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ADDRESS

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ALTHOUGH Port Sanitary Authorities, as we know them to-day, are comparatively modern, as far as their style and title is concerned, there is no doubt that the functions discharged by them can be traced far back, to the time when in the East measures of isolation were adopted in reference to leprosy. The earliest definite mention of purely port sanitation is to be found in the record of the establishment of an authority in Venice in the year 1348, which consisted of three officers appointed to deal with what was, at that time, even as now, a matter of constant anxiety, the importation of plague, or, as it was designated in those days, black death. In 1403 we learn of the first lazarette in Venice. Those are the earliest records I have been able to discover of definite port sanitary administration. It is interesting to us all here to-day to realise that our functions and our duties are in reality, if not in name, dignified by a fairly high degree of antiquity, and, if time permitted, it would be extremely interesting to trace their history through the centuries succeeding the periods of the first efforts of the Venetians.

There is also another aspect of port sanitation which is both interesting and instructive, and that is its *international character*. In that respect it forms one of the most pertinent illustrations of the cosmopolitan character of true scientific labour. Science belongs to no country, to no nation, to no race; it belongs to all the nations and races of the earth, and

should be always and at all times above those features of exclusiveness and special advantage which characterise the progress of those particular interests of mankind known as commerce. The science of preventive medicine, and particularly that branch of it in which we are at present most interested, when considered in relation to its international character, gives us a striking object-lesson in confirmation of those views. Our esteemed friend and colleague, Sir James Crichton Browne, speaking at a meeting a short time ago, with that remarkable felicity of diction which is so characteristic of his utterances, labelled the port sanitary authorities as the "blue-water" school of sanitarians. I see no reason to object to, or to cavil in any shape or form at, the title, but accepting it in its widest sense I am disposed to regard our port sanitary authorities in the great forces of public health as parallel to our navy in the protection of our riparian cities and their commercial interests against the invasion of infectious disease from abroad. The simile is a good one, but in this instance happily the forces of civilisation are not arrayed one against the other, but are united by a common object, the prosecution of war against those eruptions of Nature which, left unbridled, would cripple our commerce and decimate our population.

Perhaps no subject in the wide field of hygiene has been productive of so great an amount of international consideration as the question of quarantine, in its original sense, both on land and sea. The history of the question, as evidenced by the events relating thereto during the nineteenth century, is full of interest, particularly to British people, from two points of view; first, the character and magnitude of the interests involved, and secondly, the position which has been taken up and held by our representatives at the series of international congresses held during the last century, where their views for many years upon the question of the quarantine laws were very diverse from those held by the representatives of other European States.

As far back as 1849, and again in 1852, Chadwick, Southwood Smith and others were arguing against quarantine in its original sense, and although their arguments were not always based on sound epidemiological principles, there is no doubt that those British representatives of our sanitary authorities laid the foundation of the first movements which were eventually to result in the abandonment of quarantine in its original sense. But it was not until the year 1865 that the real battle against the old methods of quarantine, methods that were costly and productive of enormous difficulties and delays to the shipping of the world, was begun by Sir John Simon, the medical officer to the Privy Council. Since 1852 there have been nine conferences held between the delegates of the Powers

with a view to uniform action in keeping out infection from the East, and preventing its spread in Europe. With the exception of one, that of 1897, all were occupied with the considerations associated with cholera. No result came from the first four conferences, and no conventions resulted in consequence of them, but each of the subsequent five have been followed by international conventions on the part of nearly half of the Powers that were represented. The general effect of those conventions has been the abandonment of the high quarantine doctrine of constructive infection of a ship as coming from a scheduled port, and an approximation to the principles advocated by representatives of Britain for many years. It is notable that all international efforts in the sphere of port sanitation, from the time of the establishment of the Council of Venice down to the present day, have been directed against cholera, plague, and yellow fever. It is really to cholera and plague, and the fear those diseases engendered, that we owe those international congresses and the conventions that have resulted therefrom. It is interesting perhaps to mention that at one time there was another disease that was the subject of consideration by the European Powers, especially those in the north of Europe, and that was the question whether any steps could be taken to limit the spread of syphilis.

