through skin and mucous membrane give rise to various eruptions, followed by free desquamation; and in each succeeding relapse a different eruption results, as if the expulsion of the microbes incapacitated for some time a certain portion of the skin from acting as an eliminating medium. This theory accounts for the different eruptions on the skin and mucous membranes; also for the rapidly-shifting patches of pulmonary congestion that I have observed in several cases, and which I have long looked on as erythema of the pulmonary mucous membrane, caused by the irritating presence of these microbes. The overwhelming action of these germs upon the nervous system, and the sad havoc wrought by them on that system, must never be overlooked, and call loudly for sustaining treatment of every description. But the limits of this paper preclude my touching, even in the briefest manner, on the treatment which I have found to be most suitable in the various phases of this disease.

ART. XVI.—*The Infectious Diseases (Notification) Act, 1889.*^a By E. MACDOWEL COSGRAVE, M.D., F.K.Q.C.P.; Physician to Cork-street Fever Hospital; Professor of Botany and Zoology, Royal College of Surgeons in Ireland.

ALTHOUGH the subject of notification of infectious diseases was discussed by the State Medicine Section of the Royal Academy of Medicine in Ireland in 1885,^b there seems good reason for recurring to it, as owing to the passing of the Notification of Infectious Diseases Act, 1889, the question has entered upon an entirely new phase. On the last occasion, whilst notification was generally approved, the chief discussion was as to who should notify, and what fee should be paid if the burden of notification was laid upon the medical man.

These points have been settled by the Act, and already steps have been taken by the authorities to adopt the Act, and from 1890 it will be in operation in Dublin.

It may be of use to examine the provisions of the Act in order to form an opinion as to what effect its adoption will have.

Although the present general Act was passed only last year, compulsory notification of infectious disease is no new thing. Fifty-nine Urban Districts in England from time to time adopted

^a Read before the Section of State Medicine in the Royal Academy of Medicine in Ireland, on Friday, April 25, 1890.

^b Dublin Journal of Medical Science. 1885. Volume LXXX. Page 332.

local Acts, the credit of priority being, I believe, due to Huddersfield. The 67th section of the Huddersfield Waterworks and Improvement Act, 1876, which received her Majesty's assent on July 13th, 1876, required notification, but only in such cases of dangerous infectious diseases as were deemed to be without proper lodging or accommodation for the isolation and treatment of the patient. The occupier or patient had to notify, but if a medical man was in attendance he was bound to fill in and give to the patient or person in charge a printed form, which the patient or person in charge had then to forward to the Sanitary Department. These forms, with postage stamps affixed, were supplied in books free to the medical men practising in the district.

I mention these points somewhat in detail, as it was under this earlier Huddersfield Act that I had two years' experience of compulsory notification. During that time I had frequently to notify, and never experienced any of the difficulties the theoretical opponents of notification apprehend.

The effect of the passing of the general Act of 1889 has already been to cause a great extension of the area over which notification is compulsory.

Up to the middle of January the new Act had been adopted in some 700 sanitary districts^a with a population of about 10,000,000, adding London—in which the adoption of the Act was obligatory—with its population of 3,816,683,^b and the 59 large towns which previously had local Acts, with their population of 3,828,825,^c and it will be seen that the system of compulsory notification already applies to upwards of 18,000,000 persons, or more than two-thirds of the total population of England and Wales.

By the new Act the local authority of any urban or rural sanitary district in Ireland may adopt the system by passing a resolution after fourteen clear days' notice, by publishing this resolution by advertisement in the local newspapers, with notice of date when Act will come into operation (such date being not less than one month from appearance of first advertisement), and by sending a copy of the resolution to the Local Government Board for Ireland. The steps have already been taken in Dublin, but the preliminary date named for the Act to come into operation in this city has not yet been fixed.

^a Brit. Med. Journal. Jan. 25, 1890.

^b Census. 1881.

^c Census. 1881.

