient "National Service" as distinguished from a "state service," separate from the relief of poverty and with

as far as possible free choice of doctor, "based on the family as the normal unit and the family doctor as the normal family attendant and health adviser, a service to include the medical care, treatment, and safeguarding of the individual to protect the community, a provision not for disease in the abstract but for the person liable to or suffering from disease," a personal service to the individual in the home (Committee on Scottish Health Service). The general practitioner family doctor as the backbone of the service would have at his command all the aids that are necessary by way of consultants, expert and special advice, and institutional treatment at the several hospitals, which would be "centres" for such purposes.

A national unified midwifery service would be a component part of the scheme, under which normal cases would be conducted by the midwife, saving the practitioner time and night work.

As the family doctor should be related in an official capacity with as many public or local authority services as possible, it seems a pity that all our general country hospitals are placed under the care of one officer. No one man can be physician (attending fever cases), surgeon, gynæcologist, obstetrician, run maternity and children's clinics, etc., with equal satisfaction in all. If left in such a position he may well say :—

"Oh, I am a cook and a Captain bold,
And the mate of the Nancy brig,
And a bo'sun tight and a midshipmite,
And the crew of the Captain's gig.

"And I never laugh and I never smile,
And I never have time to rest,
But as on I roll I cheer my soul
With this Home Ministry jest."

Public Health is the most important of all national interests, and what concerns the nation must be dealt with nationally; what concerns the district must be dealt with by the local authority, but there must be co-operation between the state, the local authorities, and the individual.

Whether a new service be established or we retain and improve the old one, there is at present no driving power, no *vis a tergo* by a single central authority charged with promoting and caring for the natoinal health in itself and as a whole. Certainly not the Home Office, which is concerned with health only as a function of local government, preoccupied with the sanitary side of health concerning the community rather than the individual, and with the maintenance of law and order, etc.

Thus one is led to ask for a single central authority to which would be transferred all the existing powers and functions of other authorities relating to or incidental to health, with wide powers to modify them in the course of their co-ordination and give them a new direction.

Such central authority should be helped by a statutory advisory council (some members of which might be chosen by the medical faculty of the Queen's University

and some by the Ulster Branch of the British Medical Association), with powers to report directly to parliament. The first duty of this advisory council would be to examine all our public health acts, and if possible simplify, codify, and consolidate them.

The English Public Health Act provides for a Minister of Health, whose duties are :—"to take all steps as may be desirable to secure the preparation, effective carrying out, and co-ordination of measures conducive to the health of the people, including measures for the prevention and cure of disease, the avoidance of fraud in connection with alleged remedies therefor . . . initiation and direction of research, preparation and dissemination of information and statistics relating thereto."

There shall be transferred to the Minister :—

(1) Powers and duties of the local government board.
(2) Powers and duties of the insurance commissioners.
(3) Powers and duties of the education board, with regard to expectant and nursing mothers and children under 5.
(4) Duties of education board regarding medical inspection and treatment.
(5) Powers of Privy Council under the midwives act.
(6) Powers under children act, 1908.

To which might be added the duties of registrar-general in regard to deaths, births, marriages, and of the coroner, whose court of inquiry stripped of all its ancient fringes should be limited to ascertaining the cause of death—the apportionment of blame is for another court.

The Demand for a Ministry of Health.

The Vice-Regal commission in 1906 reported in favour of a state medical service controlled by a council mainly, if not altogether, composed of Irish surgeons and physicians !

The germ of a ministry had not yet matured, but this recommendation was a step in that direction.

In 1906 a paper was read at a meeting of this Branch of the British Medical Association recommending a ministry.

In 1918, when the English ministry of health bill was introduced to the Imperial Parliament without including Ireland, Sir Edward Carson immediately put down a resolution that the House refuse to go on with the bill until Ireland be included.

In March, 1919, a deputation representing the Royal College of Physicians, Royal College of Surgeons, the Apothecaries Hall, the Irish Medical Society, the Irish Branch of the British Medical Association, the Irish Medical Committee, Irish Branch British Dental Association, the Medico-Psychological Association, and the Royal Academy of Medicine, waited on the Chief Secretary, requesting him to have the bill extended to Ireland.

In March, 1919, Mr. Samuels, then attorney-general, gave notice of a clause to include Ireland, the chief secretary as minister of health with a public health council to assist and advise him.

To this many amendments were proposed by the Ulster unionist members supported by Mr. Devlin and Sir R. Woods. One special amendment was tabled by Captain Craig, Sir Wm. Whitla, and Messrs. Moles and McGuffin.

In May, 1919, advantage was taken of Chief Secretary Macpherson's visit to Belfast to send a deputation of Belfast medical men to press their views.

However, in June, 1919, the act was passed, Ireland included, with *the Chief Secretary as Minister of Public Health,* with a council, known as the Irish public health council, to advise him.

This council drew attention, *inter alia,* to :—

(1) That several departments in Ireland were dealing more or less independently with health matters.

(2) The lack of co-ordination, overlapping of duties and interests, tending to make the system uneconomical and unsound.

(3) The permissive character of the enactments relating to the notification and prevention of infectious diseases constituting a danger to the public health.

(4) That the dispensary medical system required remodelling, and,

(5) Finally, recommended that a ministry of health be established for the general central control of all services relating and ancillary to health.

There were several meetings representative of the profession in Northern Ireland held to prepare evidence to lay before the departmental commission (1923-27), and reported that the profession is in agreement with the principles laid down by the Irish public health council, and recommend :—

(1) That there should be a ministry of health for Northern Ireland.

(2) That in rural districts proper dispensary buildings should be provided and equipped.

(3) That special hospitals for the treatment of surgical tuberculosis be established.

(4) That whole-time medical officers of health for each county be appointed to have general supervision over all public health services.

I have not referred to the so-called "environment services" as a factor in health administration, and therefore rejoice to note the Government are about to launch a wide building scheme.

The minister of finance is quoted as saying :—"The government will not be satisfied until, as far as possible, every family in Northern Ireland is provided with a suitable and comfortable home at a reasonable rent."

"Reasonable rent" is too indefinite a term; the rent must be such as the ordinary working man, in different localities, can afford.

Without proper housing much of our efforts in "personal health services" will be nullified.

In the town of Enniskillen there are some eighty houses in the back streets which were condemned years ago as unfit for human habitation, but which are still in occupation, though there is no sanitary provision whatever—women use buckets, men go "round the corner."

The Historical Development of the Resident Pupil System

By S. I. TURKINGTON, M.D., D.P.H.

Royal Victoria Hospital, Belfast

THE BARBER—SURGEON'S APPRENTICE.

THERE does not seem at first sight to be much connection between a mediæval Council of the Church, with the cardinal archbishops magnificent in their scarlet robes, and the resident pupil of the Royal Victoria Hospital in his plain white coat: and yet, if a great council had not met at Tours in the year 1163, resident pupils might not to-day be strolling down the long corridor of our Hospital. This is but another example of that fascinating chain of circumstances which we are accustomed to call cause and effect.

Before the twelfth century, the practice of surgery, and also that of medicine, was under the control of the clergy. The barbers were in close alliance with the clergy, and, as they were permitted to assist the monks in minor surgical operations, they must have acquired a certain degree of proficiency.

The Council of Tours, "considering that the shedding of blood was incompatible with the holy office of the clergy," forbade them to interfere in any matter of surgery; therefore they were obliged to abandon all operative interference: while continuing to practise the "Ars Medendi," the healing art of medicine.

"No doubt," says Young, "the Edict of Tours was hailed with joy by the barbers, who thus seized the opportunity of practising as surgeons on their own account." This is shown by an early fourteenth century regulation concerning venesection, which enjoined, in the year 1307: that "no barbers shall be so bold as to put blood in their windows, in view of the folk: but let them have it privily carried into the Thames, under pain of paying two shillings"—an effort to curb medical advertising as it existed six hundred years ago.

Closely connected with the practice of venesection were the "Bleeding Calendars," of which Osler gives a description in his "Incunabula Medica." On these calendars was a figure of a bleeding man, with twenty-four veins marked. The domination of the twelve signs of the Zodiac was also given: illustrating "two popular mediæval beliefs of extraordinary tenacity"; first, that certain days were lucky or unlucky; and, second, that heavenly influences controlled the bodily functions. Forty-six of these "Bleeding Calendars" were known before 1480, and one hundred before 1501.

"From the age of Elizabeth," says Trevelyan, "apprenticeship was the key to the national life. It was controlled on a uniform national pattern for town and country. No man could set up as master or as workman till he had served his seven years apprenticeship. In that way the youth of the country obtained technical education and social discipline that went some way to compensate for the unfelt want of a universal system of school education.

"Industry was conducted in the home of the employer, who worked in the same shop and dined at the same board with his bound apprentices. Under this system the men slept heaven knows where, under the rafters, or in the cupboards. But there was probably more kindness than severity, for the relation was closely personal, and few people like discontent in their own home." Apprenticeship was the old English school of craftsmanship and of character.

The apprentice system in surgery is very old. As early as 1310, the will of one Richard le Barber was proved, and he left a house in "Broad Street to his apprentice Thomas de Mangrave." This is the earliest recorded name of a barber surgeon's resident pupil: almost six hundred and thirty years ago.

In 1462 Edward the Fourth granted a charter to "our beloved, honest, and free men, of the mystery of Barbers in our City of London, exercising the mystery or Art of Surgery": and in 1482 the first regulations for their apprentices were issued.

The barber-surgeon's apprentice was the earliest resident pupil, though he lived in his master's house and not in hospital. He attended the lectures and the "public anatomies" at Barber-Surgeons' Hall, but his clinical instruction was gained in his actual practice. His master's admonitions took the place of our clinical lecture: but the great value of his training lay in the personal experience he obtained in minor surgery. It was largely of an empirical nature, based on observation and practice, but it gave him that close contact with disease which is gained by the resident pupil in hospital wards to-day. "Apprehendere" means to learn, and the apprentice was primarily a learner.

Apprentices in all guilds were a wild and turbulent lot: and the old London cry of "Prentices, Prentices" was enough to bring them swarming into the streets to cause a riot. In the stormy pages of Irish history we have the record of one of these riots which changed the face of three kingdoms; the famous story of the Apprentice Boys of Derry.

An Act of 1540 provided that the surgeons were to have yearly the dead bodies of four malefactors for dissection. The hangman came to Barber-Surgeons' Hall regularly for his Christmas box, and gave a receipt for the same, affixing the word "executioner" after his name.

It is difficult in this age of anatomical teaching to realize the horror and dread with which the mediæval mind regarded the idea of dissection and anatomical research, either at Continental schools, such as Padua, or nearer home.

It was, of course, to them the blackest of necromancy, or communion with the dead. You will catch an echo of it in Scott's poetry:—

"He learned the art, that none may name,
In Padua, far beyond the sea.
Men say he changed his mortal frame
By deeds of magic mystery;
For when, in studious mood, he paced
Saint Andrews cloistered hall,
His form no darkening shadow traced
Upon the sunny wall."

There were, therefore, often brutal struggles between the beadle and apprentices of Surgeons' Hall and the relatives of an executed criminal, for the possession of the body, before it could be brought away from Tyburn. In 1636 a theatre was built for anatomical purposes: and the "public anatomies" held on the bodies of criminals became famous. Hogarth depicted the dissection of a criminal in this theatre, and in 1663 Pepys records in his Diary that he attended a lecture, "and, the discourse being ended, we had a very fine dinner, and good learned company."

The court which regulated the barber-surgeons' apprentices had often to deal with questions of conduct. Here is an example from the records of the court, dated 1649 :—

"The said apprentice did most rudely and irreverently behave himself to the whole Court, in saucie language and behaviour. This Court, therefore, did order the hair of the said apprentice, being undecently long, to be cut shorter."

And yet another entry regarding an apprentice in his examinations in the year 1729 :—

"Peregrine Compton, rejected: being fuddled."

When finally the apprentice obtained his licence, it was therein stated that "we, the masters, do admit him as a practitioner who has served as a prentice with a master authorized of this company for the space of seven years": and it gave warning, in its sonorous English, that he was so licensed to avoid the slander created by the "rashness and unconning of such lewd persons as taketh upon them to exercise surgery."

"The London Hospital surgeon of Tudor times," says Sir Norman Moore, "was generally a barber-surgeon's apprentice who had listened carefully to all his master's dicta: and to the lectures at Barbers' Hall, where he had opportunity of seeing enough dissection to make him a fair anatomist. He had sometimes read a little Latin, but scarcely any Greek. Those who elected to practise as barbers only, not having proved themselves efficient in surgery, were not allowed to practise as surgeons. At bleeding and bandaging, the barber easily became an expert. His cheery conversation, and the assemblage of clients at his place of business, made him a popular man. Even when he was well read, and able to practise a good deal of surgery, he did not despise his tonsorial work."

