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### MODERN EPIDEMICS: INFLUENZA.

By J. FOSTER PALMER, L.R.C.P. Lond., M.R.C.S. Eng., President of  
the Chelsea Clinical Society.

In the extent of its distribution, as well as in many other of its features, influenza is a type, in a milder form, of those great universal pestilences which have at intervals overspread the world and carried off large masses of its population, and of which it has sometimes been the precursor. At present it has hardly received the attention its importance demands, although its return among us in an epidemic form during the last ten years has brought the subject into greater prominence. Prior to this it had come to be regarded as an occasional visitor of a somewhat harmless character, very limited in its duration, and only exceptionally leading to a fatal termination. The present prolonged intermittent epidemic has taught us that, although not in itself a disease of great immediate mortality, it is, by reason of its extensive duration as well as its indirect or secondary consequences, an enemy by no means to be despised or made light of. So severe and widespread was this epidemic at its onset, so depressing in its effects, so liable to be followed by severe complications, that many were at first disposed to consider it a new and distinct disease. There can be no doubt, however, from the recorded accounts of earlier visitations, the personal recollection of those who suffered from the former epidemic (that of 1847), and the observation of sporadic cases in the *interim*, that the

disease is essentially the same as that which has been among us in more or less varied forms since the sixteenth century, and probably much earlier.

The first actually recorded epidemic of influenza was in A.D. 1173. It passed through Europe, Asia and Africa, occasioning, as was said, "a most universal cough and catarrh fatal to many".\* It must have been prevalent long before this, however, for we read of an epidemic in Rome as early as A.D. 590, which induced violent sneezing, and was attributed to a certain condition of the atmosphere. It was followed by a pestilence called "inguinaria," evidently the plague. After this date (A.D. 1173) the records are fairly numerous. There was another distinct epidemic in A.D. 1285; another lasting from A.D. 1299 to A.D. 1302; one in Ireland in A.D. 1315,† and again in A.D. 1325.‡ Indeed, it was pretty general before the Black Death of A.D. 1348. In A.D. 1385 it was prevalent in the Spanish Peninsula.§ It possibly attacked the English army before the battle of Agincourt (A.D. 1415).|| "Epidemic coughs" prevalent in A.D. 1436 were probably due to the same cause, as well as the epidemic pleurisy recorded by Hecker as occurring in A.D. 1482. The accounts of the "sweating sickness" (A.D. 1485), as given by Bacon, its severity, short duration, and appropriate treatment are suggestive of a form of the influenza epidemic. It broke out again in A.D. 1506.¶

After this date the accounts are fairly complete. The epidemics from 1510 to 1837, nineteen in number, were summarised by Dr. Theophilus Thompson in the *Annals of Influenza*, published by the Old Sydenham Society, while those subsequent to the latter date are within living memory. As in recent epidemics, so in these earlier ones, the same

\* Walford, *Chronology of Pestilences*, p. 73. Short, *On the Air*, etc.

† *Irish Census Report*, 1851.

‡ *Annals of Ulster*.

§ Bascombe's *History of Pestilences*, p. 60.

|| Tytler's *Universal History*, p. 306; Voltaire's *Universal History*, vol. ii., p. 35.

¶ Baines's *History of Lancashire*, vol. i., pp. 442-443.

vagaries prevailed. Sometimes the disease was rare, mild and sporadic ; sometimes widespread and severe. In some epidemics it attacked by preference the respiratory tract, in others the nervous system, in others the alimentary canal. One of the earlier epidemics, that of A.D. 1580, is spoken of as "the gentle correction". Great prostration, lasting for three days, was a constant symptom, but very few of the patients died. In reference to one occurring a century later, that of A.D. 1688, it was said that although not one person in fifteen escaped it, not one case in a thousand was fatal. On the other hand, that occurring ten years later (A.D. 1698), is spoken of as "a severe and awful catarrh".\* In A.D. 1729 it was very fatal in London, where 1000 people are said to have died of it each week. In A.D. 1803 the mortality was again great in Britain. In A.D. 1827 it was especially fatal and prevalent in the Netherlands, where it affected nearly the whole population.† In the beginning of A.D. 1837 it caused great mortality in England, Scotland, France, Spain, Denmark, Sweden and Russia.‡ Many writers on the disease have, apparently without sufficient reason, connected its prevalence with cold, wet seasons. This appears to be a popular rather than a scientific view of its causation. In the *Annals of Influenza*, on the other hand, the precursory atmospheric conditions are carefully tabulated, and it is found that no less than fourteen, or more than three-fourths of the whole, were preceded, not necessarily by rain, which is an almost constant condition in our islands, but by comets, meteors, volcanic eruptions, and foul-smelling fogs. Writing of a later epidemic than these, that of Iceland in A.D. 1862, Dr. Hjaltelin says it was preceded by a dry, thick, ill-smelling fog, and prodigious swarms of flies. He considered it to be contagious and the result of an atmospheric miasm. The description of the disease leaves no doubt of its identity with the epidemic of