I think we may all congratulate ourselves at the present time, that quarantine in its original sense is now a dead letter. It is a thing of the past in the United Kingdom, the principal countries of Europe, and the United States. It is easy for us to imagine under the old regime the cost and the delays of the proceedings associated with quarantine, when vessels were detained on their arrival from infected countries for sometimes from forty to fifty days; in some instances their cargoes entirely destroyed, in many instances damaged by the methods of procedure adopted in reference to their disinfection and purification. It would not be equally easy for us to realise what the result in the present day upon our own commerce would be were those measures, that were adopted under the quarantine laws in their original sense, still in operation. The last occasion upon which in this country there was really an appeal to the quarantine laws in their original sense was at Swansea, your neighbouring port, when a vessel came from Cuba, in the year 1885, laden with ore, and infected with yellow fever. It was in 1865, that Sir John Simon was very active in raising the question of international control, and it was chiefly owing to the expressions of his strong opinions that a scientific inquiry began which ultimately led, step by step, to the almost total abolition of the original practices of quarantine.

Writing at that time, Sir John Simon said: "There are two kinds of

precaution which may be used against quarantine. First, if possible to prevent the entrance of the contagion; secondly, if the contagion be present to annihilate, as far as possible, the circumstances which favour its spread. Subject to one qualification, which is not an important one for the present argument, it may, I think, be accepted as certain that quarantine, conducted with extreme rigour and with the extreme precision of a chemical experiment, would keep cholera out of every port of Europe in which the extremely difficult conditions can be absolutely fulfilled. Thus I have no hesitation in saying that England ought to resist cholera by quarantine. On the other hand, though I cannot pretend to discuss with any kind of authority the non-medical aspects of the question, it would be mere pedantry for me to ignore that facts which are of common notoriety, and considerations which are of common sense, conflict entirely with that purely medical conclusion. The quarantine which is ineffective is a mere irrational derangement of commerce, and a quarantine which ensures success is a great deal more easily imagined than realised."

It was not, however, until 1873 that so far as cholera was concerned quarantine was officially abandoned by order of the Local Government Board, and the following year at one of the international sanitary conferences, held at Vienna, the views of the British representatives prevailed so far that the conference was the first in any form to give sanction to the principle of a Board of medical inspection taking the place of quarantine. No further alteration in the laws occurred until 1885, when another conference was held, this time in Rome, and there, in deference to the advocacy of the British representatives, it was laid down for the first time that it was not necessary to consider articles as infected because they came from countries where cholera prevailed; that only persons who have been suffering from cholera, or articles that have been actually soiled by cholera patients, or clothes that have been worn by persons suffering from the disease, were to be subjected to destruction. At the International Conference, held at Venice in 1892, the question of cholera as sea-borne in relationship to its spread by sea, was solely dealt with.

In all these conferences there was still apparent considerable divergence of opinion between the representatives of England and those of the Continent as to the efficacy of quarantine against the spread of cholera and other infectious diseases. The trend of British opinion, influenced by Sir John Simon through these series of controversies, was to trust to means of sanitary improvement as the best prophylactic against cholera, and to rely upon proper quarantine against cholera in a small degree, whereas, down to 1892, on the Continent the belief in quarantine,