A similar state of affairs prevailed in Dublin. "During the eighteenth century," says Kirkpatrick, "surgical education was under the control of the barber-surgeons, or Guild of St. Mary Magdalene: which had been founded by Henry VI in 1446: incorporated by Elizabeth in 1527, and granted a new charter by James II in 1687. Surgeons learned as apprentices to masters of the Guild. As late as 1767, in a procession, the barber-surgeons followed the smiths: fourth in a list of twenty-five city guilds."

Such is a short description of the life of the apprentice in the days of the barber-surgeons. The resident pupil of to-day is his direct descendant. He is, in

reality, an apprentice of the good old sort, but with wider opportunity, in fact a student practitioner. Times have changed, however, as regards his duties, for no longer does he sally forth to do battle for the corpse of the executed criminal: no longer does he use his bleeding calendar to ascertain a fortunate day for venesection: and no longer does he behave in "saucie and irreverent" fashion towards his seniors.

The Surgeon and His Pupils.

With the opening of the eighteenth century, the system changed. It was realised that the teaching of medical students was a profitable business: and that a good teacher was assured of a steady income. In his "Memoir of William and John Hunter," Peachey gives a list of twenty-seven private teachers of anatomy in England between the years 1700 and 1746: and Kirkpatrick gives a list of nineteen private schools in Dublin about half a century later.

In those days there were few newspapers in London, as late as 1696 they only appeared weekly, and the announcement of anatomical lectures was by means of handbills distributed at the taverns and coffee-houses. Here is William Hunter's advertisement:—

"Mr. Hunter's course of Anatomical Lectures will begin on Monday, 9th October, 1752, at five o'clock in the evening. Private gentlemen attend the course at the same terms as those of the profession."

It will be noted that the time of delivery of these lectures was five o'clock: but in 1768 a great actor, David Garrick, was playing in London. When Garrick was at his zenith, anatomical lectures were neglected, and for this reason these lectures were changed to the middle of the day: at which hour they still remain. This is another example of the chain of cause and effect: when we attended our anatomical lectures at Queen's in the forenoon, we really did so because a great actor named David Garrick played in London two hundred years ago. It is said that on one occasion when Garrick was playing, there was only one pupil present at Hunter's lecture, and, in order to be able to begin that lecture with the traditional word "Gentlemen," he ordered his attendant to bring in the skeleton.

At the present time there is much speculation as to the future of the voluntary hospitals, and it is a remarkable fact that, in the year 1700, there was not a single voluntary hospital for the sick poor outside London.

It is obvious, therefore, that at the beginning of the eighteenth century we cannot expect to find that resident pupils existed, except perhaps in London; and the following pages will show that there is no evidence that such was the case.

In 1756, John Hunter became resident house-surgeon at St. George's Hospital. The terms of his appointment were, that he was to have a bed, and live in the house *as an upper servant*. When the resident house-surgeon served in this menial fashion, it is fair to deduce that accommodation for the resident pupil did not then exist. Further, the medical schools were small. At St. George's, in 1741, there were four surgeons, each with two apprentices, making eight in all. The two

senior surgeons each had two pupils; and the two junior surgeons one each, making six in all. But the number of pupils increased so much that, whereas at first none was entered for a lesser period than a year, the need for surgeons led to the admission of half-yearly and quarterly pupils, a custom which seems to have been perpetuated. This need for surgeons was, of course, due to the devastating wars which ravaged Europe all through the eighteenth century, ending in a great climax with the wars of the French Revolution and of the First Empire under Napoleon.

In 1768, John Hunter was elected surgeon at St. George's Hospital. "This appointment," says Peachey, "provided him with what he desired, the right of attendance upon the living, and examination of the dead: besides the credit of being on the staff and a share of the pupils' fees. These amounted to over £100 a year. In addition, he was able to take apprentices, each of whom was bound to him for five years for a fee of five hundred guineas. This was his own personal property, and in addition he had resident pupils, each of whom paid £100 a year for their board, apart from hospital fees, a share of which was apportioned to him. Hunter gives statistics of the number of his pupils, they must have numbered one thousand in the twenty-five years from 1768-1793. Among them were such men as Abernethy, Cline, and Astley Cooper: and of those *who resided in his house,* one of the earliest, and certainly one of the greatest, was Edward Jenner, whose portrait adorns the hall of the Ulster Medical Society.

During this period, therefore, it is recorded that, in addition to the apprentices who were bound to him, the surgeon also entered pupils on his rolls. The word is derived from the Latin "pupillus," a ward: and the idea conveyed is that of personal supervision and care. One is glad to think that this same personal supervision is still, after the lapse of two centuries, one of the chief benefits enjoyed by the resident pupil of the Royal Victoria Hospital to-day. During this period, there is evidence that the pupil was resident in the house of his teacher; as was his predecessor the apprentice, but there is no direct evidence that he resided in hospital as far as England is concerned.

As regards Scotland: a somewhat different system prevailed. It is recorded by Logan Turner that, in the Royal Infirmary of Edinburgh, about the year 1750, "Physicians' and surgeons' clerks were appointed. The clerks were students of medicine: they lived in the hospital and were allowed to attend classes in the University, provided the hours did not interfere with their duties in the Infirmary. An annual salary of £10 was paid to each, an allowance which was eventually discontinued. Eligibility for these posts was later restricted to those students who had completed two sessions at the University and at least one year of attendance in the Infirmary, the appointment being then limited to a period of two years.

"The duties of the surgeons' clerks included the notification of operations, the summoning of the surgeons to consultations, the care of the instruments and the direction of the dressers with instruction in bandaging. They had permission also

to perform minor surgical operations such as cupping, bleeding, and the introduction of setons." It is later stated that "on 27th February, 1854, the resident clerks were named resident house physicians and house surgeons: they were then qualified medical practitioners." The system of resident clerks, therefore, lasted in the Edinburgh Medical School for almost exactly one hundred years: and it was ultimately abandoned over eighty years ago. It did not become an integral part of the Scottish Medical Schools.

Irish Medicine in the Early Eighteenth Century.

There can be little doubt that the credit for the introduction of the resident-pupil system must be assigned to the Dublin School of Medicine, and particularly to Steevens Hospital, just over two centuries ago.

The first resident surgeon at Steevens Hospital, which was opened in 1733, was one Owen Lewis. Between the dates of October, 1735, and February, 1737, the hospital accounts show payments of £7. 10s. quarterly "for boarding Mr. Lewis's apprentices." In 1756, the Governors made an order by which the number of apprentices was limited to two for each surgeon, an order which suggests overcrowding in the house.

In 1856, Sir William Wilde said that "twenty years before there resided in Steevens Hospital about thirty resident pupils. These young men were of all grades of apprenticeship, from the entered apprentice to the man going up for his degree; they lived anywhere, in pupils' rooms, and in holes and corners, as they could be best stowed away."

It is, therefore, certain that in early eighteenth century Dublin, the surgeons' apprentices worked in the hospitals, and it is very probable that they also lived there.

One of the most curious developments of medicine in Dublin in the earliest years of the nineteenth century was the large number of private schools which sprang up in response to the demand for medical teaching, especially on the practical side. The authorities of Dublin University seem to have been slow to provide clinical, or practical teaching: and the initiative passed into the hands of private teachers. Some of these schools were connected with a hospital, while others were not. Some only existed for a few years: others had a long career, and ended by merging with some of the greater institutions. In all, Kirkpatrick has given a list of nineteen of these schools, and it may be of interest to record the history of some of them.

Crampton's School lasted from 1804 to 1813. It was opened in a stable, a characteristic Dublin touch, and had some sort of connection with the Meath Hospital. Hospital connection was necessary so that certificates issued by the school should be recognised by the various licensing bodies: and it will be shown that this hospital connection played a part in the development of the resident pupil system.

Park Street School was founded in 1824. In the year 1849 it was closed, as the then proprietor, Hugh Carlisle, was appointed first Professor of Anatomy in the

new Queen's College, Belfast. The anatomical museum of the school was sold to Queen's for £250, and formed the nucleus of our anatomical museum of to-day.

A school known as the "Anatomical Theatre of Richmond Hospital" ran for seventy-seven years—from 1812 to 1889. It was known popularly as "Carmichael's School," and it had a close connection with both the Richmond and the Coombe Hospitals. Carmichael's pupils were welcomed at the Coombe and, as early as 1840, a century ago, there was accommodation for six intern resident pupils. In 1864, in the Coombe, a pupil midwifery assistant was appointed by competitive examination, his chief work being to look after extern maternity cases under the direction of the resident apothecary.

Instruction in some of these schools was certainly practical. In one of them, a body was placed upright, a pistol bullet fired into it at point-blank range, and the student had then to find and to extract the bullet. This was excellent training for those students, and there were many such, who intended, after qualification, to join Wellington's forces in the Peninsula.

It is a difficult task to reconstruct the life of a past age. It is a matter of intangible values. "We cannot put ourselves back in the minds of our ancestors, and if we did, we should still be puzzled." But the records of these schools seem to convey some of the atmosphere of the earliest nineteenth century and the rude, vigorous, boisterous life which then flourished. It is only a hundred years ago, and yet a series of medical scenes of those days has the wild improbability of a nightmare: the anatomy school, possibly summoned by handbill, and meeting in a stable; the bodies provided by students acting as resurrection men, the discharge of pistol bullets into corpses to give practice in the treatment of the gun-shot wounds, the coarse, flashy life, the quaint dress, the enormous over-eating, the incredibly heavy drinking, and the duelling. We regard it with exactly that same mixture of amazement, aversion, and amusement with which our descendants of one hundred years hence will regard these surroundings, both social and professional, of which we are to-day so proud.

The Resident Pupil in the Belfast Medical School.

Although Belfast has, at present, a great medical school, with six hundred and fifty medical students on its rolls, and although about seventy students acted as resident pupil in the wards of the Royal Victoria Hospital last year, yet the teaching-school is less than one hundred and twenty years old; for it was on 16th January, 1820, that the following resolution was passed:—

"The Physicians and Surgeons of Belfast should be invited to place pupils in the general Hospital to acquire experience by observing its practice; and, in the course of a few years, it might become a school of Physic and Surgery of no trifling importance to the young medical students of this neighbourhood." It will be admitted that this pious aspiration has been fulfilled, and that the School "of no trifling importance" has been established.

On 21st December, 1821, Walter W. Bingham of Dundonald became the first registered pupil of this school, but it is unlikely he was a resident, as the fee for attending the practice of the hospital was fixed in 1823 at one guinea annually.

A careful search of the old minute books of the Board of Management of the Belfast General Hospital reveals that the earliest mention of resident pupils comes under a minute dated 7th November, 1857, when it was resolved :—

"That the report of the Medical Staff with their recommendation with respect to resident pupils be approved, and that the same be referred to the Medical Staff to elect pupils whom they will recommend for the approval of the Committee."

The report of the Medical Staff runs as follows :—

"*Resident Pupils.*—Two advanced students (to be under the immediate control of the House Surgeon, and subject to the control of the Committee and of the Medical Staff) will be received into the General Hospital. They will reside in the hospital; paying for their Board £25 for the whole year, or £15 for the Winter Session, and they will be allowed to attend classes to constitute an Annus Medicus." And again in the minutes of 21st November, 1857, there is the following note :—

"The Medical Staff beg to report that, after strict examination, they found Messrs. R. Waters, Medical Scholar, Queen's College; and James B. Black to be best qualified students; and recommend that they be approved as resident pupils : Mr. Black for a year, and Mr. Waters for six months."

And so the resident pupil system was fairly started in our school, just eighty years ago. For many years the number of pupils was fixed at four, and the advertisement for the vacancies appeared in the newspapers annually.

In 1877 the proposal was made that an "experienced resident pupil would be quite capable of taking charge of the patients in the Throne Convalescent Hospital, and also the compounding for that Institution," but the experiment does not appear to have been tried.

Lack of accommodation seems always to have been a handicap, and we meet such entries in the minutes of the Medical Staff as "The pupil problem was discussed, and it was decided to arrange to have the four sleeping in one room. A small ward of the old hospital was allocated for this purpose."

Our numbers were not large in those days, and at times there was a shortage of pupils, but evidently the system was considered to be so valuable, that it was actually decided to advertise the vacant places for resident pupils in the "Irish Times," the "Glasgow Herald," and the "Scotsman."

More than once the value of the resident pupil system was called in question, but it has persisted despite suggestions made for its abolition.

It was in 1895 that the term of office of resident pupils was fixed at three months.