The important clauses of the Act are :—

“3. (a) The head of the family to which such inmate (in this Act referred to as the patient) belongs, and in his default the nearest relatives of the patient present in the building or being in attendance on the patient, and in default of such relatives every person in charge of or in attendance on the patient, and in default of any such person the occupier of the building shall, as soon as he becomes aware that the patient is suffering from an infectious disease to which this Act applies, send notice thereof to the Medical Officer of Health of the district :

“(b) Every medical practitioner attending on or called in to visit the patient shall forthwith, on becoming aware that the patient is suffering from an infectious disease to which this Act applies, send to the Medical Officer of Health for the district a certificate stating the name of the patient, the situation of the building, and the infectious disease from which, in the opinion of such medical practitioner, the patient is suffering.”

These paragraphs do not apply to hospitals in which persons suffering from an infectious disease are received, or structures belonging to her Majesty the Queen.

For failure to comply with the provisions of the Act medical men are liable to a fine not exceeding forty shillings.

Certificates are to be provided free to the medical men living in a district in which the Act is adopted.

The fee payable to the medical man for notifying a case of infectious disease is 2s. 6d. for a private case, and 1s. for a case occurring in his practice as medical officer of any public body or institution.

The following explanation of the term “infectious disease” is given in the Act. It :—

“Means any of the following diseases, namely, small-pox, cholera, diphtheria, membranous croup, erysipelas, the disease known as scarlatina or scarlet fever, and the fevers known by any of the following names—typhus, typhoid, enteric, relapsing, continued, or puerperal.”

Other infectious diseases may be added permanently or temporarily by the sanitary authority.

The advantages of notification from a public health point of view are obvious. If an epidemic, say of scarlatina, breaks out, it is very important that the Medical Officer of Health should stamp it out as early as possible: But how is he to know of the existence

of the epidemic? The first cases are often comparatively light, and it may be some time before one ends fatally; and yet during this time, whilst the earlier cases are running their entire course and the more serious case is progressing to its fatal termination, it is quite possible that the Medical Officer of Health may have no idea that scarlatina has broken out in his district, and infection may be widely spread before the fact of a death from scarlatina. At present we have compulsory notification, but only of deaths, and consequently time is lost just when it is of most value, and before its appearance is made known the disease may have spread so widely that the Medical Officer of Health is unable to follow its ramifications, and all hope of stamping out the epidemic is at an end.

The new Act simply shifts the compulsory notification to an earlier stage, and instead of waiting for a death the Medical Officer of Health is notified of the commencement of the disease. How much better is his position with this information; he can possibly trace out how the disease entered into his district, he can probably find out how many have already come in contact with the patient, and if the sufferer cannot be isolated in his own home he can have him removed to hospital, his room disinfected, and those in the house prevented from spreading the infection in schools or elsewhere. By these means the outbreak of a threatening epidemic may be averted, and that without injury to the patient or his friends. The patient will be better looked after in hospital than at home, and if he is capable of such sentiments will rejoice that he has not been the cause of inflicting injury and danger on others. The friends will be quickly freed from infection, and will be able to return to school and business much more rapidly than if the case had been kept at home.

Mr. John Simon well summed the matter up in the International Medical Congress, 1881, by quoting the famous receipt, "First catch your hare, and then skin it,"^a and observing that for disinfection and isolation to be of effect we must obtain early information of the outbreak, whereabouts and nature of disease, and this can be effected only through an efficient notification of disease. The late E. D. Gray, M.P., "held that infectious disease was very like a fire—if notice of it was not received at once it could not be dealt with."^b

^a Quoted by Dr. J. W. Moore. *Transactions, Social Science Congress. Dublin, 1881. P. 542.*

^b *Transactions, Social Science Congress. 1881. P. 547.*

Could these advantages be gained by voluntary notification? I believe the only answer we can give to this question is—certainly not. Some good may be done, as has been the case in Dublin, where the dispensary medical officers have for some time notified, and where the particulars of cases admitted into the fever hospitals have been sent to the Public Health Department. But such notification can never be general, and if not general there must always be the danger that the unnotified cases will be foci for the dissemination of infection. In addition to this, notification when not compulsory cannot be practised without laying the medical attendant open to the charge of a breach of professional trust, as he is voluntarily sending particulars of his patients' illness to the sanitary authority. When notification is compulsory, this objection is removed.