although apparently diminishing, still retained much of its force. It was at the conference held in Dresden in 1893 that the great change in the opinion of Continental sanitarians towards the value of quarantine in its original sense, as compared to general measures of sanitation advocated by Sir John Simon, arose. That conference at Dresden was convened for the purpose of considering the precautions that ought to be adopted on land and sea against cholera, and it was at that conference that the minimum and maximum courses to be adopted were first described, the minimum being obligatory, the maximum optional; and the continental methods of dealing with cholera were then made to correspond closely with those that had been in existence in England for twenty years previously, from 1873. It was at that conference also that the great principle was accepted that precaution must be taken on the accepted basis that cholera is communicated by human agency, and on lines of human intercourse and trade routes. In 1894 another conference was held in Paris for the purpose of devising measures to prevent the spread of cholera by way of the Red Sea and the Persian Gulf. In 1897 the International Conference of Venice assembled to deal with matters connected with the outbreak of plague in the East, and it was at this conference that the most important principle of international notification was unanimously adopted, a principle which in its faithful application I regard as one of the most valuable enactments connected with the question, one which it is impossible to over-value. It is an agreement under which each government notifies all other governments of the existence, at any time at which it may arise, of any plague within its jurisdiction, and at the same time indicates the means which are being carried out to prevent its diffusion.

Without entering into the details of the work of that conference, which would be out of place on this occasion, one need only say that the results indicated a great advance, on the part of the nationalities represented, towards a liberal and scientific conception of the means which ought to be adopted by their respective governments for the prevention and control of infectious disease; and viewed in relationship to the measures that were advocated by our British representatives, I think they constitute one of the greatest tributes that could be paid to our British sanitarians, to their great foresight and wisdom.

But, after all, the great question which concerns us at the present day is this: Are we at present in any danger of invasion by cholera, plague, or yellow fever? To that there can be but one answer, and that is in the affirmative, perhaps with this qualification, that there is very little danger of our getting an invasion from yellow fever, but as far

as cholera and plague are concerned, the danger exists at the present day as in the last century. It is impossible to consider cholera and plague, their history and behaviour, and their method of advancing, as in the case of cholera along the great trade routes of the world, without coming to the conclusion that there is danger, and having regard to the effects associated with the increase, the rapidity and facilities of traffic and intercommunication, and also to the fact that in some instances there may be what are known as ambulatory cases, there can be little doubt that the danger of invasion does exist and will continue to exist.

Arising then from that, the next important question which we have to answer is this: Are the measures that are adopted by our sanitary authorities sufficient to cope with those admitted dangers? With the experience that one has had of port sanitary work in Liverpool, and with the knowledge that one is able to gather from studying the history of the two diseases, cholera and plague, I have no hesitation in taking the view that the measures at present prevailing in this country against those diseases are adequate. All experience goes to show that although cholera and plague are exceedingly difficult diseases to keep out of a country altogether, they are easy to control under good sanitary conditions, and even under moderately good sanitary conditions, provided they are not allowed to establish themselves. Vigilance on the part of medical men, and a high standard of perfection on the part of the administrative sanitary authorities, are of the utmost importance. Backed by them our officially-prescribed measures may be relied upon with confidence to dispose certainly of plague, at all events, quickly and effectively, and that opinion is confirmed by the result of recent experiences in this country when plague or cholera has visited us. The probability is that of the two diseases, the latter is the rather more difficult to deal with; but even there sanitary measures of a general character rigidly carried out prove in several instances their complete efficacy. For example, in 1895 31 vessels arrived infected with cholera at three British ports. From none of these vessels did the disease spread ashore. In 1897 a ship with plague on board arrived in Portsmouth and landed 1,200 troops without infection being conveyed by their dispersal. In all these cases the prescribed rules were rigidly observed and carried out.

The great invasion of Europe by cholera in 1893 provided lessons of the greatest importance in dealing with this disease. It proved that the one real and sufficient precaution is a highly perfected condition of sanitation backed by good vigilant administration. The experience of Great Britain was a remarkable piece of evidence, but that of Berlin

was really more striking, for Berlin lay in the centre of four fires, was in direct and frequent communication with Hamburg, Russia, France, and Austria, and had not the advantage of a sea frontier. During that great epidemic cholera was repeatedly brought into Berlin, but its successful repression was accomplished without any irksome indications. The success of Great Britain and Germany in keeping cholera in check by ordinary sanitary means completed the conversion of all enlightened nations to the policy led by Sir John Simon, and advocated by the representatives of Great Britain at the series of international conferences to which I have made allusion, that is the policy of abandoning quarantine, which Great Britain did in 1873, and trusting to sanitary measures, with medical inspection, of persons arriving from infected ports.