In 1903 the hospital removed to its present site at Grosvenor Road, the suggestion for an alternative site in Ormeau Park having been abandoned. It then became known as "The Royal Victoria Hospital," following the wise English system which unites learned professions under royal patronage in such societies as the Royal College of Physicians or the Royal Society of Medicine.

In 1912 lady resident pupils were admitted by the Board of Management.

In 1935 a letter was received from the General Medical Council asking a series of questions regarding the resident pupils with regard to their terms of appointment and duties, and requesting opinions as to the value of the system; and now, the resolutions of the General Medical Council which came into force on 1st January, 1938, provide that the period of clinical studies shall include "a continuous period of not less than one month in residence in hospital, or conveniently near by, during which the student is attached to medical wards," and a similar period of residence is prescribed for surgical wards.

Thus the old Irish system of resident pupilship has come into its own at last, and that system is now obligatory and imposed by the General Medical Council on all hospitals in the United Kingdom.

Value of the Resident Pupil System.

From the professional point of view, perhaps the greatest advantage of the resident pupil system is that it early brings the student into direct touch with disease. He learns from the patient, not from the textbook. It produces the practical observer, who must not only observe, but also must record his observations in the hospital case-sheets. In the extern department he learns the art of general practice, and is taught his work in personal fashion. In the clinical rooms he is taught the elements of clinical pathology.

At the final examination in medicine one could without hesitation select those students who had been in residence as pupils. They go about their work in the ward with the quiet ease of those long accustomed to such duties.

It is a curious fact that we are reverting to the system which underlies apprenticeship, that of teaching by personal contact. The very word "doctor" is derived from "docere," to teach, and we are again relying on the close association of teacher and taught. The doctor is carrying on, in the most literal sense of the words, the old clinical tradition: the handing down, personally, of knowledge acquired at the bedside.

Residence in hospital with his fellows teaches the student to respect a point of view other than his own. It is wholesome for him to realise that his opinions are often valueless. Through his experience in the wards his personality must be widened. In the daily presence of disease and of death he must needs get another viewpoint and another sense of proportion.

Queen's University has been, till very recently, non-residential, but for medical students, residence in hospital has to some extent compensated for this disadvantage. The man who has been a resident pupil is never again just a student attending hospital, he has become a part of the corporate life of the hospital, with its—

"Memories of the days of old
And strong tradition, binding fast
The flying terms with bands of gold."

Such is a short history of the resident pupil system. It has stood the test of time for two centuries; and it is the direct outcome of the system of apprenticeship which endured for four centuries.

For six hundred years it has given the medical student practical training in his real mission in life : the age-long fight with disease and with death.

The limitations of Medicine in this battle are only too obvious, nevertheless the unending struggle must continue, for, as the Preacher said so long ago :—

"No man hath power over the spirit to restrain the spirit; neither hath he power in the day of death, and there is no discharge in that war."

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Carcinoma of the Small Intestine

With Report of a Case

By R. J. W. WITHERS, M.D., M.CH., F.R.C.S.

Late R.S.O., Crumpsall Hospital, Manchester

SINCE Lubarsch first described a primary malignant tumour of the small intestine in 1880, many articles have been written on this subject, especially by American authors. Unfortunately it is not possible to learn much about the clinical histories of the published cases, as the majority of these have been written from a pathological rather than a clinical standpoint.

There can be little doubt as to the rarity of carcinoma of the small intestine, references to it being for the most part very brief in the modern standard textbooks of surgery.

Up to 1931, Barnhart could only find seventy-seven case reports of this condition in a review of the literature, and in November, 1937, Bernard Kalayjian had been

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Up to 1931, Barnhart could only find seventy-seven case reports of this condition in a review of the literature, and in November, 1937, Bernard Kalayjian had been

able to discover thirty-five further reports, and added two of his own. And so, up to the end of last year, only 114 case reports on small gut carcinoma had been published.

A most complete study of small bowel tumours was published by Raiford in 1932, in which he reviewed 11,500 post-mortems and 45,000 surgical specimens in Johns Hopkins Hospital. Out of this material he could find only eighty-eight cases of small gut tumours. Of these, thirty-eight were malignant, and a mere sixteen of these malignancies were carcinomatous. Seven of these carcinomata were duodenal, four were jejunal, three were ileal, and two were of indeterminate position. In the same series the number of gastro-intestinal cancers was 776.

Brill reported 3,563 cases of malignant bowel tumours, with eighty-nine, or 2.5 per cent., in the small intestine.

Johnson, in a report from the Vienna General Hospital, found 343 cases of intestinal cancer, only ten of which occurred in the small gut. Rankin and Mayo recorded, up to 1929, all the cases of bowel growths in the Mayo Clinic. There were 4,597 bowel malignancies, with fifty-five cases in the small gut, and only fourteen of these were ileal in position.

Nickerson and Williams report eight cases of small bowel cancer in 11,206 post-mortems. The incidence in the small gut was 2.33 per cent. in relation to cancer of the gastro-intestinal canal generally. Of their cases, six were duodenal and two jejunal; none occurred in the ileum.

Nettrour of the Mayo Clinic found cancer of the large bowel eighty times as frequent as cancer of the small gut.

Out of 125 proved intestinal cancer cases in Crumpsall Hospital, Manchester, during the past three years, I can only find one occurring in the small intestine.

Site of the Growth.

There does not seem to be universal agreement as to which part of the small gut is most commonly affected by cancer. Ewing gives 57 per cent. of small gut cancers as duodenal. Jefferson bears this out, finding the duodenum affected in 48 per cent. of seventy-one cases.

Rowe and Neely give full case histories, operation findings, and pathological reports of eight cases of primary small gut malignancies. Five of these were adeno-carcinomata, two were lymphoblastomata, and one a colloid carcinoma of the duodenum. All the adeno-carcinomata were in the jejunum, all were within thirty-six inches of the duodeno-jejunal junction, and all had secondaries in the mesenteric lymph-glands. Of the five cancer cases, only one survived operation, and was alive and well one year afterwards.

Doub reported fifteen cases of malignant small gut, of which nine, or 60 per cent., were duodenal and were carcinomatous. Of the others, three were cancers of the jejunum and three carcinoid tumours of the ileum. Nettrour found the jejunum most commonly affected by cancer in the Mayo Clinic.

It does appear fairly definite that the ileum is the most immune part of the small gut to cancer formation, and so the case which I wish to put on record is interesting, as the affected part was the ileum, two feet proximal to the ileo-cæcal junction.

Pathology.

Ewing states that it is a rare occurrence for a cancer of the small intestine to start in a pre-existing polyp, and he is of the opinion that by far the greatest number are of adeno-carcinomatous type. Many produce a small bobbin-like growth which rapidly constricts the lumen of the intestine and obstruction occurs. Others are fleshy and sprout into the lumen of the bowel with the usual sequelæ of ulceration, hæmorrhage, and severe anæmia.

The earlier articles on this subject lay stress on the fact that metastases occur late in the disease, but more recent writers are all agreed that early and extensive metastases are almost the rule. In Craig's report of thirty-six cases, metastases occurred in 53 per cent., and in Rowe and Neely's series, all, including the successfully resected case, had large mesenteric glandular secondaries.

Symptoms.

The average age of patients seen with this disease is given by Keyser (quoted by Nixon) as 43.9 years.

Many authorities state that the sexes are about equally affected, but it is important to note that most of the recent articles show a very large percentage as occurring in females.

Few cases are diagnosed before operation; pernicious anæmia and duodenal ulcer are sometimes simulated, so that vital time, prior to the onset of obstruction, is let slip past in wrongly directed treatment.

Nickerson and Williams give seven to eight months as the average duration of the symptoms before operation.

Two symptoms stand out as being of the utmost importance in making a diagnosis in the early stage: —

1. *Crampy epigastric or umbilical pain,* which usually comes on shortly after the "big meal" of the day, is of paroxysmal type and is usually unaffected by the administration of alkalis.

2. *Nausea.*—This symptom appears in almost all the cases recently reported by Nixon, Kalyjian, and Rowe and Neely, and is early in its advent. It usually exists alone, but may be accompanied by occasional vomiting.

Later the presenting symptoms are those associated with the cancer state, with hæmorrhage from the growth, or with sub-acute or acute intestinal obstruction.

In Wheeler's case a lump was palpable, which turned out at operation to be the growth itself. In other cases a soft "lump" can be felt often to the left of the umbilicus, but this rises and falls and has been ascribed to a peristaltic wave passing over a greatly dilated loop of the small gut immediately proximal to the growth.

Prognosis.

Recently, especially in America, improved radiological technique has shown that in future more of these cases will be diagnosed correctly before operation, and there is the hope that the results of treatment, which up to the moment leaves a lot to be desired, will be greatly improved.

Rankin and Mayo give the average duration of life as less than one year after operation. Rankin reports no case alive after three years. Nixon has one patient alive fourteen months, and Lynch one six years after operation. It is interesting that Craig found the prognosis in his series better for cancers of the ileum than for jejunal cases. The operative mortality is at least 20 per cent., with another 20 per cent. dying within five weeks of operation.

Treatment.

In short, this consists of resection of the growth with a liberal amount of surrounding bowel along with the glands in the corresponding part of the mesentery.

It may not always be possible to carry out this treatment in one stage on account of obstruction, so that often a lateral anastomosis short-circuiting the area of growth is required before the resection proper can be attempted. As the majority of these growths occur in the upper part of the small bowel they do not readily lend themselves to enterostomy resection on account of the difficulty of removing enough mesentery to be sure of getting above the highest invaded gland.

Case Report.

J. D., a female aged fifty-eight years, was admitted to hospital complaining of abdominal pain for six weeks. She stated that the pain was of gradual onset and was like "cramps" in the upper part of the abdomen and round the umbilicus. The pain usually came on about one and a half hours after the mid-day meal, lasting about three-quarters of an hour, and was not eased by alkaline powder, of which she took large quantities.

Nausea was present from the onset of the illness, and was described as being like "bad sea-sickness, but nothing came up." Vomiting started a fortnight before admission, and soon occurred after each meal, being green in colour and almost projectile in type. For two days before she came to hospital the pain was almost continuous, and at the height of its severity, a lump appeared to the patient to rise up above the umbilicus and travel across the abdomen to the left side. Her bowels had been confined for three days. On further questioning she would not admit to abdominal discomfort of any sort until the onset of her present complaint.

On examination it became obvious that the patient was suffering from almost complete intestinal obstruction, the cause of which was thought to be a carcinoma of the transverse colon. Following two enemata and an intravenous glucose saline, the abdomen was rapidly explored through a right paramedian incision under light Percaine spinal anæsthesia.

The small bowel was distended, and at the junction of the distended with the contracted part, a small hard growth was found in the gut wall and this had caused almost complete stenosis of the lumen of the intestine. It was about two feet proximal to the ileo-cæcal junction. In relation to the mesenteric vessels supplying the affected part, four hard and enlarged lymph-glands were discovered. The para-aortic lymph-glands were not affected, and the rest of the peritoneum and the liver were free from deposits.

None of the other abdominal organs were affected by cancer, and so it was thought that this was a case of primary ileal carcinoma.

An entero-anastomosis was then carried out of side to side type, thus excluding the loop containing the growth and leaving about fifteen inches of gut for future resection. The abdomen was drained. Following this operation, aided by intravenous drip saline, the patient rapidly improved.

Four weeks afterwards, using light Percaine spinal anæsthesia, the abdomen was reopened through the old incision. The anastomosis and the loop containing the growth was withdrawn from the abdomen (see photograph 1), and a formal resection of about ten inches of this loop with the growth was then carried out, the mesentery containing the secondary glandular deposits also being removed. The recovery from this second operation was quite uneventful, and the patient was discharged from hospital four weeks afterwards. The removed specimen (see photograph 2) shows a small adeno-carcinoma in which colloid changes are occurring. The peritoneum over the growth is invaded, and the lymph-glands also show secondary adeno-carcinomatous deposits.

The patient is alive and well at the moment of presenting this case, nine months after operation. She has gained one and a half stones in weight since her discharge from hospital, and is completely free from any signs or symptoms of recurrence of the growth.