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\* Forster, *Atmospheric Origin of Epidemic Disorders*, p. 163 ; Walford, *Chronology of Pestilences*, pp. 94, 111, 112.

† *Ibid.*, pp. 129, 134.

‡ *Ibid.*, p. 137.



the present decade.\* Speaking of this more recent invasion Dr. West, in his address to the Harveian Society, said that "Influenza stands in no relation to temperature, climate or other meteorological conditions".†

Thus, after centuries of experience of this disease, we are still in the dark as to its actual causation. We have learned something of its antecedent conditions, but further combined clinical observation as well as further bacteriological research will be necessary, in addition to the historical records we now possess, before we can put forth any certain statements as to the conditions under which it spreads. So long ago as 1883, when we appeared to be in no danger of an epidemic, I called attention to the importance of the subject and the necessity of collecting statistics upon it;‡ and I venture to think that if my suggestions, however imperfect they may have been, had been fully carried out, and the results of such co-operative observation been recorded, we should now have been in possession of far more extended and definite information than is the case.

The universal prevalence of influenza favours the inference that it is largely independent of local, geographical and climatic environment, is but little influenced by differences of race, diet and condition, is cosmical in origin and to a great extent beyond human control. Immunity there is none. In some epidemics it spares hardly a single individual, and extends even to the lower animals. In scope it is unbounded. Although usually considered a disease of cold and temperate climates, it is frequently prevalent in India, and in some of its visitations has spread throughout Asia, Europe and North America. In this country it is not actually endemic (unless it has acquired endemicity during its recent prevalence among

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\* *Year Book of Medicine and Surgery for 1863*, p. 157, New Sydenham Society.

† *Lancet*, i., 1894, p. 1051; *vide also Local Government Board's Report for 1893*: Parsons on the Clinical, Klein on the Bacteriological aspect of Influenza.

‡ *Vide The Collective Investigation Record of the British Medical Association for 1883*, pp. 156-159.

us), but has occurred on occasion in a mild sporadic form, returning at uncertain intervals as an epidemic. Our present visitation, so far as its origin can be traced, appears to have come from the neighbourhood of the Oxus, in Turkestan, possibly conveyed there from the adjacent parts of China, or, as some have suggested, from the fever-stricken region of the Ganges, *via* Afghanistan. It travelled slowly and steadily westward; visiting, first Russia, then Germany, and subsequently France and England. Here its progress must have been partially arrested for a time, for it did not reach Liverpool in force until the following year. The epidemic commenced in this country during the winter of 1889-90, a winter exceptionally mild and free from fogs.

After a virtual absence of forty years, therefore, influenza has again established itself in our midst; and although this is the tenth year of its recrudescence we are still unable to make any absolute statement as to its nature and origin. We have come to look upon it as a germ disease chiefly from its analogy to other germ diseases in the methods of its invasion and distribution, but it is only when it comes in this epidemic form that its zymotic nature is recognised, for in a sporadic form it has, in all probability, never been really absent from us. At any rate, in some of its forms, it is clinically undistinguishable from the more pronounced cases of ordinary winter catarrh; the actual diagnosis can, at present, only be made in the laboratory.

