as it were, with the endemic poison, and they are liable to take the purple fever. Of this I have seen several instances."

Dr. Cane has likewise furnished us with a series of most graphic illustrations of the purpuric fever, and several of its symptoms and complications. From these it would appear that the disease in Kilkenny has been more acute in its attacks than with us. Communications of the nature of the above are of immense value; we earnestly invite our other country brethren to afford us some.—ED.

ART. VI.—*On the Mortality of Medical Practitioners from Fever in Ireland.* By JAMES WILLIAM CUSACK, M. D., President of the Royal College of Surgeons, and WILLIAM STOKES, M. D., Regius Professor of Physic in the University of Dublin.

It is necessary to state the circumstances which have induced us to direct our attention to the subject of this paper, the importance of which requires no comment, particularly at the present crisis.

In the year 1843 the Medical Charities Bill was brought forward, and we were not without hope that some recognition of the labours and risks of our professional brethren in Ireland would appear in the Act of Parliament; for we felt that the amount of these labours, and the nature of the risks, were not known to the Government.

In common with most of the hospital physicians and surgeons of Dublin, we had to deplore the loss of many of our most meritorious pupils, who, after a brief period of country practice, had fallen victims to typhus fever contracted in the discharge of their duties; and we felt that justice required not only that the remuneration for attendance on fever hospitals and dispensaries should be fixed at a liberal scale, but that some provision ought to be made for the widows

and children of gentlemen who had lost their lives in the public service. We shall shew, even from a limited and imperfect investigation, that the risk of life in the public medical service of this country is so great, as to demand the serious attention of the Legislature.

We had long mutually lamented the hardships to which medical practitioners in this country are exposed, and we came to the conclusion, that, if a correct statement of the average mortality of the medical profession in Ireland was submitted to Government, it could scarcely fail of making a suitable impression, and exercise a favourable influence in determining the scale of remuneration for attendance on fever hospitals or dispensaries.

In order to arrive at some determinate data, we addressed a circular to a considerable number of physicians and surgeons in Ireland, to the effect,—that as the regulation of the medical charities of Ireland was a question in which the Government and the Profession were much interested, we were induced, by a sincere desire to promote the welfare of our medical brethren, to request of them to furnish us with returns of professional mortality.

To this letter was appended a number of queries, relating to the names and localities of the different medical institutions; the number of medical attendants who had been employed in them during the last twenty-five years, or since their establishment; the number of medical men who had died while serving in them; the cause of death; and the number who had suffered from fever and other infectious diseases.

The statistical results obtained from the answers to this communication shall be presently considered; but before entering on them we wish to remark on the peculiar circumstances, in relation to attendance on fever, to which the Irish practitioner is exposed.

It is an admitted fact that, from whatever cause, or combination of causes, it may arise, Ireland has, from an early

period, been far more productive of continued fever than either England or Scotland. Epidemics, affecting great numbers of persons, have succeeded one another at short intervals of time; and it rarely happens that the towns are free from fever, while minor outbreaks of the disease occur continually in the rural districts. In this way Ireland may be said to be never free from fever, which, though necessarily not arising from contagion, is propagated by it in the most decided manner.

The extent to which fever exists in Ireland, and its influence on the mortality, has been strikingly shewn by the returns of the late Census. Mr. Wilde has given a table of the mortality from fever, and the general mortality of the province of Leinster for ten years, ending in June, 1841, a period, be it observed, not characterized by any remarkable epidemic of fever. From this it appears that, while the total mortality was 317,802, that from fever was not less than 29,821, amounting, as Dr. Graves observes, "to a fraction less than one-tenth of the whole mortality; whereas, in London, the fever deaths do not amount to more than one-fiftieth of the total deaths. This difference becomes more striking from considering that deaths in Dublin from fever are actually double the deaths from the same cause in London. The last Census made the population in London amount, I believe, to one million and a half, while that of Dublin is three hundred and sixty-two thousand."(*a*)

This is not the place to enter on the question of contagion at any length; for our purposes it is sufficient simply to state that we believe the disease to originate in combinations of causes, the exact nature of which has not been ascertained. When produced, however, whether in isolated examples or in epidemics, it is propagated by contagion, and that to a degree far more remarkable than what is observed in cholera. Of the propagation of fever in Ireland by contagion we have already observed that we have no doubt, but it may be right to state,

in general terms, the kind of facts on which our conviction is founded. They are:—

1st. The number of cases of the disease occurring in individuals intrusted with the medical care of the sick, including physicians, students, nurses, and clergymen.

2nd. The circumstances attending its spreading in families.