The Medical Officer of Health of Aberdeen writes^a:—"The number of cases reported was twice as many when notification was compulsory as when it was voluntary."

The Medical Officer of Health to Leeds (Dr. Spottiswoode Cameron, who was Medical Officer of Health to Huddersfield during my residence there, and to whose professional skill and administrative ability I have good reason to testify) gives some striking figures illustrating his experience at Leeds. He writes^b:—

"Turning now to the question, what proportion of cases have probably been reported to us at Leeds? I find that during the 52 weeks of the past year, 1889, we have heard, in one way or another, frequently through the death returns, of some 598 cases of scarlet fever, of 21 cases of diphtheria, and of 427 of typhoid or enteric fever. During the same period 111 deaths were registered from scarlet fever, 15 from diphtheria, and 111 from typhoid fever. Supposing the fatal cases to have been 5 per cent. in scarlet fever, and 10 per cent. in typhoid, the numbers heard of should have been not 598 and 427, but 2,220 and 1,110 respectively. But to speak of the 'number of cases heard of' is really misleading, as will be seen when we remember that, in a large proportion of them, the information was only obtained from the registration of the patient's death. A good many other cases were only 'heard of' when the patient was convalescent, and a request made that

^a Has the Dual Notification of Infectious Diseases been a Success? By Robert Farquharson, M.D. Sanitary Record. November, 1889.

^b Report on Notification and Hospital Accommodation. By Dr. Spottiswoode Cameron. Leeds, 1889.

we should carry out disinfection. The report books have been examined to ascertain how many of the cases 'heard of' were reported during life. Of 598 cases 'heard of,' in 78 the patient was dead when the inspector visited the house. Of diphtheria, in 14 of the 21 cases heard of, the information came after the patient's death, and in 61, out of 427 cases of typhoid fever, the fatal issue had occurred before we could render assistance. The cases, therefore, heard of during life were not 598, but 520 of scarlet fever, or, with a 5 per cent. mortality, only one case in every five; in typhoid fever, instead of 427, 366, or, with a 10 per cent. mortality, we heard of only one case in three, often only after the opportunity of doing service was passed."

From time to time numerous objections have been urged to compulsory notification, generally by those who have had no practical experience of its working. I regret to say that I myself expended two guineas in opposing the notification clause in the Huddersfield Bill. I stayed long enough in the town to regret, not only my guineas, but also my opposition to an Act, the benefits of which I soon recognised.

One of the most extraordinary objections to the Act is that it interferes with the liberty of the subject; when discussed at the Social Science Congress, 1881, in Dublin, a delegate from the Vigilance Association for the Defence of Personal Rights came over from London to oppose it. It is generally considered that when the exercise of one man's liberty interferes with the liberty of others it is degenerating into licence. Even if a man has a personal right to have an infectious disease, we have a personal right to refuse to have it communicated to us, and it is in defence of *this* personal right that the Act is intended.

A more widely urged objection is that notification is a breach of professional confidence. Dr. Cameron^a answers this objection very well:—"Is it not a breach of professional confidence should he notify? Certainly, if he do so of his own mere motion, and without the authority of the patient or his guardian. So-called 'Voluntary Notification' can only be done by consent. The case is entirely different when the legislature steps in and insists upon notification. There is then no breach of confidence on the part of the practitioner. . . The compulsion shifts the responsibility from his shoulders to the broad ones of the community."

^a Hints as to the Working of the Infectious Disease (Notification) Act, 1889. By J. Spottiswoode Cameron, M.D.