Apart, however, from bacteriological considerations, there are certain clinical facts which seem to distinguish influenza from most of the epidemic disorders with which we are acquainted. Nothing has been more striking, for example, than the impartial manner in which it has attacked men apparently in the most robust health, while often leaving, at any rate for a time, the more delicate members of the same household. It has not as a rule attacked all the members of a family as scarlet fever or whooping cough or chicken-pox would have done. Sleeping in the same bed with a patient, even, sometimes fails to communicate the disease. It often seems to attack a certain percentage of the inhabitants of one house

and then pass on to another. It certainly travels from place to place, independent of human intercourse, not, however, to the exclusion of the latter. The method of attack, indeed, almost suggests a comparison with the conditions of electrical affinity rather than those of the more usual forms of infection.

Many other similar anomalies in the incidence of influenza have been observed during the present epidemic. In the London hospitals, unaccountable as it seems, the nurses, the resident medical officers and the students, all presumably in good health, were attacked in far larger proportion than the patients, who were, most of them, necessarily in an enfeebled state. In some hospitals nearly all the officials were attacked, while the great majority of the patients escaped, many of them to fall victims at a later period, when their health was restored. This is certainly a method of invasion entirely different from those of small-pox, scarlet fever or typhus fever, which would have spread through the wards, as they almost invariably do when no special precautions are taken to limit the number of cases introduced.

Apart from the possibility, which is almost inconceivable, that influenza has a special affinity for healthy subjects, there are two explanations of this curious anomaly. One is that there may be a kind of pathological relationship between influenza and certain other diseases supposed to be entirely distinct in course and origin, and which may thus confer a temporary immunity. The other is the temporarily exhausting and fatiguing processes to which healthy people often subject themselves by any excess of diet, exercise or excitement, which invalids are careful to avoid. The proverbial longevity of the "creaking door" is, no doubt partly due to the care taken to suit its work to its capacity. A healthy man will expose himself to a thousand risks which the subject of heart-disease, for instance, will strenuously shun, to the extent, occasionally, of giving the latter a greater expectation of life than the former.

Another anomaly of influenza is the violence with which it often attacks the healthy. It has been observed that those in robust health seem to suffer, at any rate for a time, far



greater prostration than those of more feeble constitution. This is, perhaps, more apparent than real. The lines which separate health from disease being more strongly drawn in the robust, the contrast is more striking.

Although the epidemic respects neither race nor country, we find that Russia, France and the United States suffered in far greater proportions than England. Some want of balance in the organic functions must be the cause of this excessive receptivity, but what the special condition is, it is hard to say, for those three nations have little in common. Ethnical idiosyncrasy may account for it in the case of Russia and of France, but the inhabitants of New York, who are of the same race as ourselves, and are presumably of similar constitution, also suffered far more severely and fatally than we did. In Pennsylvania, too, it was estimated that there were 1,120,000 cases of influenza during the epidemic of 1891, 7880 of which were fatal.\* For some reason, therefore, it would seem that men of English race in America have less resisting power than in England. This is quite consistent with the history of our race in that continent, which, although in some of the wilder prairie regions it has attained a high pitch of strength and cultivation of the senses, has in many parts, especially in the towns, undergone a certain degree of physical deterioration.

The geographical progress of the disease, on the other hand, resembles in many respects that of cholera. It is slow, certain and definite, but affords us no information as to its method of travelling. It journeys by the same routes as human beings, † but certainly not by the same conveyances. It proceeds, for instance, along a line of railway, but not by train; for it observes the same slow, steady pace as it did in the earlier epidemics of the century, before railway travelling

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\* Report of Dr. Lee, Secretary to the Pennsylvania Board of Health. In February, 1899, the deaths from Influenza in Chicago were 98 out of 2240 or 4.375 per cent.

† This, which is spoken of by Dr. West (address to the Harveian Society) as one of the "recent additions" to our knowledge, was certainly known to and recognised by the observers of the earlier epidemics.

had been heard of. In a general sense, indeed, and allowing for the numerous disturbing causes which interfere with its course, influenza may be said to travel usually from north and east to south and west in the Northern Hemisphere, and from south and east to north and west in the Southern, *i.e.*, in practically the same direction as the trade-winds caused by the revolution of the earth from west to east.