From India, where cholera when it breaks out is perhaps as difficult to deal with as it is in any country in the world, we get illustrations of what efficient sanitary administration is capable of accomplishing. In 1893, at Samarkand, three regiments were encamped side by side on a plain close to a stream of water. The colonel of one of those regiments, who was evidently a most rigid sanitarian, took extraordinary sanitary precautions in view of the prevalence of cholera in the country. He placed a guard over the river, and he compelled his men to use boiled water, even for the purpose of their ablutions. With the other two regiments only the ordinary precautions were adopted. What we as sanitarians would expect is really what happened. The rigid sanitarian preserved the health of his men, and not one case of cholera occurred in the regiment. The other two regiments lost between them 100 men. That is an illustration in support of the opinion one has formed of the reliance which may be placed on high sanitation.

Again, to show how indifferent sanitation may be one of the causes of the spread of cholera, the case of Asterabad may be quoted. At Asterabad, in the same year as the above episode, cholera had almost entirely disappeared from the country, when a Government banquet was given in honour of the Czar's name-day. Of the guests at the banquet half died in twenty-four hours, and within forty-eight hours a terrible outbreak occurred, which carried off 10 per cent. of the population of the district. What had happened? The water supply just above the place where the banquet was held came from a small stream, and immediately before the banquet a heavy rainstorm occurred, which had swept into the stream all the surface water of an infected village higher up the country, and some considerable distance from the banks. The neglect of the ordinary sanitary precautions regarding that drinking water was really the cause of that visitation.

But the classical example of Hamburg is perhaps more convincing than any other. The water supply of Hamburg is obtained from the Elbe. The drainage from the town also runs into the river, and the movement of the tide was sufficient to carry the sewage water up above the intake of the waterworks. Before this water was consumed it had to pass through a couple of ponds to act as settling tanks, which were inefficient, and in short, the water supply of Hamburg was lamentably bad. This was the state in 1892 when the epidemic of cholera infected that place. On the other hand, at Altona, which is continuous with Hamburg, there was a separate water supply, the conditions of which were fairly good. Now in all other respects, excepting water supply, the conditions of sanitation, the character of the population, their employment, and so on, of Hamburg and Altona, were practically identical. What happened? In that epidemic 8,605 people died in Hamburg, and only 300 in Altona. A remarkable fact is to be noted in reference to that episode, and it is this. In some of the streets one side of the street lies in Hamburg and the other side of the street is in Altona, and at those streets the spread of cholera stopped. They constituted a dividing line, the Hamburg side of the street being full of it, the Altona side escaping. Here we have a striking illustration of the terrible results which may accrue from neglecting one of the most if not the most important of all sanitary conditions, a pure water supply. It will, we hope, be impossible ever to witness such an occurrence again. But for the point that we have in view it is sufficient to say it is a most powerful and striking illustration of the influence which genuine sanitation exercises on the progress of these diseases.

There are other illustrations. Take Grimsby, for instance. We find a lesson there that, in spite of pure water, if other measures of sanitation are neglected, disaster may follow. It was there that cholera obtained a decided hold, in spite of a pure water supply, through the fouling of the soil by cesspools and defective drainage. So, also, at Havre at the same time. Further, it was conclusively proved at Grimsby that cholera can be spread by sewer-fed shell-fish. Several of the local outbreaks in England at that time were traced to the ingestion of oysters obtained from Grimsby beds. In short, it may be said that all unhealthy conditions favour the prevalence and spread of cholera, in some degree, at all events.