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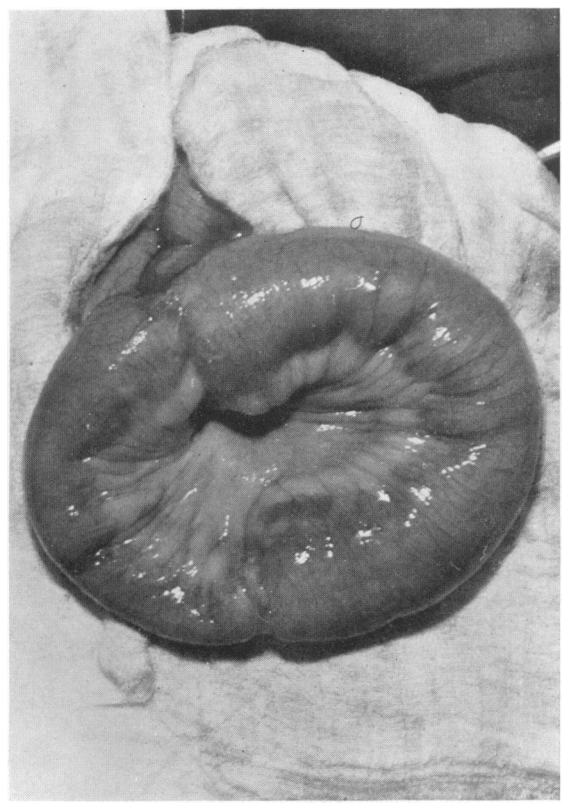

Fig. 1.

The anastomosis carried out at the first operation is seen at the upper part of the loop. The carcinoma is seen at the lower part of the loop. Note the dilatation and hypertrophy of the gut proximal to the tumour.

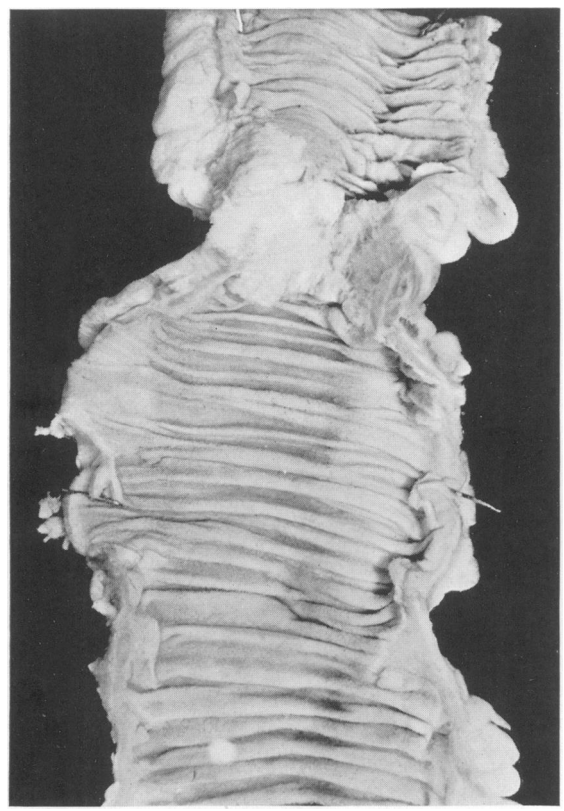

Fig. 2.
The specimen is here shown opened out. The proximal portion is below.

Primary Carcinoma of the Lung

A REVIEW OF ITS OCCURENCE IN NORTHERN IRELAND

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DURING the six-year period 1932 to 1937 there were thirty-five cases of primary carcinoma of the lung which came to autopsy from the Royal Victoria Hospital, Belfast. It is felt that a clinico-pathological review of these cases may be of interest as representing an account of local experience. In some of the data, four additional cases are included which were discharged from hospital after the diagnosis had been established by biopsy.

Although the comparatively small number of cases renders the results unsuitable for general statistical analysis, the fact that the main features correspond to those of larger series from other centres is in itself worth recording.

INCIDENCE.

The total number of autopsies from the Royal Victoria Hospital during the six-year period under review was 1,263. The number in which carcinoma of the lung was found was thirty-five, an incidence of 2.77 per cent. or just over one in every thirty-six post-mortems. Comparable figures published from other centres are 2.57 per cent. in Manchester (Duguid, 1927), 1.17 per cent. in Leeds (Bonser, 1929), 2.05 per cent. in the year 1925 in the London Hospital (Simpson, 1929), and 1.57 per cent. in the St. Luke's Hospital, New York (Frissell and Knox, 1937).

The figure in our present series is not only higher than in other centres, but is higher than that of a previous series reported by Thomson (1933) from the same hospital. He found 1.7 per cent. of the total number of post-mortems between 1926 and 1930 were primary lung cancers. This increase from 1.7 per cent. to 2.77 per cent. is recorded here. Its significance is discussed below.

OCCUPATIONAL AND GEOGRAPHICAL DISTRIBUTION.

There is no definite evidence that the occupation or district of residence in the series bears any relation to the incidence of the disease.

It is worth noting, however, that 17.85 per cent. of the male cases were transport workers. Duguid (1927) remarks on the fact that in his series of 143 males, 16.55 per cent. were transport workers.

AGE- AND SEX-INCIDENCE.

The youngest case observed was a male aged 21 years, the oldest a male aged 68 years. Twenty-eight cases occurred in males, eleven in females.

TABLE I—AGE-INCIDENCE.

Age	Male	Female	Cases	Bonser	Duguid	Present series: Oat-cell type	Present series: Other types
20-30	2	1	3	11	15	3	0
31-40	5	2	7	35	31	7	0
41-50	7	6	13	39	60	5	8
51-60	8	2	10	46	50	1	9
61-70	6	0	6	26	11	5	1
Total	28	11	39	—	—	21	18

From Table I it is seen that the age-incidence is in general accord with that given in other series. Weller (1929) found the age-incidence of bronchial carcinoma was in close accord with that of carcinoma in general, and found the highest point of the curve in the age-period from 56 to 60.

The oat-cell type in our series occurs at a much earlier age than the other types of carcinoma; in the twenty-one cases of oat-cell type, fifteen occurred before the age of 50 and only six after this age.

Side Affected.

In seventeen cases the carcinoma originated in the right side and in sixteen cases on the left side. In two cases the bifurcation of the trachea was first affected.

Duration of Illness.

In some cases it was not possible to decide on clinical evidence the precise time at which the cancer first produced symptoms. The duration was estimated therefore in all cases as the period from the first departure from normal health to the date of death.

The longest duration was six years and the shortest twenty-four days. There is no evidence that any particular histological type of growth bears a relation to the duration of the illness.

TABLE II—DURATION OF SYMPTOMS.

		Oat-cell	Other types
Duration less than 1 month	1 case	1	0
Duration less than 3 months	5 cases	3	2
Duration less than 6 months	10 cases	5	5
Duration less than 12 months	8 cases	7	1
Duration less than 15 months	1 case	1	0
Duration more than 15 months	10 cases	4	6

First Symptoms.

The most striking finding on analysis of the earliest symptoms of the disease is that in one-third of the total cases the early symptoms were not in any way referred to the thorax.

In the remaining two-thirds, the early symptoms in their order of frequency are chest-pain, cough, "chill" or "flu," loss of weight, and dyspnœa. The only common symptoms are chest-pain and cough.

TABLE III—FIRST SYMPTOMS.

Chest-pain	38.5 per cent.
Cough	35.9 per cent.
"Chill" or "flu"	15.4 per cent.
Loss of Weight	12.8 per cent.
Dyspnœa	10.3 per cent.

Frissell and Knox (1937) found in their series the commonest first symptoms in order of frequency were cough (23.89 per cent.), pain (21.73 per cent.), asthma (10.87 per cent.), and dyspnœa (8.69 per cent.).

TABLE IV—INCIDENCE OF SYMPTOMS.

Symptoms	Cases	Per cent.
Cough	24	61.5
Dyspnœa	22	56.4
Pain in chest	20	51.3
Loss of weight	19	48.7
Hæmoptysis	14	35.9
Non-thoracic pain	9	23.1
Pleural effusion	9	23.1
Brain or cord lesion	8	20.5
Enlarged cervical lymph-nodes	7	17.9
Gross obstruction to superior vena cava ...	5	12.8
Jaundice	4	10.3

In the London Hospital series, Simpson (1929) found the four commonest symptoms in order of frequency to be cough, pain (including thoracic and non-thoracic), loss of weight, and dyspnœa.

Pathology.

On preliminary examination, the histological features observed in some of our cases suggested a completely de-differentiated type of tumour lacking any distinctive features. A detailed examination in each case of all the available material has revealed areas in which, in the majority, either characteristic oat-celled or an adeno-carcinomatous formation was apparent; such cases are classified under the appropriate headings without additional comment.

During the six-year period under review there were five cases of apparently primary malignant growth of the pleura. These five cases are completely excluded from the thirty-five cases of pulmonary carcinoma under consideration.

Boyd (1930) first described calcification in the blood-vessels of primary cancers of the lung. More recently Gazayerli (1936) examined sixty-six cases of oat-cell cancer of the lung, and found widespread calcification in the smaller vessels in

thirty-two of these cases. He also described a hyaline change in the walls of the vessels, and suggested that this change preceded calcification. He suggested that the presence of such calcification was of sufficiently frequent occurrence to be an aid to diagnosis of biopsy material.

In the present series, twenty-one cases of oat-cell carcinoma have been examined for these changes. Calcification was present in nine cases (40 per cent.) and the hyaline change was also observed. In none of these nine cases was calcification present in all the material, and in view of this we feel that its presence, though an interesting and still unexplained histological finding, is not of any great value in the diagnosis of biopsy material.

Classification.

1. *Epidermoid carcinoma.*—Tumours which exhibit any evidence of metaplasia towards a squamous type of epithelium have been included in this group.

2. *Adeno-carcinoma.*—Tumours of all grades, from those having a typical acinar arrangement to those which are largely de-differentiated, but retain features of cell-type or arrangement sufficiently distinctive to render an origin from glandular epithelium obvious.

3. *Oat-cell.*—The oat-cell carcinoma is sufficiently distinctive histologically and has a strikingly earlier age-incidence. For these reasons it is thought best to classify this variety as a quite separate group.

4. *Undifferentiated.*—Tumours which possess no distinctive features of cell type or arrangement apart from those justifying the term carcinoma.

Incidence of Histological Types.

Twenty-one cases were oat-cell tumours, twelve were adeno-carcinomata, three were epidermoid, and three undifferentiated carcinomata.

The earlier age-incidence of the oat-cell type has already been discussed. The remaining varieties occur at the more general cancer period, and exhibit no characteristic features. The age-incidence is tabulated in Table V.

The sex-incidence in the oat-cell type is approximately the same as in the remaining varieties.

It has not been possible to demonstrate any association between histological type and occupation.

TABLE V—AGE-INCIDENCE OF HISTOLOGICAL TYPES.

Age	Oat-cell	Adeno-carcinoma	Epidermoid	Undifferentiated
20-30	3	0	0	0
31-40	7	0	0	0
41-50	5	6	2	0
51-60	1	5	1	3
61-70	5	1	0	0
Total	21	12	3	3

Frequency of Metastases.

Metastases occurred in thirty-one out of thirty-five cases (88.5 per cent.). In some cases permission for a complete post-mortem was not obtained, so that the complete distribution of metastases could not be determined. For this reason the figures given in Table VI must be regarded as an approximation with reference to the less common sites for metastases.

TABLE VI—SITES OF METASTASES.

Site	Cases	Site	Cases
Mediastinal lymph-nodes	19	Brain	5
Liver	13	Pleura	5
Pericardium	10	Ribs or sternum	5
Lung	9	Cervical lymph-nodes	4
Abdominal lymph-nodes	9	Subcutaneous tissues	3
Pancreas	7	Oesophagus	2
Adrenal	7	Vertebræ	2
Kidney	6	Skull	1
		Submucous coat of gall-bladder	1
		Appendix	1

Discussion.

The apparent increase in primary lung-cancer in the local post-mortem records is of doubtful significance. The controversy of recent years regarding an increased incidence of lung-cancer has demonstrated the difficulties of obtaining a true indication even in very much larger series than the present one.

The statistics for the whole of Northern Ireland, published annually by the Registrar-General, show that there is a progressive increase in the number of deaths certified as being the result of intrathoracic cancer. The figures are given in Table VII, in which the five-year periods 1926-1930 and 1932-1936 are compared with the local findings.*

It appears to us that this concomitant finding adds somewhat to the apparent significance of the increase in our series.

TABLE VII.

	Autopsies			Registrar-General's Figures for Northern Ireland	
Years	Total	Lung Cancer	Percentage of Total Autopsies	Cancer of Larynx and Trachea	Cancer of Lung, Bronchus, and Mediastinum
1926-30	993	17	1.7	85	116
1932-36	1081	28	2.59	96	251

* 1937 figures for Northern Ireland are not yet available.

In our classification according to histological type we emphasize the fact that oat-celled tumours have been separated from other undifferentiated varieties because of their distinctive histological appearance and earlier age-incidence. In

placing the cases in this group, we have been guided by the comprehensive descriptions of Barnard (1926) and Duguid.