We have here, in all probability, the true explanation of the evil reputation of the east wind, with its proverbially malefic influence on man and beast ; accentuated, as it often is, by a few points of north. Not only does it, coming to us from those cold regions beyond the influence of the Gulf Stream, diminish the powers of resistance by the depressing influence of cold, and the local disturbance it causes, thus producing increased receptivity, but at the same time it carries with it the microbes of influenza for cultivation in the newly prepared soil. For every case of severe catarrh may be considered an offshoot or degradation of the more typical forms of influenza. Such cases are not due, as was formerly supposed, to wet feet or individual exposure, but to a condition of the atmosphere favourable to the transmission and cultivation of microbes. The success of the open-air treatment of tuberculosis has emphasised the fact that we cannot escape a bacilliferous atmosphere by shutting our doors and windows, and that, *ceteris paribus*, the greater the volume of air around us the less concentration there is of any poisonous influence. Thus it is that those who spend their lives in the open air become more or less impervious, while those who never leave the house become abnormally susceptible, and will feel the impress of an east wind before they are out of bed.

It has been thought by some that alcohol has a protective influence. Within certain limits it may be so, for alcohol has bactericidal properties. But on the other hand it has been shown without doubt, by recent observation, that intemperance is very often the directly exciting cause of pneumonia, as well as the cause of its frequent fatal termination. Not only this, but there can be little doubt that "the power of resistance to the infection is distinctly lessened in advance by any im-

proper and exceptional resort to stimulants".\* It was said by one observer of the epidemic of 1803 that those drinking port wine in moderation appeared less liable to the infection. In those wine-consuming days "moderation" may have been taken to mean about three bottles *per diem*. In our degenerate days, with our lessened powers of resistance to the evil effects of alcohol, a far smaller quantity would, no doubt, be sufficient for the purpose.

Upon the whole we may conclude from our clinical and general experience that, although the actual sources of influenza epidemics are beyond human control, yet man in his individual capacity possesses a certain latent power of resistance, which under cultivation may reduce both the proportion and the intensity of the attacks; and that in this direction there still lies a large field for future research.†

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\* *Lancet*, i., 1892, p. 264.

† The account published by Dr. Parsons in 1894, after the first five epidemics, is, of course, well known to all. His principal conclusions may be summarised as follows: That the epidemics come on at almost any time of the year; that they are not greatly influenced in their prevalence by weather, but that their mortality is increased by cold weather; that an attack affords, if not complete protection against, at any rate a modification of future attacks both in the individual and in the locality; that it affects different localities with different degrees of severity, its relative fatality depending chiefly on the average age of the population, being most fatal to quite young infants and to old people. In fact, we can ascertain the number of fatal cases in proportion to the population, but not to the number of people attacked (*vide Lancet*, 1894, i., 1292, "On the Distribution of the Mortality from Influenza in England and Wales During Recent Years" by Dr. Parsons, a paper read before the Epidemiological Society, 16th May, 1894).

(*To be concluded.*)

## ANCIENT IRISH MEDICINE: ITS CULTURE AND PRACTICE.

By THOMAS MORE MADDEN, M.D., F.R.C.S. Ed., M.A.O. *Honoris Causá*, Royal University; Obstetric Physician and Gynæcologist, Mater Misericordiæ Hospital, Dublin, etc.

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IN the history of the medical knowledge and leechcraft of the ancient Irish can be traced the germs of theories and practices that have been recently revived as new discoveries. Moreover, from it may also be disinterred the vestiges of a civilisation and professional culture over which the pall of oblivion has fallen.

Thus in the olden Gaelic records to which I am about to refer, and which extend from a period of the most remote legendary antiquity down to the seventeenth century, we have evidence that from the earliest times the healing art was sedulously cultivated and held in high estimation in Ireland, where women as well as men, in some instances of the highest social rank, were amongst its followers. From these seldom-consulted chronicles we also learn that classic medical literature was diligently studied; that anatomy, materia medica and therapeutics were taught; and that medical treatment as well as operative surgery, obstetrics and gynæcology were successfully practised in ancient Erin. Nay, more, it can be thus shown that the alleged marvels of modern hypnotism were here anticipated in distant days; and that the employment of anæsthetics in surgical operations, on which



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*(Concluded from page 609.)*