Perhaps no public reference of the character of this paper would be complete on this subject unless we made some allusion to the regulations of the Local Government Board, issued on the 9th September last,

regarding cholera, yellow fever, and plague. It is pointed out in those regulations that the majority of the provisions contained therein are merely reproductions of those formerly issued. Although they don't apply to Liverpool and some other ports, I have been unable to detect anything in them which differs materially from the precautions and measures which we have for some time past adopted in Liverpool in dealing with the diseases under consideration. I observe, however, that there is a clear definition of the terms "suspected ships" and "infected ships." The term "infected ship" is limited to a ship on which there is actually on board, at the time of arrival, a case of cholera, yellow fever, or plague, or in which there has been a case within seven days before arrival; or in the case of yellow fever, eighteen days. The term "suspected ship" is used as applying to a ship on which there has been a case of cholera or plague more than seven days before the arrival of the ship, or a case of yellow fever more than eighteen days before the arrival; whether the case has occurred in the port of departure or another port in the course of the voyage, or at any time during the voyage, or on which no fresh case of cholera or plague has occurred within the seven days, or of yellow fever within the eighteen days.

In dealing with the precautions for the prevention of the spread of plague under those regulations, the question of the destruction of rats inevitably arises. It is impossible for us to overlook the conclusions of the Indian Commission on the subject of bubonic plague in man, those conclusions being that it is entirely dependent upon disease in a rat, and that infection is conveyed from rat to rat, and from rat to man, and from man to man, solely by means of fleas.

A further conclusion of that commission is that a case of bubonic plague in man is not in itself infectious, but entirely dependent upon a rat and a flea agency. Bearing these conclusions in mind, it is rather difficult to arrive at a satisfactory explanation as to why, in those regulations, it is not made obligatory to destroy all rats in a suspected ship, equally as in an infected ship. In the Memorandum, it is appointed by Articles 23 and 24, regarding the procedure to be followed in cases of plague, that it is only in an infected ship that the destruction of rats is compulsory. I think it ought to be equally compulsory in suspected ships. At all events, the practice that has prevailed in Liverpool for some time past is to destroy all the rats on any ship where there has been plague, or on any ship which has come from any plague-infected ports, or touched at any ports in the course of the voyage where plague is known to exist. Not only are the rats in each instance of that character caught, but they

are all subjected to bacteriological examination, in order to secure the greatest amount of information relative to the possibility of plague existing unknown or unrecognised in any such vessels.

We have not, at the present day, any anxiety arising relative to the ordinary zymotics when they arrive here from a foreign country in a ship; and I have confidence that, given proper means of isolation, a rigid application of powers which we as sanitary authorities possess, an intelligent vigilance on the part of our officials, an accurate administration of all our regulations and rules, and a faithful adherence on the part of masters of vessels and of all those upon whom devolves the duty of giving information, we shall be able to look to the three diseases, cholera, yellow fever, and plague, which have so long exercised the minds of various international commissions and our leading European sanitarians, as being in the same category with reference to port sanitary administration as the ordinary zymotic diseases.

I scarcely like to close my address to you to-day without making reference to the new duty which is imposed upon our authorities under the "Public Health Regulations as to Food Act," passed last year, which gives the Local Government Board power to make regulations under the Public Health Act, 1898, to prevent danger arising to the public health from the importation, preparation, storage and distribution of articles of food and drink (other than drugs or water) intended for human consumption. Such regulations may provide (1) for the examination and taking of samples of any such articles; (2) for the recovery of any charges authorised to be made by the regulations for the purpose of the regulations, or any service performed thereunder, and may apply as respects any matters to be dealt with by the regulations any provision in any Act of Parliament dealing with the like matters, with the necessary modifications and adaptations.

I venture to hope that, in carrying out the inspection of food and meat provided for by this Bill, uniformity of method may prevail in the various ports of the country as nearly as possible, and that in the execution of the duties assigned to us by the regulations of the Local Government Board thereupon, we shall endeavour to carry out our administration in such a manner as to avoid any proceedings of an arbitrary character, or of such a nature as may prove irksome to the commercial interests of the various ports, or at least to those sections of such interests as are represented by the persons who import our food-stuffs. When one considers the immense value of food-material that is brought into this country annually, one cannot fail to be impressed with the magnitude of the task which devolves upon port sanitary authorities with reference to this Act.