On this subject the late Dr. Whitley Stokes, in his *Observations on Contagion*, published in 1818, has the following important remarks. After speaking of the fact, that in a family of twelve the disease had been known to visit eleven individuals, and that thus three months had passed before the family were free from the disease, he observes:

“ In the general course of the epidemic, in the district in which this family resided, one out of seven took the fever. Had the family consisted of fourteen it might have been said, before the epidemic, that if two of that family sickened they bore only the average share of the general calamity; in the family of twelve, the sickening of two would have been more than their average share, and the sickening of eleven so much more, that the chance against that event would have been nearly 189,600,000 to 1.

“ I proposed the following problems to a friend particularly acquainted with this species of computation:

“ Problem the first.

“ An epidemic prevails so severe, that one out of seven sickens. A family of twelve is selected in a particular district, before the epidemic has visited it; what is the chance that eleven out of that family shall take the disease, supposing the sickness of one of the family does not promote the sickening of another, and supposing the family not unusually liable to disease?

“ Answer; the probability against the event is, 189,600,000 to 1, if the population amount even to seven thousand.

“ Problem the second.

“ The same general conditions being assumed, and also that

the number of the inhabitants in the district in question is seven thousand. What is the chance that in any family of twelve, within the district, eleven will sicken?

“Answer,—it is above 300,000 to one, that no family of twelve persons in a population of 7000 will have eleven sick.

“All this according to the conditions that the sickening of one does not promote the sickening of another.”(a)

It is admitted that the mortality of fever is much higher in the better than in the lower classes of society; and it is certain it will be found that, when medical men are attacked with the disease, it is eminently malignant. This remark applies to the cases of medical students as well as to those of practitioners. In Ireland few medical men escape fever; though, in several cases, the disease did not occur until the individuals had attained advanced age. Of this the cases of the late lamented Drs. Clifford, of Trim, and Lloyd, of Roscommon, are examples, and others might be adduced.

The opinion commonly received, that the individual who has once had typhus fever is safe from future attacks, is not well-founded. That a certain degree of immunity is thus produced, we think, is certain; but that many persons in Ireland have suffered from a second, or even a third, attack of fever, at long intervals of time, must be admitted. Our returns shew that in several instances the medical officers of dispensaries have had typhus fever more than once; so that the going through the ordeal of fever,—always, as we have already stated, a most trying one to the medical man,—has not even the advantage of assuring him against a second attack, the more serious as he will then be more advanced in life, his vital powers lower, and his moral energies more exhausted.

It is difficult to explain why the fevers of medical men should be so commonly of a bad character. That the virulence of the disease is proportioned to the dose of contagion we be-

(a) These calculations were made for Dr. Whitley Stokes by the late celebrated Dr. Brinkley, Lord Bishop of Cloyne.

lieve; and when it is considered that many of our brethren have been exposed not only to a concentrated contagion, but that the morbid influence has long acted upon them, we can conceive why their fevers should be so severe. And it too frequently happens that, urged on by a sense of duty, they continue their exertions, although in the earlier stages of the disease; and, while already the marked victims of fever, they still labour to save their fellow-men.

Whatever be the cause, it is certain that the fevers of medical men in Ireland are almost always of a bad character; and this even when the epidemic is not of the worst kind. The fever is generally of a low type, with eruptions of maculæ often coming out at a late period of the case. Nervous symptoms, of all the phenomena of fever the most alarming, commonly exist to a great degree. And as a result of this condition, the use of wine, which, among the lower orders, has so happy an influence on the disease, can, in many cases, be used but sparingly, if at all; and this at a time when the debility and prostration calls for its exhibition. If to this we add the injurious influence which the knowledge of danger must have on the system of a man feeling that he is struck down by the disease under which he has seen so many sink, and tortured by the thought of leaving a young and unprovided family, we can understand how it happens that the country is so often deprived by death of so many of its best educated and most devoted servants.

Thus, the medical practitioners in Ireland are placed in a position very different and far more serious than that of their brethren in Great Britain; for while the latter have only to contend with infectious fever occasionally,—and, rarely indeed, in the rural districts,—the Irish physician has to combat it in all situations, and at all seasons; and, in consequence of the peculiar condition of the peasantry, expose himself, often under the influence of cold, wet, fatigue and hunger, to its most concentrated contagion.