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media, unless blood or hæmoglobin be added. Indeed, it only flourishes in the body, and soon dies when removed from it. Another difficulty in its examination is that the animals commonly used for experiment are very slightly susceptible to inoculation. Guinea-pigs resist it strongly, and monkeys, according to Pfeiffer, develop abscesses. Prof. Macfadyen, of the Jenner Institute of Preventive Medicine, says that this organism has never been found except in cases of influenza, and that there is no difference in the organism whether found affecting the mucous membrane or any other part. In the former it is usually very abundant. As in the case of the bacilli of diphtheria and enteric fever, a pseudo-bacillus resembling that of influenza has been found in cases of bronchitis and of otitis media. Whether, as in the case of those two diseases, this pseudo-bacillus can by any means of cultivation become evolved into the true influenza bacillus and *vice-versa* it is premature to say. The subject has not yet been fully worked out.

The nervous symptoms of the disease are considered to be due to a toxin produced by the bacillus. Of the complications and sequelæ of the disease some are produced by the havoc wrought on the system by the toxic action of the bacillus, others are due to the cultivation of entirely distinct organisms upon a soil which has become especially fitted for their reception and growth by the action of the influenza bacillus. Among others the diplococcus pneumoniæ and the pyogenic cocci appear to have a considerable selective affinity for subjects in which the influenza bacillus has been doing the work of pioneer.

Among the most recent researches on the subject are those of Dr. Wynekoop in America. Of sixty-one cases examined by him in February, 1899, and found to contain the characteristic bacillus, twenty-three had been diagnosed as influenza; nineteen had not been diagnosed at all; eight had been diagnosed as diphtheria (in these the Klebs-Loeffler bacillus was absent); three as "peculiar conjunctivitis"; two as "probably tonsillitis" (*sic*); one as bronchitis; one as diphtheria and scarlet fever combined; one as "a cold"; one as

“doubtful,” and two as tonsillitis. In these two cases the Klebs-Loeffler was found as well as the Pfeiffer bacillus.\*

Thus, in spite of the difficulties to be overcome, the bacteriology of influenza is being gradually worked out. Yet, when the bacteriologists shall have said their last word and extracted all nature's secrets, the subject of the etiology and prevention of influenza will be by no means exhausted. It is not by a series of preventive inoculations that mankind in the long run will seek his principal defence against the invasion of epidemic disease. There are few better protectives against the invasion of pathogenic bacteria than good healthy blood-serum and healthy surroundings. Sanitary towns, sanitary houses and sanitary lives will do more to check the inroads of so-called pandemics than either disinfectants or immunisations.

The particular conditions under which the influenza bacillus attacks the human subject and sets up the characteristic symptoms of the disease cannot be fully understood at the present stage of the inquiry. In connection with this, however, the numerous cases in which the disease appears to have been caused by the action of inorganic gases must not be lost sight of. For, after all, this opinion of its origin is not by any means necessarily exclusive of the etiological effect of the bacillus. That inorganic gases and solid particles of irritating material in the atmosphere will set up an inflamed or congested condition of the mucous membrane there can be no doubt. This condition may be precisely what is required to enable the influenza bacillus to undergo cultivation in an active form. The experiments of Prout and Berzelius, who on several occasions produced all the symptoms of influenza by a small quantity of seleniuretted hydrogen or some other gaseous compound of selenium, have shown that the connection is not an accidental one. This gas is said to be one of the products of volcanic eruptions, and its presence in the air may account for the sequence of influenza epidemics on offensive fogs and volcanic eruptions so constantly referred to by

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\* *Bureau Report, Department of Health, City of Chicago, for February 1899*, Dr. Arthur Reynolds, Medical Officer of Health.



writers on the subject. The present epidemic, even, has been referred by some to an earthquake or extensive volcanic eruption occurring about ten years ago. A similar condition of the mucous membrane is also set up by the mechanical action of particles of metallic dust (also a frequent concomitant of volcanic eruptions), and is followed by similar consequences.\*

The question of the ulterior effects of influenza, too, is one of the utmost importance. Whether or not the influenza bacillus requires a certain receptive condition before it can run its full course in the human subject there is no doubt that, when it has run that course, it has paved the way for many other bacilli of a more formidable character. That this is the true explanation does not now admit of a doubt. It is no question of possible pathogenic evolution. We have already seen that the organisms which exhibit the greatest affinity for the subjects of influenza are the cocci producing respectively pneumonia and suppuration, both belonging to a different division of the bacterial world to the organism of influenza. It is therefore inconceivable that they should be convertible the one into the other. This being the case it is *a fortiori* improbable that the bacteria attacking these subjects at a later date, say after an interval of twelve months, should be products of the evolution of the original bacillus.