The oat-celled carcinoma, in addition to these two features, has an even greater tendency to form metastases and to invade the mediastinal lymph-nodes than have all other varieties of lung-cancer. Its separation from the undifferentiated group, as shown in Table V, demonstrates the fact that no cases in our undifferentiated group occurred below the age of 50 years, whereas fifteen out of the twenty-one cases of oat-cell type occurred below this age.

We feel there is sufficient evidence to suggest a somewhat different biological behaviour for the oat-cell tumour; a suggestion which, if applied to the consideration of a large series of lung-cancers, particularly in the investigation of predisposing and etiological factors, might show that it possessed other special features.

Clinically, in common with other observers, we have been impressed by the large proportion of cases in which the early symptoms were in no way suggestive of an intra-thoracic lesion. The masking of the primary growth by its intra-thoracic complications recurred again as in other series, and added to the difficulties in diagnosis.

In our post-mortem material, metastases to the mediastinum were early and frequent. The appearance of many of these suggested that they should have produced clinical signs of pressure on the great veins. We believe that in such cases a deliberate clinical search might reveal minor degrees of venous obstruction, particularly to the superior vena cava and its radicals, or an obstruction which showed a disproportion in its effect between superior and inferior venæ cavæ and their radicals.

Summary.

(1) There is an apparent increase of primary cancer of the lung in the post-mortem records of Belfast.

(2) Transport workers comprised 17.85 per cent. of male cases.

(3) The clinical and pathological findings are reviewed.

(4) Features of the oat-cell type of carcinoma are discussed.

We are indebted to the Honorary Staff of the Royal Victoria Hospital for the clinical histories.

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Meningitis due to Bact. Enteritidis (Gaertner)

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MENINGITIS due to organisms of the typhoid-salmonella group is comparatively rare. The case presently recorded was caused by bact. enteritidis (Gaertner), and several examples of similar origin have been culled from the literature.

R. M., a male infant aged 2½ months, the second child of healthy parents. The father was a milk vendor, and the child lived with its parents on a dairy farm just outside the city boundary. The child was fed on a raw milk mixture, on which he appeared to thrive. Fifteen days before the illness he was vaccinated, and from that time the mother noticed the child becoming "fretful and feverish." He continued to feed well, although he vomited occasionally. Nothing unusual was noticed in the type or frequency of the motions. He became drowsy, and ceased vomiting three days before admission to hospital.

On admission to the ward of the late Dr. Malcolm Brice Smyth, the infant had a temperature of 102°, and the pulse was 160. Nutrition and development were good. There was a small dry vaccination crust on the left arm. The child was drowsy, but fed well, and cried on handling. Head retraction and neck rigidity were present, and the anterior fontanelle was tense. Spasmodic twitching of the muscles of the face and arms was observed. The left pupil was insensitive to light, and both optic discs showed definite choking.

Cistern puncture yielded 10 c.c. fluid under increased pressure. Next day the drowsiness had deepened to coma, and feeding became difficult. 15 c.c. cerebro-spinal fluid was withdrawn by lumbar puncture. Two normal motions were passed. On the third day, several convulsions occurred; coma deepened. Cistern puncture was repeated, without abatement of the meningitic condition. The child died suddenly on the third day after admission. Post-mortem examination was not obtained.

All three specimens of cerebro-spinal fluid showed marked turbidity and opalescence. On standing, they yielded a heavy deposit, but no clot. The cell counts ranged from 350 to 520 cmm., polymorphonuclears predominating. The third specimen contained 560 mg. per cent. chlorides, and only a trace of glucose. Direct examination in each case showed the presence of motile gram negative bacteria in large numbers. On culture, the organism gave the biochemical reactions of the salmonella group. Dr. W. F. Green very kindly did the following agglutinations, which were all negative :—

Organism with bact. typhosum, bact. paratyphosum A and B, and patient's sera. By the good offices of Dr. J. T. Lewis, a culture was sent to the Lister Institute for identification, and Dr. H. Shütze very kindly reported that it belonged to the salmonella enteritidis Gaertner group. In view of the proximity of the fatal illness to vaccination, the chemist's remaining stock of vaccine lymph (one tube) was examined, and found free from bacteria.

There is little doubt that in this case the infection was milk or water borne. It is of interest that no indisposition occurred in other members of the household, and the animals in the dairy herd seemed healthy.

Of late years several cases of enteritidis (Gaertner) meningitis have been recorded. Lynch and Shelburne reported a case in 1930, and compiled cases previously published by W. St. C. Symmers and W. J. Wilson, Arzt and Boese, Smith and Aberd, Stuart and Krikorian. Some of these cases appear to have been examples of mixed cerebro-spinal infection. Rieper published a case in 1933, with a review of the cases recorded by Lynch and Shelburne, Stuart and Krikorian, Pesch (1926), Claudius (1928), and Lindau (1931). Stevenson and Wills (1933) give an account of a completely investigated case of primary and uncomplicated Gaertner meningitis, and mentioned, among others, two cases reported by Opitz (1919). Opitz' cases were examples of coccal meningitis with superimposed Gaertner infection. Cases have since been added to the literature by Schmitt (1933), Vaughan (1934), and Schulz-Schmidtborn (1934).

Hayasaka (1933) reported an interesting series of fifteen cases of Gaertner septicæmia ensuing after malarial therapy of general paralytic subjects. In addition, two cases of Gaertner meningitis were encountered. Altogether, infection with this organism complicated his malarial therapy to the extent of 12.4 per cent. of 137 cases.

An important feature of the disease is that it most frequently attacks infants, due probably to the frequent opportunities for infection in hand-fed babies, and to the greater permeability of the intestinal mucosa in nurslings. The rarity of meningitis due to organisms of the food-poisoning group is remarkable, in view of the occasional causal rôle of these organisms in outbreaks of infantile diarrhœa. A history of gastro-intestinal upset is prominent in some of the recorded cases of Gaertner meningitis, whereas others had histories of severe prodromal or intercurrent infection, such as pneumonia, empyema, pyelo-nephritis, or furunculosis. In other cases, bact. enteritidis has complicated coccal meningeal infection. Hayasaka's examples illustrate this tendency to invade the meninges in the presence of some debilitating condition.

The disease rapidly produces a full-blown meningitic syndrome, and in all reported cases, has led swiftly to a fatal issue. The cloudy, opalescent nature of the cerebro-spinal fluid, due to the profusion of bacteria present, has been emphasised by Stevenson and Wills. The fluid usually shows a polynuclear pleocytosis. In some instances the organism was isolated from the stools, urine, and blood. Immunity phenomena are variable. Thus, in the case described by Schmitt, the patient's serum gave no agglutination with stock Gaertner cultures, but it agglutinated the bacterium isolated from the spinal fluid to a titre of 1-4,000. In the Schulz-Schmidtborn case, the infant's serum agglutinated stock Gaertner to 1-100. In the present case, the patient's serum contained no agglutinins for his bacterium.

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Studies from the Institute of Pathology

CASE III—A2182.

A Patient with Carcinoma of the Breast.

The patient, a young married woman of 32 years, was admitted to hospital complaining of pain in the left thigh. This had been present for two months. The patient was six months pregnant. Examination showed a relatively well-nourished woman, who appeared to be in good health. The uterus was consistent in size with the patient's history, and the fœtus was alive. Examination of the heart, lungs, and kidneys showed nothing abnormal. Radiological examination of the left femur showed a few cyst-like areas in the upper third of the bone associated with rarefaction. The opinion was given that the patient probably suffered from osteitis fibrosa cystica, though osteomalacia of pregnancy was also suggested. During her stay in hospital the patient's left leg suddenly gave way, and she was found to have sustained a fracture in the upper third of the shaft of the femur. No tumour could be palpated in the neck. Confined to bed, the patient gradually weakened, and finally became stuporose, with signs of unilateral paralysis (right side). Two days later she died. Towards the end of her stay in hospital a small lump was thought to be present in the left breast, but as there was no retraction of the nipple, no fixation of the skin, and no palpable enlargement of the axillary lymph nodes, it was not considered to be a carcinoma. The patient had not previously noted the nodule, and only complained of the tense feeling of her breasts.

Autopsy was performed eight hours after death.

Autopsy.

The body is that of a young female adult. It is normally developed. The bodily distribution of hair is normal. Rigor mortis is present. There is no discharge from eyes, nose, or mouth. The skin shows brownish pigmentation over the pudenda. The breast areolæ are deeply pigmented. The abdomen is protuberant, and shows numerous lineæ gravidarum. There is no jaundice and no œdema.

Body cavities.—The pleural cavities are normal. The pericardial sac contains about half an ounce of amber-coloured fluid. The peritoneal cavity contains neither free fluid nor gas.

Heart.—This is of normal size. The epicardium is smooth and glistening. The right auricle is not abnormal. The tricuspid and pulmonary valves are thin and competent. The right ventricle is distended with post-mortem blood clot. The left auricle and ventricle show no lesions, and the mitral and aortic valves are normal. The coronary arteries are healthy.

Lungs.—The pleura is smooth. There is no enlargement of the bronchial lymph-nodes. The bronchi are slightly congested. On section the lung tissue appears air-containing. Around some of the larger bronchi streaks of whitish tissue can be distinguished, and an occasional small white nodule, 2-3 mm. in diameter, is seen.

Liver.—This is of normal size and shape. The capsule is smooth. Many small

whitish nodules about 1 mm. in diameter can be distinguished immediately beneath the capsule. The common bile duct and cystic duct are patent. The gall-bladder is distended with bile, and contains no stones. On section the liver lobules appear distinct. Small whitish nodules, similar to those seen through the capsule, can be distinguished with difficulty. The radicles of the portal veins and bile ducts appear normal.

Spleen.—This appears of normal size. The capsule is thin. On section the Malpighian bodies are distinct. The trabeculæ appear normal. The pulp is red.

Pancreas.—Weight, 100 gms. The ducts are patent. On section the acinar tissue appears normal.

Stomach and intestine.—These show no lesions.

Left kidney.—The shape of the kidney is distorted by reason of a mass which is present in the vicinity of the pelvis. The capsule strips easily, leaving a smooth homogeneous surface. On section the cortex is of normal width, and the cortical striæ regular. The medulla appears normal. The pelvis is slightly displaced by the tumour which presents a variegated appearance on section, red and yellow areas suggesting necrosis and hæmorrhage. There is no obstruction of the pelvis or ureter.

The right kidney appears normal.

Adrenals.—The right adrenal is of normal size. On section the cortex is well filled with lipoid and the medulla appears normal. The left adrenal appears rather large, and on section a whitish nodule, 1 cm. in diameter, is found in the region of the medulla.

Bladder.—This shows some congestion in the region of the trigone. Elsewhere the mucosa is pale.

Uterus.—The uterus is greatly enlarged, measuring 26 cms. from fundus to cervix. On section the wall is thinned. It contains a fœtus aged about six months, with the placenta attached to the posterior wall in the region of the fundus.

The ovaries are normal. The corpus luteum is present in the left ovary.

Neck organs.—The larynx and trachea appear normal. The œsophagus shows no lesions. The thyroid is slightly enlarged and congested. On section it appears to be a normal colloid gland. No enlargement of the parathyroids is found.

Skeletal tissues.—The mammary glands are enlarged, and on section there is obvious hyperplasia of the secretory tissue. In the left breast, towards its posterior surface is a white hard oval-shaped mass, measuring 1 x 2 x 2 cms. From this, other smaller white nodules radiate. A few small lymph nodes are found in the axillary fat, and on section these appear normal.

The right breast shows a similar hyperplasia, and two small white nodules in its substance, each measuring 3 mm. in diameter.

There is a pathological fracture of the upper part of the shaft of the left femur. Mid-line section of this bone shows several masses of whitish tissue, some of which are replacing the cortex. One of these, 3 cm. in diameter, is present at the site of fracture. Here there is some hæmorrhage into the adjacent muscles.

The third, fourth, and fifth ribs on the left side show oval-shaped swellings. These can quite easily be cut with the knife, and on section appear as whitish masses entirely replacing the osseous tissue.

Section of the vertebral column shows no gross lesions.

Head.—An area, 2.5 cm. in diameter, in the calvarium is replaced by tumour tissue. On removing the skull cap the dura is seen to be covered on the left side by a layer of whitish tissue 0.5 cm. in thickness. A similar mass of tumour is seen on the under surface of this membrane on the left side, whilst a few small nodules are present in the dura on the right side. Multiple sections of the brain, following fixation, fail to show any lesions.

Hypophysis.—This is enlarged. Sections show the enlargement to be due to hypertrophy of the anterior lobe.

Microscopical Examination.