Besides, the medical man can always explain to the patient that the information is of a strictly confidential kind, and will not go beyond the health office, and that the duty of the medical officer is to see for himself, or be satisfied by others, that sufficient isolation is being practised, and due precautions taken against the spread of infection. I would venture to suggest to the Medical Officer of Health that he should supply medical men with leaflets explaining the provisions of the Act, and the compulsion of notifying which rests on the medical man.

Nobody complains of having to notify the cause of death, and yet this is not even kept secret, as anyone can ascertain the entry for a shilling. To certify as to death from scarlatina brings down the health officials and their disinfectants just as surely as notifying the existence of the disease.

Another objection is that the Act will lead to concealment of disease, and prevent the assistance of medical men being sought. There is a great deal of truth in this, but it applies to disinfecting. At present the fear of disinfecting leads to concealment of disease; the new Act imposes a penalty, and so will ultimately lessen the concealment. This is the great advantage of dual notification—if a medical man is not called in, the onus of notification still rests upon the person in charge of the patient.

W. H. Michael, Q.C., says^a—“As to declining to call in medical assistance, it must be remembered that in such a case the duty still remains charged in the occupier to forward on his own account the certificate, and if medical assistance were declined on this ground, and fatal consequences ensued, the person so offending would be liable to a criminal indictment for neglect.”

Injury to business is also urged as an objection. This objection is a confession that without notification the business would be carried on, in many cases with the certainty of spreading infection. When a disease is allowed to spread injury to business often results, but early notification, and prompt removal to hospital, with disinfection of a single room, will allow the business to go on as usual. A case heard Sept. 13th, 1889, shows the danger of the present system. A dealer in old clothes, who had positively refused to allow his child to be removed to hospital for scarlatina, was convicted for having allowed the child when peeling to play with other children in the street, and to be about amongst the second-hand clothes in his shop. Scarlatina in milk shops also is not unknown.

^a Transactions Social Science Congress, 1881. P. 538.

A more serious obstacle is the difficulty of recognising obscure cases, and that there is no provision for reporting cases that are doubtful. Dr. Cameron, in Huddersfield, got medical men to mark doubtful cases with a note of interrogation, which got over the difficulty to some extent, but certainly the Act ought to make provision for such cases. To report wrongly or to postpone reporting—each is a danger.

In some places the want of hospital accommodation is a difficulty. This ought not to be a trouble in Dublin, as there are a larger proportion of fever beds to population than in most English towns. Dr. Thorne Thorne estimates that in manufacturing towns one bed per 1,000 of the population would be required. Dr. Cameron* asked the medical officers of 42 towns in which notification is already compulsory, whether they considered Dr. Thorne Thorne's estimate too large—30 replied in the negative, and 9 in the affirmative. Most of those replying in the affirmative were, however, not large manufacturing towns. At present in Dublin we have nearly double this amount, or about one bed for each 500 of the population, but I hope hospitals will be prevented from mixing infectious diseases. This should be considered exposing in an infectious condition under the Public Health Act.

The smallness of the fee is sometimes objected to. From the point of view of a medical man, a guinea fee would be more satisfactory; but, from a rate-payer's point of view, it would not be so pleasant. It must be remembered that the payment of a fee, no matter how small, is a concession. Certificates of death and of vaccination have to be given without any fee at all. There are already heavy charges upon the funds available for sanitary purposes, and I do not think a larger fee could fairly be demanded. At any rate the fee cannot be altered now, as it is fixed by the Act.

It has been said that notification has increased the death-rate. A more extraordinary and unfounded statement has seldom been made. In some towns the death-rate has fallen, in a few it has risen; but notification is too recent, and not sufficiently widespread, to allow of any certain effect being traced on so fluctuating a quantity as the death-rate from infectious diseases, but the apparent tendency is to a decrease. The Medical Officer for Birkenhead writes^b:—"The extraordinary allegation that compul-

* Dr. Cameron, Report on Notification and Hospital Accommodation. P. 5.