The effect of the toxin of the influenza bacillus on the nerve centres is no longer open to doubt. The primary effect is seen in the disastrous nervous symptoms which continue in some cases to affect the subject of influenza after recovery from the disease, symptoms which, however alarming they appear to be as psychological signs, are, happily, in most cases, only temporary. The secondary effects are seen first in the occasional gradual breakdown from prolonged

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\* The references to this subject, both in ancient and modern writings, are numerous. Those in the account of the epidemic in Iceland and the *Annals of Influenza* have been referred to. A peculiar charged atmosphere preceded the first recorded epidemic of 1173 A.D., as well as many others. *Vide* Walford, *Chronology of Pestilences*, pp. 15-17; Thorold Rogers, *Agriculture and Prices*, p. 293; *Proceedings of the British Association for 1881*, p. 88; *Proceedings of the Royal Astronomical Society*, vol. xxxix., p. 161.



lack of innervation, and, secondly, in the acquired receptivity, lasting for a shorter or longer period, to the attacks of the greater epidemics.

The following is, I think, by no means an isolated case. In May, 1892, I examined the body of a man who died of asthma and heart-disease. Practically every organ of the body was diseased beyond recovery. His history was one of perfect health until the sudden onset of an attack of influenza at the beginning of the epidemic, which must have been in the early part of 1890 or close of 1889.

This is one of those cases, probably rare, of inability through some incipient defect of one or more of the organs of the body to recover from the havoc wrought by prolonged insufficiency of nerve power.

The increased receptivity shown by the frequent prevalence of the greater epidemics after epidemics of influenza is a matter which has been the subject of very extensive observation. The frequency of its occurrence during so many centuries can hardly be a coincidence. It has been observed both before and after the period included in the *Annals of Influenza*. The first influenza epidemic on record (that of A.D. 1173) was followed by great epidemics of plague. The Black Death of the fourteenth century was likewise preceded by a long continuence of influenza epidemics. Of the nineteen epidemics recorded in the *Annals* (from A.D. 1510 to A.D. 1837), seventeen at least were followed by epidemics of a more fatal character,\* ten of which were either plague or cholera. That of A.D. 1847 was also followed by cholera, which in most of the epidemics pursued the same geographical route as its precursor. The epidemic of influenza, too, in Iceland in A.D. 1862 was followed by an extremely virulent epidemic of pneumonia the subsequent year. The present epidemic, it is true, has not been followed by any special visitation of the greater pestilences. This may doubtless be attributed to the

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\* One of these, which occurred in the autumn of 1658, and was called "malignant fever," followed an epidemic of influenza which occurred in the spring of the same year. It was probably typhus fever. The Protector Cromwell died of this epidemic, not, as is often said, of ague.

enormous advances which have been made in sanitary science since the cholera epidemic of A.D. 1854. The inference appears to be that the prevention of influenza is not yet understood, and that it is less amenable to control by our present systems of sanitation than are the more fatal epidemics. Its universal prevalence, too, points to an independence of conditions which, at first sight, seems overwhelming.

All it really shows, however, is this, that the means of preventing the spread of influenza epidemics lie in an entirely different direction to the now conventional methods which we have come to look upon as essential for the prevention of various zymotic affections. Such means will probably consist more in individual sanitation and the cultivation of our resisting powers than in the prevalent but somewhat crude methods now in vogue. However useful these may be in preventing the invasions of plague and cholera and in limiting the spread of scarlet fever, typhus fever and small-pox, they seem to be powerless against so wide-spreading an epidemic as that of influenza. Whether in the air or practically out of it; in town or in country; in crowded dwellings or in palatial mansions; in the combatant atmosphere of the hospital ward, where the struggle between the microbes and the antiseptics is at its fiercest, or in plains farthest removed from human or even animal life; at the sea-level or in high altitudes; the same result obtains; one is taken and the other left. Its influence must be universal, and its limits commensurate only with those of the atmosphere itself. To combat so ubiquitous an organism by boilings and disinfectants is puerile; it is like attacking the British Navy with pea-shooters. Nor have any of our other sanitary measures proved more successful. In our sanitary contest with influenza we must begin again *de novo*. We have not yet made the first step. Yet the necessity of doing something to check its career is obvious. In addition to the direct consequences, the depression of temperature, the prolonged nerve disturbance and the tendency to pneumonia and suppuration, so great is the increased susceptibility to disease at a later period, so frequently has influenza been the precursor to other epidemics, that a large diminution