Heart.—This shows no lesions.

Lungs.—The peri-bronchial lymphatics are in many instances filled by masses of spheroidal cell carcinoma. In parts these have broken through the lymphatic endothelium to form discrete masses of tumour. Where this has occurred the branches of the pulmonary vein are extensively invaded, and in one large branch the tumour tissue projects into the lumen and is covered by a thrombus which partially occludes the vessel. The alveoli appear normal.

Breasts.—Both breasts show a marked degree of acinar hyperplasia. The acini are lined by high columnar epithelium which contains large clear secretory granules. In the left breast the whitish mass is found to be composed of epithelial tissue in which the cells are scattered in groups through a fibrous stroma. These cells occasionally are found in acinar formation, but in general they merely appear as groups of spheroidal cells which do not attempt to form any definite epithelial structures. Blocks from different areas, however, show much variation in structure from field to field. Apart from acinar and scirrhous areas, there are also fields in which the tumour has a papillary structure, and the amount of stroma varies greatly.

In several ducts in the breast tissue surrounding the tumour there is much proliferation of the epithelium—so profuse and so irregular as to justify the term intra-duct carcinoma.

The smaller nodules in the right breast are similar in structure and appear to be metastases from the opposite breast.

Axillary lymph nodes.—A few of the peripheral sinuses contain groups of epithelial cells. The intraglandular sinuses show some swelling of their endothelium and are filled with large mononuclear cells.

Liver.—Small nodules of carcinoma are found scattered throughout the liver tissue. All of these are very small, rarely exceeding 1 mm. in diameter, and many are even smaller. These groups of malignant cells appear to lie in the sinusoids. The portal veins and bile ducts are normal.

Spleen.—This shows no lesions.

Adrenals.—There is a nodule of tumour tissue in the medulla of the left adrenal. A small area of cortex is also replaced by tumour. The right adrenal shows no abnormality.

Kidneys.—Apart from the metastases in the left kidney, the renal tissues appear normal.

Uterus.—This shows no lesions.

Femur.—Tumour tissue is found to have replaced the cortex of the bone at the site of fracture. There is no attempt to form callus.

Thyroid.—This presents the histological appearance of a normal gland.

Parathyroids.—These show no abnormality.

Dura.—The extradural mass is a metastasis in which the fibrous tissue forming the stroma shows patchy new bone formation. This is not present in the subdural masses.

Brain.—There are no metastases.

Hypophysis.—The anterior lobe shows an increase in cells, which appear to be enlarged chromo-phobes with a fine eosinophil granulation. There are no metastases in either lobe.

Anatomical Diagnosis.

Carcinoma of left breast : metastases to right breast, axillary lymph nodes, left kidney, femur, ribs, lungs, dura, and skull.

Cerebral compression.

Pregnancy.

Discussion.

This case illustrates many of the features of carcinoma, whilst at the same time being of sufficient interest to the clinician to merit discussion. With the majority of cases of mammary carcinoma the patient seeks medical advice by reason of the presence of a swelling in her breast. In the present instance the earliest symptoms were referred to the left thigh, and indeed the patient never complained of any swelling of her breast, where a small mass was only palpated a few days before her death. Whilst this is not the common sequence of events it is not uncommon, and cases of mammary carcinoma in which metastases in bone have furnished the first symptoms have been recorded by Johnson (1924), Ginsberg (1926), Lick (1926), Neal and Robneth (1927), Patel (1927), and others. Recently we have had similar examples with primary carcinomata of the cervix and intestine, in which the bone lesion has been regarded clinically as the primary tumour.

Clinically, too, in the present case the small mass in the breast failed to present the usual findings. There was no retraction of the nipple, no dimpling of the skin, and no obvious fixation of the tumour. The simultaneous occurrence of the hyperplasia of breast tissue consequent upon the advanced stage of pregnancy rendered clinical diagnosis of the nature of the tumour probably more difficult.

Apart from the pathological fracture of the femur and the terminal cerebral symptoms, the other metastases found produced no clinical signs. The renal metastasis had not resulted in any hæmaturia. The metastasis in the adrenal was too small to have produced any signs of adrenal insufficiency. Indeed, even with large bilateral metastases it is relatively rare to find symptoms of Addison's disease, and careful search will often show small fragments of surviving cortex which appear sufficient for the needs of the body's metabolism. The liver, whilst extensively infiltrated by minute metastases, showed abundant normal functioning tissue, and renal function was unimpaired either by reason of the tumour or of any of the complications of pregnancy. Death was due to the series of changes—œdema, etc. —set up in the brain by the growth of the intracranial metastasis. It will be noted that death has occurred before the emaciation, which is so often seen in advanced malignant disease, has had time to develop.

The histological examination of the tumour and its metastases shows not only variation in the cell type, but also in the epithelial structures which these attempt to form. In one part acinar-like structures are produced: in another papillary growth predominates: whilst more generally the tumour appears as a mass of non-specific spheroidal cells. Such findings emphasise the importance of examining many areas of any given tumour in the endeavour to ascertain its site of origin, and its degree of malignancy. Whilst it is impossible in an advanced case of carcinoma to state with certainty what lesion in the breast has preceded the malignant change, the finding of ducts filled by anaplastic cells suggests that in the present instance the carcinoma has arisen from a previous intra-duct lesion.

Whilst carcinoma may spread by direct extension, by lymphatics, or by the blood stream, in the present instance the spread by the blood stream has been the most marked. Lymphatic extension is responsible for the lesions in the opposite breast, in the lungs, and the early lesions in the axillary lymph nodes. The remainder of the metastases—in the femur, ribs, skull, dura, kidney, and liver—are blood-borne, and it may be that the pulmonary vessels which were seen to be invaded are the source of the tumour emboli. The occurrence of metastases in the skeleton in patients with mammary carcinoma is by no means unusual. Indeed they are found in almost half of the cases coming to post-mortem, and only the lungs and liver show them more frequently. Copeland (1931), in one hundred cases of mammary carcinoma, found the bones affected by metastatic deposits in the following order of frequency:—spine, pelvis, femur, skull, ribs, and humerus. As regards the site of metastasis in the femur, the present case conforms to the usual finding in showing them in the proximal part of the bone.

In summary, therefore, a case is described of a pregnant woman who suffered from a pathological fracture of the femur, and who was considered to be some form of osseous dyscrasia. The pathological findings reveal that she had a latent carcinoma of the breast, with extensive bony metastases.

J. H. B.

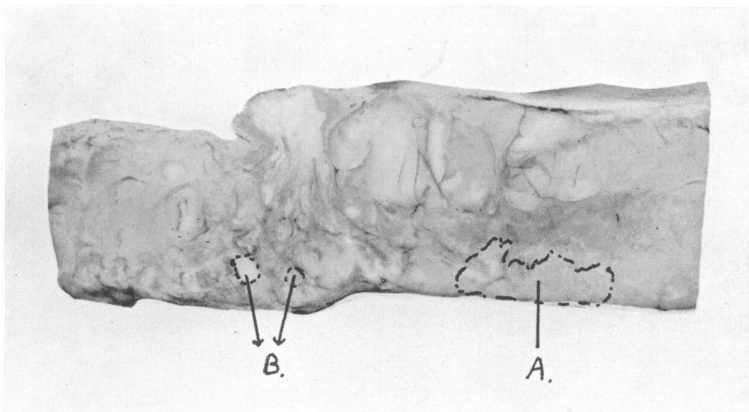

Fig. 1.
This shows a mid-line section of the breast. (A) represents the primary growth, and (B) two small nodules, the result of lymphatic extension.

Fig. 2.
Mid-line section of the left femur showing the fracture and the presence of another metastasis below it.

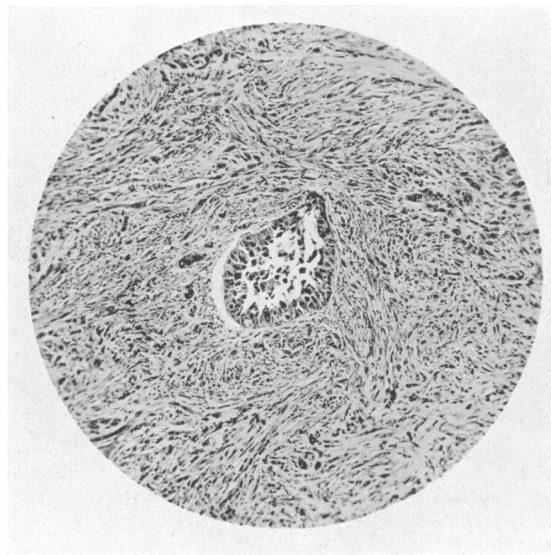

Fig. 3.
Section of metastasis showing alveolar and diffuse carcinoma. The variation in cell type can be seen.

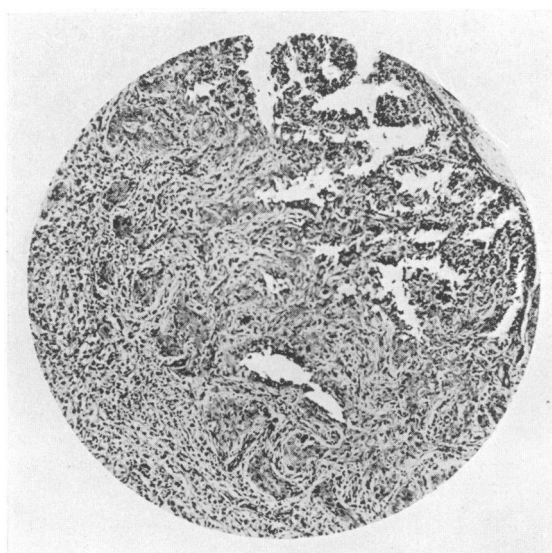

Fig. 4.
Section showing a transition from papillary carcinoma through alveolar to diffuse carcinoma.

(Photographs by Mr. D. Mehaffey.)

Medical Superstitions in Ireland

By Eileen M. Hickey, M.D., F.R.C.P.I.

When I was a small child I had an attack of whooping-cough, for which ailment I received whatever medical treatment was then in vogue. In addition to this, however, I was taken to the gas-works. The fumes of the gas were no more efficacious than the more orthodox remedies, and as my whooping was apparently distressing to listen to, I was next taken to a large brewery and encouraged to hang over the edges of the vats. A vendor of fruit who came to our door once a week, and who knew everything that was worth knowing and a good deal that was not, was most anxious that I should be passed thrice under the belly of an ass. I was spared this indignity, perhaps because my parents could not be convinced of the efficacy of this cure, and perhaps, no doubt, because they did not at the time know any person possessing a donkey who could be trusted not to kick whilst the rite was being performed.

Some years ago I had a housekeeper who had previously lived in the house of a cancer curer in the country, and whose mind was literally crammed with superstitions of every kind. One day, whilst in my service, she sustained a lacerated wound to her hand. I dressed it in the orthodox manner and bound it up. Some hours later I came upon her unawares and found her sitting in a chair. All the dressings had been removed from her wound, and the palm of her hand appeared to be full of water. I looked at her in amazement and asked her what she had done. She looked up at me in some confusion, but said defiantly : "Och ! They say there's great virtue in spittle !"

Shortly after I qualified I saw a patient who had just come out in a purpuric rash. I explained to him that the rash was of the nature of small hæmorrhages into the skin. "Oh ! bleeding, is it?" said he; "my father can stop any bleeding, he has a cure against it."

I have seen many patients who had only come into hospital when a charm had failed to cure them. No later than last week I saw a fine young man of about thirty dying of septicæmia, which had its origin in a wound in his hand, received three weeks prior to his admission to hospital, and which had received no treatment but a charm.

There are many country cures still used in Ireland that are little known in the cities. Perhaps one of the commonest, and doubtless most harmless, is the application of saltless butter in conditions such as erysipelas. From the very earliest days of which we have any knowledge of the life of the people in this country, there is evidence that there were countless "cures" concerned with the healing art, some of these, it is now quite impossible to imagine, of the very slightest value, and others about which one could not feel just so sure. There is, for instance, a bog plant of a grassy nature, which is also used for erysipelas. This plant, it appears, is also used by some country people as a substitute for soap, so that it cannot be entirely inert. It is related that some years ago a young man

in the County Kerry had a painful swelling of his leg, and after a consultation, the medical men decided that amputation was essential. A "travelling woman" from the North arrived on the scene, and obtained the permission of the patient's father to try her skill. She gathered a quantity of a special plant (uarac-a-lac), boiled it, and applied it in form of poultice, after having had the patient strapped down in bed. He endured some hours of intense agony, but was completely cured by the following day, to the great astonishment of the countryside.