^b Quoted by Prof. Corfield in *The Times*.

sory notification in places where it exists has increased the mortality from diseases requiring to be notified is certainly not borne out by facts in Birkenhead; the mortality from diseases requiring to be notified has, since compulsory notification came into force in the borough, so much decreased that it has been less than half the average of the corresponding mortality of recent years."

Another objection is that medical men will be liable to actions for notifying wrongly. Up to the present this objection is theoretical, no such action having taken place. Judges would probably require to be convinced of absence of *bona fides*, or of reasonable skill, before allowing a medical man to be punished for such a mistake. At any rate the fear of this possible injury may induce medical students to devote more time to the study of infectious diseases than they generally do at present.

What may be expected from the Act? From my own experience and reading I believe it will have a very good effect. It will at first be difficult to work, and some friction may be expected, but the difficulty will not fall on the notifying medical men, but on the public health department. It will add greatly to the Medical Officer of Health's responsibility, but he possesses plenty of tact, and can be trusted to keep down all unnecessary friction. The real difficulty will be with his subordinates, whether they will prove fit to administer the Act. It will take all the administrative power of the Medical Officer of Health to manage this. It is plain that the sanitary officers should be properly qualified; their work under the Public Health (Ireland) Act is at present responsible, but in future, under the new Act, it will be much more so. Having been a faithful servant for many years, or a faithful political supporter for whom no other post can be found, ought not to be sufficient qualifications. All employed should be compelled to go through a course of study, and pass an examination held by some independent body before being allowed to commence work.

I deal with this point as notification *per se* is valueless, it is the use made of the notification which is of value, and much of the popularity of the Act—at first at all events—will depend upon the manner in which use is made of the notifications, and its success is largely in the hands of those employed to carry it out.

One thing I am sure of is that the Medical Officer of Health can depend upon the loyal co-operation of the medical men of his district, and they will try to popularise the Act by explaining its provisions to their patients, and showing them how important it is

for the welfare of the community that notification and isolation should be practised.

It has been said that Medical Officers of Health like the Act because it gives them great power, and that the bulk of the profession disapprove of it. In Huddersfield we all subscribed to oppose the clause of the Bill, and yet, during the two years I was under its provisions I never heard a medical man say a word against it, and Dr. Cameron, who, after carrying out the Act for twelve years at Huddersfield, has lately been appointed to Leeds, in writing of the practical difficulties of carrying out the Act, says, "No medical man gives us any trouble;" and again, "The medical profession have loyally carried out its provisions, and have also been always willing to give me what assistance I require and what information I seek."^a

The Medical Officer of Health for Edinburgh (where notification was introduced in 1879), sums up the advantage as follows:—"The infectious clause has been loyally obeyed by the profession, and no complaints have reached the authorities from the powerful medical school, the press, or the general body of practitioners. Lodging-house keepers and hotel proprietors are thankful to be relieved of responsibility, schools have gratefully acknowledged the benefit of the new arrangement, and the authorities the being able to determine every morning the state of the public health as regards infectious diseases, and to track out satisfactorily the nature of mysterious outbreaks of some of them."^b

I trust that when the Academy comes to review the working of the Act, our Medical Officer of Health will be able to use similar words.

ART. XVII.—*Medico-Statistical History of the Army of Occupation in Egypt, 1882-87 inclusive.* By BRIGADE-SURGEON ALBERT A. GORE, M.D., Army Medical Staff.

ON July 17th, 1882, the British troops arrived in Egypt, 13,466 officers and men, average strength. Admissions, 14,392; deaths, 551; invalided, 3,229. Rates per 1,000 for period, 1,068·7, 40·92, and 239·78 respectively. The military operations were confined to Lower Egypt.

^a Hints as to Working of the Infectious Disease (Notification) Act. P. 27.

^b Quoted by Dr. Farquharson in Sanitary Record. Nov., 1889. See also Transactions, Social Science Congress, Nottingham. 1882.