of zymotic mortality might fairly be expected as the result of any successful attempt to deal with the inroads of influenza.

Meanwhile the difficulties of such an attempt are incalculable. The history of past epidemics points to its almost universal prevalence. Clinical observation shows that it attacks the healthy and robust as well as the delicate and feeble. Laboratory research shows that the bacillus grows better in the human body than in any other medium. The conclusion is inevitable, if unfortunate, that, as at present constituted, a large proportion of the human race is not only extremely susceptible to the influenza bacillus, but that the human body of the majority of mankind must be considered, until further evidence is forthcoming, if not its natural habitat, at any rate the favourite nursing-ground for its cultivation and growth.

### THE COMPULSORY NOTIFICATION OF PHTHISIS.

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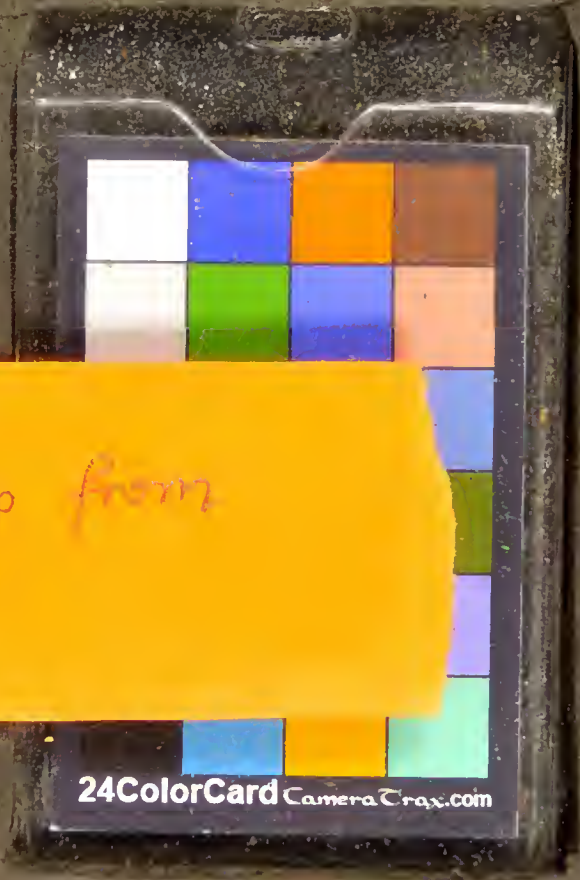
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THE article in your June issue by Dr. Byrom Bramwell on "The Compulsory Notification of Phthisis" deserves to be read with critical interest, since the author deals with the objections which from time to time have been formulated against the proposed introduction of compulsory notification of pulmonary tuberculosis. The author discusses such a scheme almost solely from the preventive side, on the assumption that tuberculous disease in the lungs of man is mainly propagated in one particular way, *viz.*, the inhalation into the respiratory system of air contaminated with the tubercle bacillus, the origin of which is desiccated sputum. Viewed from this standpoint only, there would be little difficulty in agreeing generally with the author, that the objections which he tabulates as a formulation of public and medical reasons for rejecting meanwhile a notification of phthisis could be brushed aside, provided the public were educated to the point of seeing a *primâ facie* necessity as in other diseases more obviously infective and contagious. But the question at once emerges: Is it expedient at this stage of the crusade against tuberculosis to put notification in the forefront? The answer must be given with respect to the views entertained as to the prime sources of infection. It may be assumed that these sources, in order of importance, are as follow,









numerals jump from  
610 to 659