Sore throat used to be "cured" by putting the head of a live gander down the patient's throat and persuading the bird to quack. Hardly less efficacious was the cure for thrush, which was the fasting breath of a posthumous child. Less pleasant, perhaps, but never known to fail, was the rubbing of the finger of a corpse on the gum in cases of toothache.

We have all heard of the "wren boys," who, on St. Stephen's Day, set out in pursuit of the wren, but we have almost forgotten that an ancient cure for scrofula was the application of the blood of nine or twelve young wrens, i.e., king's blood, as the wren is the king of the birds.

Few diseases have more remedies, official and unofficial, than rheumatism, and perhaps the Irish custom of carrying a potato in the pocket is as efficacious as many a modern one. Another cure for the "rheumatics," which might perhaps come under the heading of manipulative surgery, is for the afflicted person to lie on his breast and allow a man, who came into the world feet foremost, to walk along his body, from the feet to the head.

Warts, as we all know, are curious things, both in the manner of their coming and of their going, and why indeed should they not shrivel at the very hour that a snail shrivels, when it has been impaled on a hedgethorn by the patient! Of course if the wart does not shrivel at that moment it will surely disappear when the patient spits on the hearth (fasting, of course), and applies the spittle with his second finger.

Boils may be readily cured by a blacksmith who is the seventh son of a blacksmith. He has merely to open and shut his tongs three times in front of the boil, without even touching it. Ringworm may be speedily cured by the blood of a black cat. Any person can acquire the power to cure a burn by licking it, provided that he has previously licked the under-surface of a lizard from tail to head. Epilepsy being a very unpleasant malady, one is in order in expecting a somewhat unpleasant cure, but luckily it is nothing worse than to partake of some milk which has been boiled in a human skull.

Convulsions are of course brought about by fairy influence, and merely represent the struggles of the child trying to escape from the fairy clutches. Fairy darts have been found all over the country (it is true that the prosaic-minded archæologist prefers to call them arrow-heads). The finder is a fortunate person, as he can counteract the evil designs of the "wee folk" with one of these darts. A sick person can be cured of any sickness brought about by the agency of these mischievous little folk by merely drinking out of a vessel, in which is immersed

the fairy dart. Do not forget that when you sneeze, the fairies are endeavouring to carry you off, and that if a sudden lameness overtakes you, it indicates that you have been trespassing on fairy ground. The great safeguards against the fairies are fire, iron, and dung, the last-mentioned because the fairies, being pure spirits, cannot bear defilement. Never take fire out of a house with a person sick within its walls, or misfortune will surely attend you.

Do not blame the fairies for all your ailments, for you may have been looked upon by someone possessing the evil eye. If you should meet anyone whom you know of a certainty to possess the evil eye, be sure to double your thumbs under your fingers, and if by any unfortunate chance he should praise anything or anyone belonging to you, never lose sight of him until, by whatever form of strategy you please, you have persuaded him to spit, so that you may annoint the object of his admiration with it, and so avert sickness or other misfortune.

Dublin Journal of Medical Science, 1881.
Proceedings of the American Philosophical Society, 1887.
"Lectures on the MS. Materials of Ancient Irish History." Prof. O'Curry.

Still-born Infants

By RICHARD H. HUNTER, M.D., M.CH., PH.D., M R.I.A.
Queen's University, Belfast

THE problem of the still-born infant is one of primary importance to the practitioner, but as a general rule many possible causes of the condition are overlooked, and the practitioner is left wondering why a still-born infant should have resulted from what had been an apparently normal labour. This is possibly due to the fact that many people do not properly appreciate the vast difference between death in an organism which is *fully* alive as a separate entity, as a child or adult, and death in an organism which has not yet reached the state of a separate existence, as a fœtus.

The difference in the two types of death may be illustrated by the two methods of respiration employed before and after birth. After birth, respiration is a gaseous exchange between the atmospheric air in the lung alveoli and the blood as it circulates in the lung tissue. Before birth, respiration is a gaseous exchange between two liquids, the maternal blood and the fœtal blood, as they circulate in the uterine sinusoids and in the placental villi. This remarkable difference in the method of respiration is of great importance in discussing how a fœtus dies of intra-uterine suffocation.

This obvious difference in the physiology of pre-natal and post-natal life must be remembered in examining a still-born infant; and the difference in other physiological processes must also be borne in mind, such as the difference between ante-natal and post-natal nutrition, excretion, secretion, etc.

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It is obvious that the causes of still-born infants must vary with the stage of delivery the infant has reached at the time death occurs, and there is a wide range of factors responsible. But in this short paper it is proposed to confine our observations to those factors which show no clear external signs of the lesion responsible. These may be divided conveniently into circulatory disturbances, injuries, and congenital deformities.

Circulatory Disturbances.

Fœtal respiration is dependent on the existence of an efficient placental circulation, and any interference with the placenta or umbilical cord will result in a greater or lesser disturbance of the fœtal metabolism. Such a disturbance may manifest itself in one of two ways: (a) An undue rise in the hydrogen-ion concentration of the blood, or (b) in a lack of oxygen in the blood.

(a) If an undue rise in the hydrogen-ion concentration occurs, this will cause a stimulation of the vagal centres in the medulla, with a consequent slowing in the heart-beat and a stimulation of respiration. Such premature efforts at respiration, while the fœtus is floating in amniotic fluid, will cause an intake of the fluid into the respiratory passages, and when the infant is born it is unable to draw air into its lungs, and it is to all intents and purposes drowned in its own amniotic fluid.

(b) If a lack of oxygen results, this will express itself on the medulla, where the centre of respiration may become damaged to such an extent that its power of response to the ordinary post-natal stimuli becomes lost, and the infant fails to breathe at birth.

The normal change from intra-uterine to pulmonary respiration is dependent upon the reflex response of a healthy medullary centre. If the infant is born with its heart beating, it is alive, and a failure to breathe means either failure in medullary response, or some abnormality of the respiratory apparatus, making respiration impossible.

The respiratory centre fails to respond when it is severely damaged by prolonged oxygen-lack. In some cases artificial respiration may oxygenate the blood sufficiently to lead to recovery of the centre, but in other cases the damage may be so severe that all efforts are unavailing, and there are no naked-eye appearances found at the post-mortem examination to account for the infant's death.

It is commonly stated that placental infarction and hæmorrhage (two common causes of circulatory disturbances in the fœtus) are due to syphilis, but this view is no longer held. The syphilitic placenta may appear normal to the naked eye, but in cases where the pathological changes are well marked, the placenta is pale and somewhat bulky looking, and the cut surface is strikingly bloodless. Microscopically the main changes are in the villi. Normally these consist of thin-walled capillaries, loose stroma, and a covering of epithelium one or two layers thick, depending on the period of gestation. In the syphilitic placenta the fine capillaries fail to grow, and are either absent or are but poorly developed in many villi. The villi are much increased in bulk, as the stroma has grown enormously, and there is usually a well-marked round-cell infiltration. The effect of this increase in size of the villi

is to decrease the intra-villous spaces. The blood circulation in the villi (fœtal) and around the stroma (maternal) is thus enormously decreased, with a resultant deficiency in the nourishment and æration of the fœtal tissues. These changes in the placenta may cause the changes already described in the medulla, and which result in a still-born infant.

Another cause of circulatory disturbance is infarction of the placenta. These are said to be due, primarily, to a clotting of the blood in the intervillous spaces of the placenta. This is possibly due to a toxin circulating in the maternal blood-stream, producing a stagnation of the blood, with coagulation around the villi. Fibrin is deposited on the villi, which, being deprived of their nourishment, undergo necrosis. The clot organises around the damaged villi, and finally the villi appear as mere strands in a mass of organised clot, the whole being an infarct.

The external signs of suffocation in a still-born infant are lividity of the general body-surface, congestion of the conjunctiva, and blackness of the tips of the fingers and the nail-beds. Post-mortem rigidity is usually absent, owing to delay in the clotting-time of the blood, caused by its high CO_2 content.

The most importance evidence of suffocation is found in the thorax, as well-marked sub-pleural and superficial hæmorrhages. Hæmorrhages may also be found under the capsule of the thymus, on the surface of the aorta and on the pulmonary artery, and under the parietal pleura. The auricles of the heart are usually engorged. The vessels of the pia mater and those of the brain substance are intensely engorged. The abdominal organs may show no abnormal signs, but they are usually congested. The trachea in some cases contains a thin frothy fluid, which is taken as evidence of premature efforts at breathing. The blood is in almost all cases very dark and very fluid, owing to the high CO_2 content.

Cranial Injuries.

One of the commonest causes of still-born infants, and one which presents no external signs of the causation, is hæmorrhage within the cranium, due to a tear in the neighbourhood of the falx cerebi and the tentorium cerebelli. When a tear occurs in this region, the hæmorrhage spreads evenly over the surface of the occipital lobe of the cerebrum, over the temporal lobe, and may even reach, in an upward direction, the median fissure, and may even spread over the upper surface of the cerebellum.

Eardly Holland, in his Report to the Ministry of Health some few years ago, gave the following list of what he calls "primary factors" responsible for tentorial tears :—

(a) Breech deliveries.

(b) Forceps application.

(c) Rapidity of the second stage of labour.

(d) Prolongation of the second stage of labour.

(e) Contracted pelvis.

Tentorial tears, according to this authority, are due to an antero-posterior stress on the head, which stretches the falx cerebi upwards and tears the vertical fibres. "Decrease in antero-posterior measurements is brought about by pressure applied at opposite ends of the diameters lying between the occiput and forehead, i.e., sub-occipit-frontal, and occipito-frontal; such pressures occur during labour in a vertex presentation, and are correspondingly increased when the pelvis is contracted."

Holland assumes that the production of the tears occurs either when the delivery of the head is so sudden that no time for moulding is allowed; in rapid extraction of the after-coming head in breech presentations; and in precipitate labours, or when the external force used in forceps deliveries is wrongly applied.

Congenital Deformities.

Certain internal congenital deformities result in still-born infants, e.g., extreme cases of diaphragmatic hernia, achondroplasia, polycystic disease of the kidneys, or absence of kidneys.

The condition of congenital diaphragmatic hernia is certainly much more common than generally supposed, for most cases pass unrecognised, as post-mortem examinations are not made. There are in the literature about 168 cases described, and of these 91 were still-born infants, 55 lived for a few minutes to a few hours, and 20 lived for periods of a few days to a few weeks.

Death is due to large portions of the intestine, together with the stomach and a greater or lesser portion of the liver, passing through an abnormal congenital opening in the diaphragm, filling the thoracic cavity and preventing the expansion of the lungs after birth.

Achondroplasia may, and often does, cause death in the new-born by premature ossification and fusion of the occipital elements around the foramen magnum. The spinal cord as it develops is pressed upon by the hard bony margins of the foramen, and eventually "nips" and may even cut right through the cord, cutting off the transmission of respiratory impulses along the nerve-tracts. As a result the infant fails to respond to the time-honoured slap, and is still-born.

It is a little more difficult to express in a few words the mode of death in cases of complete polycystic disease of the kidneys, or in absence of the kidneys, without reference to the first portion of these notes. When the fœtus is still alive within the uterus, the waste products of metabolism are excreted through the placenta into the maternal blood, but when the infant is born, all waste products must be excreted through the kidneys. If these are not present, or not properly developed, the waste products accumulate within the blood-stream of the infant and produce toxemia and death. This sequence of events can be readily understood when the infant lives for a few days after birth. But the writer of these notes has seen no less than five cases of still-born infants in which the most careful post-mortem examination revealed nothing but an absence of both kidneys in three cases, and complete polycystic disease in the other two.

The First Anatomists

ANATOMY has been considered to have had its beginning in the Egyptian practice of embalming the dead, and indeed the practice of preserving dead bodies from corruption could hardly fail to excite some interest in the structure of the human body. But little real anatomy could have been acquired by this means, for the ceremonies of embalming, as told by Herodotus (*c.* 400 B.C.) and Diodorus Siculus (*c.* 80 B.C.), were not such as to allow of a very careful examination of the parts. The incision through which the viscera was to be removed was relatively small, and moreover, was made in rather a hurried manner. "The Cutter," who made the incison in public, used a knife of Ethiopian stone, and he was obliged to get up immediately after committing the deed, and run for his life; for the Egyptians held as odious anyone who did violence to a body of the same nature as their own, and it was customary for the onlookers to maltreat "the Cutter," and to chase him, and pelt him with stones.