The system adopted so generally in Ireland, of isolated dwell-

ings, has an important influence on the fatigues and risks of the practitioner. The poor cottiers live, for the most part, not in towns or villages, but in their solitary cabins, on their plots of ground, and are thus removed from many of the advantages of social life: their dwellings are hovels, and scattered over the length and breadth of the land; and when an epidemic visits the country, it is easy to see that the position of their inmates must be, to the last degree, unfavourable; their distance from the residence of the physician, or from any other means of assistance, is a cause why disease may continue for days in the family, unknown to any but its members. Want, damp, dirty habits, and bad ventilation, all concur to render the disease virulent; and by the time that the medical man visits the sick, the hovel, with several of its inmates in malignant typhus, is one focus of concentrated contagion.

The causes, then, which appear to us to account for the remarkable mortality of medical men in Ireland may be thus enumerated:

- I. The constant existence of fever in the country.
- II. The frequent epidemics of the disease.
- III. Its highly contagious nature.
- IV. The want of ventilation and cleanliness in the houses of the poor.
- V. The fatigue consequent on visiting a number of houses scattered over large and often wild districts.
- VI. The moral and physical depression which the repetition of these influences is sure to produce on the practitioner, particularly when he reflects on his frequent inability to relieve the victims of want and disease by whom he is surrounded.

The mortality of medical men in the cholera bears no comparison to that from fever. In Ireland the number of medical men who sank from cholera was comparatively small, and, except at Sligo, there was no important loss of life among physicians. Very few students or nurses contracted the disease; and we are fully warranted in the statement that the contagion of cho-

lera, even in its earliest outbreak, had much less intensity than that of typhus, as it permanently exists in Ireland.

Let us now turn to the evidence afforded by the information acquired by the returns to which we alluded at the commencement of this article.

It must, however, be particularly borne in mind, that these researches do not approach a later period than 1843, and, consequently, the calculations grounded upon them do not apply to the question of the mortality induced by the present epidemic. This will require another and a separate inquiry, to which we earnestly invite the attention and co-operation of our brother practitioners.

From the returns to our inquiries, when statistically arranged, we learn that, during the twenty-five years prior to the date of the returns in 1843, 1220 practitioners were in charge of 406 medical institutions, a number very much less than in reality exists, or had existed during that period; but the error, if error there be in these as well as the other numbers in these returns, is to be placed to the credit side of the account, for the errors have been those of *omission*, not of *commission*. It must also be remembered, that the entire 406 medical institutions from which returns were received have not existed for anything like twenty-five years; but this error is likewise to be placed to the same side of the account. Of the 1220 medical men who have occupied these situations during the period specified, 300 have died prior to 1843,—nearly *one-fourth* of the whole, an immense mortality, when we take into account the ages at which the deaths occurred, and consider the various other circumstances attending this calculation.

Now, when we reflect that the nearest and most accurate approach to a general average mortality in Ireland is but one in fifty-two at all ages; and when we consider that the mortality among medical men above specified must have been chiefly spread over a period from twenty-five to fifty years of age—the usual age of medical men holding dispensaries,—it makes the

mortality among this class enormous. These deaths, moreover, it must be remembered, do not include those of the apothecaries, assistants, pupils, deputies, or other constituents of the medical staff attached to these institutions; nor do these numbers include the physicians, surgeons, pupils, and apothecaries unattached to public medical institutions, hundreds of whom must have died within the period specified. Of the entire deaths, 132 died of typhus fever, or nearly in the proportion of three to seven from all causes. It is proper here to remark, that the 168 deaths from other causes, not typhus fever, include many from other contagious diseases, cholera, scarlatina, &c., also acquired in discharging the public duties attached to the institutions which these medical officers served. 568 out of the 1220 suffered from typhus fever, or forty-six per cent. of the whole; of these 568, twenty-eight had fever twice, or 1 in every 20; and nine three times, or 1 in every 63, to speak in round numbers. As we already remarked, certainly one-half of the 406 medical institutions had not been in existence during the first twelve and a half years over which the inquiry extends; and it is evident that, by lessening the periods, the mortality must be increased: these are, however, statistical speculations, in which we would rather not indulge. The cities of Dublin, Belfast, Cork, Kilkenny, Galway, Limerick, &c. (nor, in fact, any of the large towns, such as Sligo, &c.), have not been included in these returns, which have been received from dispensary and fever hospital attendants almost entirely located in the rural districts. On this account, the returns, with few exceptions, have no reference to the mortality among the infirmary surgeons and the medical attendants in the cities and larger towns, which we know to be considerable.

We learn from the Census of 1841, that the proportion of deaths from fever to the mortality from all causes was 1 in every 10.59, and 1 in 3.4 of the deaths of the total class of epidemic diseases; whereas the deaths from fever among the medical profession, as far, at least, as these returns enable us to judge

(and it must be remembered that they necessarily omit a great number of deaths), shew a mortality of not less than 1 in 2.29.