It may be observed that although there has been no obligation in regard to this in the past, with the exception of London, which has had a special Act bearing on the matter since 1891, and in Manchester since 1906, still in the other ports of the country there has been a great deal of valuable and effective inspection carried on by port sanitary authorities. This work has been only possible by a mutual co-operation of port sanitary authorities and the consignees or consignors of material which has deteriorated. And arising from this aspect of the question one may observe that it is probable that before long a recognition will arise of the mutual interests of health authorities, consignees and consignors, in reference to this question. It can never be to the true interests of either of the latter two interests that any food-stuffs which are unsound or detrimental to the public health should be diffused throughout the country, and hence it will be to the interests of consignees and consignors that this inspection should be made as complete as possible.

I therefore venture to express the opinion that we shall find, as we proceed with the administration of this Act, that we shall obtain every assistance from the parties concerned, and when its scope and its objects are fully realised, they will heartily co-operate with the port sanitary authorities in making inspection as effective and as beneficial to the community as possible. It must always be borne in mind that this inspection of food upon landing is not meant to supplant existing methods of dealing with unwholesome food, wherever discovered and offered for sale, but it is supplemental to existing measures, and it will surely be recognised that it is infinitely less dangerous to the community to detect and arrest unsound articles of food intended for human consumption on their landing, and no longer allow them, as heretofore, to be diffused throughout the country and exposed for sale before any steps can be taken regarding them.

The draft regulations of the Local Government Board bearing upon this question are scarcely so definite as I hoped they might be. It will be observed that, so far as the unsound food regulations are concerned, they appear to be purely optional. Article IV. of those regulations, dealing with the powers of medical officers of health in relation to unsound food, directs that such officers *may* examine an article of food which has been landed within the district, and throughout those regulations the permissive word *may* dominates the question. It is not for me to criticise the wisdom of the Local Government Board in framing those regulations, but in view of the opinion expressed concerning uniformity of administration in the various ports, it is easy to realise that under these regulations port sanitary authorities may materially differ in their appli-

cation of the powers conferred upon them, and that in some instances a desire to place the commercial interest of a port (as distinguished from the interests of public health) in the forefront, may lead to a milder application of those powers than is exercised in rival ports. I observe, however, that these regulations may be cited as *The Public Health (First Series: Unsound Food) Regulations*. Perhaps a further series may take into consideration the advisability of making inspection of food obligatory.

The regulations dealing with foreign meat are, in my opinion, much stronger and better defined; providing, as they do, in certain classes of foreign meat, for obligatory inspection. Certainly there exists less likelihood of difference of administration under these regulations than those drafted as applying to the inspection of food other than meat.

There are questions arising upon Article III. of those regulations that call for consideration. I think the question will arise as to whether some of the functions entrusted to the Customs officers under that article would not be safer in the hands of a qualified inspector, unless, indeed, the Commissioners of Customs contemplate the appointment of a specially-trained officer for this work, who will act under the direction of the authorities who administer the Act; but I would take this opportunity to acknowledge the extremely valuable and willing services rendered generally by every officer of the Customs Staff to Port Sanitary Authorities.

It certainly appears to me that it would have been more rational to have limited Article III. to its first clause with the addition thereto of a direction that the medical officer should be notified if the cargo of a ship comprises any foreign meat, leaving the subsequent steps to be carried out by properly trained and qualified inspectors.

Taking the regulations as a whole (with the exceptions I have named), I agree generally with the methods and measures prescribed.

There is another question which is worthy of the consideration of port sanitary authorities, and that is the cost of administering this Act. Ought it to be borne entirely by the individual port sanitary authorities, or should it not be defrayed, at least in part, by the Imperial exchequer? The benefits conferred are so distinctly national that it seems scarcely fair to the ports that they should be saddled with the whole expenses. I hope that those port sanitary authorities which are represented here to-day will take action in the matter, and bring the question before that very useful body, the Association of Port Sanitary Authorities, at an early meeting.