The actual embalmers were men of a better standing in Egyptian society, and belonged to a special sect of priests. The abdominal and thoracic viscera were removed by these priests, through the opening made by "the Cutter." This, however, would only allow of the most elementary examination of the anatomy of the different organs, and moreover, the use of such a rude instrument as a knife of Ethiopian stone could not have resulted in anything but the simplest ideas of the subject. The employment of such a primitive knife was probably founded on ancient custom, since it is the very essence of superstition, and the act of embalming was based on superstition, to adhere with the most pertinaceous obstinacy to established practices and customs. Instance after instance might be given in support of this statement. Even as late as the time of Livy it was the custom of the Romans, in ratifying treaties, to slay a victim, usually a hog, by means of a sharp flint, although it is known that brass and iron instruments were in common use at the time. At the general circumcision of the Israelites ordered by Joshua, after their arrival in the promised land, the operation was performed with a stone knife, yet it is well known that the Jews were skilled in all the arts of metallurgy.

The art of embalming, then, as practised by the Egyptians, could not have resulted in much anatomical knowledge, and it is therefore to the dark history of primitive men we turn in the search for the origin of human dissection.

The earliest and most primitive men were ignorant of the art of domesticating wild animals, and were unacquainted with agriculture; they knew nothing of the art of making weapons for defence, or for the killing of game. They were dependent for their food on such edible roots and berries as thrived in a state of nature. But with the progress of time, they learned to form rough weapons from sharp stones and branches of trees with which to defend themselves against attacks from savage animals. And presently they learned to use as food the flesh of the animals thus killed.

This period, when men learned for the first time the value of animal flesh as food, is memorable in the history of anatomy. It was from this time that interest in the study of anatomy began; for in order to kill an animal it was necessary to know the portion of the body most essential to life, that the hunter might strike with the deadliest effect.

An even more powerful incentive to anatomical investigation arose from man's superstitions of things not rightly understood in the world around him. Misled by erroneous ideas of a hereafter, and by false teachings regarding the Divine Being, he attempted to propitiate the gods by gifts and offerings. From time immemorial, it has been the custom to make such gifts in the form of food, and the kind of food allotted to this purpose is commonly the carcass of some edible animal. But such an offering could not be selected without the aid of anatomy. For the organs had to be examined in the greatest detail, because it was believed that certain marks were made upon them by the god himself which showed his goodwill, or displeasure, and even indicated to the faithful the course of future events. The liver was the organ principally concerned in information of this nature, and the skilled diviner could interpret the mysterious signs and marks upon it. These signs were, of course, only the highly varied natural shapes and markings to be seen on any animal's liver, but the early races, especially the Babylonians, believed that they were signs placed there by the god to whom the animal was offered as a sacrifice. In the British Museum there is a clay model of a sheep's liver used for instruction in liver divination in a Babylonian Temple School. It is covered with cuneiform writing which fixes the date of the model to about 2000 B.C. The art of reading the future in this way spread westward to Rome, and similar models in bronze of the sheep's liver have been found belonging to the Etruscan period.

But a more direct source of knowledge concerning human anatomy soon replaced these dietetic and theological studies; it resulted from that most frightful form of worship in which human sacrifices were offered to the gods; from the custom of deliberately torturing and murdering prisoners taken in war; and from the still less pleasant habit of consuming as food the bodies of prisoners taken in war.

Every nation of whom records have been preserved, at some period of their history appear to have been guilty of offering up human sacrifice. Even before historic times, the evidence of fossils suggests that men practised cannibalism. In the Rock Shelter in Krapina there have been found human bones burned by fire, and broken as if to extract marrow. The devouring of the human body may have been, like the custom of modern Australian aborigines, a ceremonial and reverent method of disposing of dead bodies. But whatever the object, the ancient nations, Persians, Tyrians, Spartans, Cretans, Phœnicians, Egyptians, Carthagenians, Greeks, Romans, and Gauls, all were guilty of this dreadful custom. Even within comparatively recent times this form of worship was practised, and details of the ceremony, as performed by the Mexicans, are given in an English translation of Acosta :—

"The high priest opened the stomach of the victim, with a knife made of a large

flint, with considerable dexterity and nimbleness, tearing out the heart with his hands, which he elevated smoking towards the sun, to whom he did offer it, and presently turning towards the idol, did cast the heart towards it."

This method of removing the heart shows no inconsiderable knowledge of anatomy. To remove the human heart it is quicker to cut open the abdominal wall, and to perforate the diaphragm, than to cut through the ribs and raise the sternum in the ordinary post-mortem method.

Now, in the attempt to propitiate the deity, men were ever conscious of the human prompting to place on the sacred altar such offerings as would be agreeable to themselves. Among such offerings, food constituted an important part, and the choice of provisions depended largely upon the notions of what was good and agreeable food to the minds of the pious. Amongst a race of cannibals, human flesh would be highly prized, and human flesh would therefore be considered a worthy offering.

Torturing prisoners taken in war was no less general among savage peoples. This was a primitive form of vivisection, and physiological facts could hardly fail to spring to light, particularly with regard to the parts of the body endowed with the highest degree of sensibility, and the parts which were most essential to life.

It is probable that these were some of the principal sources of information regarding the anatomy of the human body open to early men, but one more source of information may be added: the examination of wounds received in battle. During the early ages of the world's history, men were almost constantly at war, and the most inward recesses of the human body would most certainly have been exposed to view by the injuries received.

Among the Tebeitians a whole system of anatomy and physiology was built up around observations made on wounded men. Captain Cook told how they believed that the seat of life was in the stomach and intestines, and when the people were questioned on the matter, advanced as arguments that men never recovered from serious wounds of the intestinal tube, and as further proof, pointed out to the sickness, vomiting, and other disorders, incident to these parts from mental causes, such as fear and other violent passions.

From these notes it would appear that the only progress made by primitive peoples towards a knowledge of human anatomy, was that which influenced the life and death of men when put to torture, or when placed on the altar as human sacrifices; or that which facilitated the carving up of the different parts in cannibal feasts. No investigations were made purely for the sake of knowledge until the time of Aristotle (*c.* 350 B.C.); but this great worker was obliged to confine his activities to the study of the lower animals. The Greeks, at this period, possessed such stringent laws regarding the immediate burial of the dead, that Aristotle would have found it impossible to obtain bodies for dissection. And it was not until the foundation of the great Medical School at Alexandria that scientific dissection of the human body was begun. The bodies of condemned criminals were

placed at the disposal of Herophilus (*c.* 290 B.C.) and Erasistratus (*c.* 270 B.C.) for anatomical examination, and for the first time in history, a description of the human frame was made from systematic dissections of the human body. It has been said that these two anatomists were not satisfied with dissecting dead bodies, and that they procured criminals while they were still alive, and subjected them to experiments of all kinds, so anxious were they to penetrate the secrets of nature and life. Tertullian, one of the most learned fathers of the early Christian Church, makes this charge in the following terms :—

"Herophilus, that physician, or rather butcher, who dissected six hundred men, in order to find out nature; who hated man, in order to learn the structure of his frame; could not, by these means, come to a more perfect knowledge of his internal structure, since death produces a great change in all the parts, so as to render their appearance after death different from what it was before; especially, since they did not die a natural death, but expired amidst all the agonies to which the curiosity of the anatomist was pleased to subject them."

It is said that it was taught : "It is by no means cruel as most people represent it, by the torture of a few guilty, to search after remedies for the whole innocent race of mankind."

In spite of the high authority of the person who brought forward this charge; and notwithstanding the rudeness of the age in which Herophilus lived and of the acknowledged manners and customs, too often unpitying, of the ancients; and of the contempt which they generally expressed for the sufferings of criminals and slaves, it is difficult to believe that men may have been found so lost to the sentiments of humanity, as to deliver to the knife of the anatomist, the unfortunate condemned, in the hope of discovering in the depths of the palpitating entrails, the secret of life. Then too, Tertullian lived about five hundred years later than Herophilus, and he could not have known anything about the work of the latter except by vague and traditionary reports, which, could they have been traced to their source, would in all probability have been found to be based on the fact of his having been the first to openly dissect human bodies.

The novelty and the daring of Herophilus's dissections no doubt impressed with horror the minds of his less enlightened contemporaries. Vague reports would be handed down to succeeding generations with becoming amplifications and embellishments.

Be that as it may, we know from the writing of Galen that Herophilus was the first human anatomist, that "he was an accomplished man in all the branches of physic; excelling particularly in anatomy, which he learned, not from the dissection of beasts alone as physicians usually do, but principally from that of men."

In this rapid survey of the habits of primitive men, it is seen that the earliest interest in anatomy began in the search for the most vulnerable point towards which the hunter might direct his blow, in order to bring wild animals to the ground. The second point of interest was to find the positions of the joints, and to learn how best to cut up the carcass of an animal with the minimum of trouble,

and to carve it into neat joints and steaks. But as men multiplied upon the earth, and tribes were formed, warfare arose, and men began to seek out the most vital parts of the human body. Offerings and sacrifices were made to propitiate the gods before these wars; and when cannibalism was evolved, human flesh, the scarcest and most valued form of food, was the natural offering at the altar, and man the most desirable sacrifice to the gods. Anatomical interest was, in this way, transferred by a natural sequence of events to the priesthood. Here interest in anatomy remained until the practice of embalming the dead body for the use of the soul for all time caused a special sect of priests to be set aside for this particular purpose. It is therefore not surprising to find that the earliest beginnings of dissection and anatomical study should be found in Egypt, in the work of the special priests, the embalmers, and that the first real scientific anatomists should be found at a later date in Alexandria, the intellectual centre of ancient Egypt.

R. H. H.

AN OLD MINUTE BOOK

I HAVE before me as I write a Minute-book which was opened on 7th May, 1860, and has now been closed, the last entry having been made on 28th April, 1938. For seventy-eight years there have been faithfully recorded in its pages the transactions of the Belfast Branch of the Royal Medical Benevolent Fund Society of Ireland. The book itself is bound in leather, and an expert assures me that "one would pay a pretty penny for paper of that quality in a minute-book nowadays"—but money went further in 1860, and a pound purchased more.

The first entry records "a meeting of Committee held in the Library Room of the Belfast General Hospital on Monday, 7th May, 1860—Present: Doctor T. H. Purdon (in the chair), Doctors Patterson, H. S. Ferguson, Moore, Browne, and Stewart." (Doctor Purdon was "permanent president," and himself a most generous supporter of the Charity. ". . . The treasurer (Doctor S. Browne, father of Sir Walton Browne) "reported that he had now in hands the sum of £113. 2s. 6d. as the proceeds of the past year of the Branch." The names of four ladies were forwarded to headquarters as suitable recipients of grants, and then the minutes go on as follows:—"The secretary reported that, agreeably to the instructions given to him at last meeting, he had transmitted as many as 134 printed appeals to the profession throughout the district, the practical responses to which, however, did not exceed thirty, and in sums varying from £1 to 2s. 6d."

How does this compare with the last minutes recorded in the book? These, in 1937, report that "the subscriptions to date amount to £129. 7s., the decrease from last year being accounted for by the fact that last year donations of £20 and £5 had been received and that some subscriptions had not yet been paid, although special letters had been sent to those concerned." A few additional subscriptions brought the total further above the 1860 level—that is if one overlooks the fact that £1 in 1860 had the same purchasing power as £2. 10s. has in 1938. And how many doctors were in practice in Belfast and County Antrim in 1860, compared with 1938? And what was their aggregate income? So large now, I suppose, that

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As for the grants—they range from £12 a year to £30. A pound a month doesn't go far—not as far as it did in 1860.

It's a sad old book—the story of penury and hardship, of a struggle against apathy and indifference, and yet with gleams of a noble generosity, of self-sacrifice, and of achievement. The book is closed, and a new one has been opened. Will you help to make it a record more worthy of ourselves and of the traditional family pride and brotherly love of the Ulsterman, so that when it is closed, perhaps eighty years hence, its contents may be reviewed with quiet satisfaction in the pages of this Journal?

As I write these lines, on 27th September, war seems almost inevitable. What will be its effect on commodity prices, the bare cost of living? Will you help us to see to it that these widows and orphans of our brothers in medicine are not reduced to still more stringent economies, to still more bitter poverty? And, if there be peace, what better thankoffering could a doctor give?

ROBERT MARSHALL, *Hon. Secretary*,
Belfast and County Antrim Branch,
Royal Medical Benevolent Fund Society of Ireland.

9 College Gardens,
Belfast.

REVIEW

FEVERS FOR NURSES. By G. E. Breen, M.D., Ch.B.(N.U.I.Dub.), D.P.H., D.O.M.S.(R.C.P.Lond., R.C.S.Eng.). First Edition. 1938. Edinburgh: E. & S. Livingstone. Pp. 195. Price .

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The information is adequate for nurses, and the treatment is directed entirely to the nursing problems arising in the course of the several conditions. The book is not intended for practitioners.

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