We are able, in part, to supply the omission of town mortality of medical men from Mr. Wilde's special Sanitary Report on the city of Dublin, where we find that thirty-six medical practitioners died of fever during the ten years over which the Census inquiry extended; and that the average age at which death took place among the class ministering to health, and including physicians, surgeons, apothecaries, veterinary surgeons, midwives, and nurse-tenders, was from thirty to thirty-five in males, and fifty-five to sixty in females; the entire number of deaths being 112 males, and nineteen females.

Some explanation seems necessary to account for the interval which has been allowed to pass since these investigations were made. The results of the first investigation gave an amount considerably beyond what even we feared did exist. This was stated in our evidence before the select Committee of the House of Commons, and we determined to repeat the inquiry. The facts, therefore, which we now place before the public and the profession are the result of a double investigation.

The following extracts from our evidence in 1843, we give, not only to corroborate the above statement, but to remove any suspicion that we had taken up the subject lightly or hastily. The period which has passed, now four years, has only increased our conviction of the truth of the returns.

In answer to a question of Lord Eliot's, as to the necessity of removing medical officers from public situations, it was answered:

" 1941. It is a very delicate matter to turn an old officer out who has had an attack of paralysis, or is broken down by the hardships of the profession; and there is great difficulty in arranging matters as to the removal of an officer from infirmity. I apprehend that, the moment the board is established, there would be few appeals for even inattention; but such would happen sometimes. The greater number of incompetent persons removeable would, I think, be referable to disease, most probably acquired

in the discharge of their duties. In connexion with Dr. Stokes, I endeavoured to ascertain the mortality of the profession, but the return was so formidable, so shocking, that we were afraid to bring forward the statement we had made up, and we are trying to verify it. We were afraid to bring it forward, because the statement might be questioned."—*Mr. Cusack's Evidence, Parliamentary Report*, p. 160.

"2037. *Chairman.*] Can you state whether the salaries of the medical men in Ireland attending charitable institutions are sufficient or otherwise?—In my opinion they are not sufficient, particularly in the dispensaries; and the reason I give that opinion is, that it is a fact that in Ireland a medical officer runs a greater risk of death from contagious disease than perhaps in any country in Europe.

"2038. Have you taken any means to ascertain that?—Mr. Cusack and I have been during the last year engaged in an investigation upon that point, and it was our wish to have it completed so as to lay it before the Government, and also this Committee, but it has not yet been completed; but the results, as far as we have gone, shew a very appalling mortality of medical men; and I know the fact from my own personal knowledge, for such a number of my pupils have been cut off by typhus fever as to make me feel very uneasy when any of them take a dispensary office in Ireland; I look upon it almost as going into battle.

"2039. Is it your opinion that the fever is peculiarly fatal to the medical men in Ireland?—It is peculiarly fatal to medical men.

"2040. *Chairman.*] Do you attribute the great mortality of the medical men to the want of ventilation in the hovels of the poor which they visit?—Most cases of fever of the medical officers of dispensaries seem to be attributable to the medical man having to enter the miserable hovels of the people, and to expose himself to concentrated and violent contagion."—*Dr. Stokes' Evidence, Parliamentary Report*, pp. 166–7.

To dwell at much greater length on the facts brought for-

ward in this communication would be unnecessary, for they speak for themselves, and sooner or later must have that good result which ever follows the statement of a truth. The researches only come down to 1843, and refer to the previous quarter of a century; but it is our intention to carry them on so as to ascertain the amount of medical mortality for the last four years.

We have the authority of Inspector-General Marshall for stating, that from January, 1811, to May, 1814, a period of forty-one months, or three years and a half, sixty-six officers were killed in battle in every thousand, and thirty-seven died by disease, making 103 deaths from all causes, or about ten and a quarter per cent.; but the mortality of the medical practitioners in Ireland, during a period of twenty-five years, is twenty-four per cent., to speak in round numbers. When to those considerations we add the appalling fact, that of the deaths of the medical men in Ireland, one out of every 2.29 has occurred from fever, the danger which attends the discharge of public medical duties in this country becomes sufficiently manifest.

It is time that these circumstances, for which scarcely a parallel can be found, should be known and duly considered; and the Government, while it, on the one hand, seeks to remove the causes of the spread of fever in Ireland, should, on the other, provide that the poor and destitute man shall not receive inferior or insufficient medical assistance; and reward with no niggard hand, and encourage by every means in its power, the exertions of a class of gentlemen, we fearlessly assert, the best educated, the least prejudiced, the bravest, and the most philanthropic, in the community.