

The Medical Record

A Weekly Journal of Medicine and Surgery

Vol. 26, No. 22

NEW YORK, NOVEMBER 29, 1884

Whole No. 734

Original Articles.

THE APPROACH OF THE CHOLERA AND THE NECESSITY OF BACTERIOSCOPY.

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NEW YORK.

THE epidemic of cholera which commenced last June at Toulon, has already killed many thousands. It still continues to spread, fortunately, however, with diminished fatality. Nevertheless, the experience of past epidemics should warn us of the possibility—nay, even probability—of its being carried across the ocean to our own shores. Indeed, most authorities confidently anticipate its approach next year. Now, unless we take efficient action in the matter while there is yet time, the dreaded scourge may find us so poorly prepared that widespread disaster must inevitably result.

As has been pointed out by Sanitary Engineer Wingate in a leading daily, published November 23d, "despite the precautions taken by the health officials, no one who is at all familiar with the sanitary condition of New York City can doubt that if the plague once gains an entrance into the metropolis, it will find many nesting places among the dives and slums in certain quarters, whence its baleful influence will spread far and wide. Chief among these hotbeds of disease which constantly invite infection, are the Italian and Hebrew quarters, the former occupying the region of Mulberry, Baxter, and Crosby Streets, and the latter the district in the vicinity of Ludlow, Essex, Hester, and Forsyth Streets." The nuisances on the east side of the city are likewise a source of constant discomfort and serious danger. The same journal has the following editorial comment relative thereto:

"This evil is none the less great because of its long standing. But legal obstacles, red tape, procrastination, or what not, have resulted in the continued exposure of our citizens to the emanations of manure heaps, stagnant drainage, and reeking vats. Here is added cause for Herbert Spencer's wonder at the long-suffering and patience of Americans under imposition. A complaint has been lodged before the State Board of Health, and a heroic band of Beekman Hill women have invaded the pestilential haunts of the malodorous offenders and secured testimony for the consideration of the Grand Jury. These women have pluckily taken in hand duties which devolve upon our Health Department. They have had the courage of their convictions. Where are the courage and the convictions of the officials supposed to care for the sanitary conditions of this city?"

At present "it is more important than ever before that the people of this city should live under the best sanitary conditions. The east side nuisances have been endured too long. They should have been abolished long ago. They must be done away with now."

Such impressive warnings should not go unheeded. And it is quite creditable to our Quarantine Department that it shows renewed vigilance in the matter of preventing contagious diseases from entering our city. Nevertheless, the fact that a fatal case of yellow fever has been quite recently introduced into the city through the failure of the authorities to detect the disease, shows that the medical service of Quarantine is not altogether what it should be. This is still further shown by a resolution adopted at the last meeting of the State Board of Health, held a few days ago, calling the attention of the

Governor to the bad condition of the buildings and equipments at Quarantine, and recommending that proper steps be taken for putting them in perfect order.

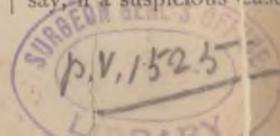
In the *London Practitioner* for November, 1884, there appears a careful report of the present cholera epidemic in Continental Europe, which shows conclusively that the secret of success in carrying into effect the system of medical inspection and isolation is to be prepared beforehand. And it is impossible to urge too strongly upon local authorities, whether on the coast or inland, the adoption of such an organization and the establishment of such means of isolation as shall enable them to deal with imported infection in its earliest stage.

Dr. Buchanan, F.R.S., in an excellent article on "Precautions against the Infection of Cholera," points out that, it is important for the public very distinctly to remember that pains taken and costs incurred for these purposes cannot in any event be regarded as wasted. The local conditions which would enable cholera, if imported, to spread its infection in any country, are conditions which day by day, in the absence of cholera, create and spread other diseases: diseases which, as being never absent from the country, are in the long run far more destructive than cholera itself. The sanitary improvements which would justify a sense of security against any apprehended importation of cholera would, though cholera should never reappear, give amply remunerative results in the prevention of those other diseases.

The Practitioner says further as having a bearing on this point, "It is also worthy of note that the value of being prepared in advance has been strikingly illustrated during the course of the Italian epidemic. The contrast between Naples and Rome supplies the illustration. In Naples cholera, when once imported, found in the results of centuries of sanitary neglect a soil congenial to its rapid development, and terribly the city has suffered in consequence. But Rome had learned a lesson which even the history of previous epidemics had not impressed on Naples. The Eternal City had provided itself with an abundant and wholesome water supply, and with an efficient system of sewerage, and it had, in addition, adopted other measures calculated to promote the health of its inhabitants; the result being that, although cholera was on five separate occasions imported into the city, no difficulty was experienced, by means of measures of isolation and other sanitary precautions, in preventing any spread of the infection."

It is to be hoped that such positive lessons may not prove barren of practical results. But while physicians and sanitarians are fully alive to the danger before us, they have neglected one point that may be, and probably is, of the highest importance. It is obvious that the earliest possible recognition of the very first case of cholera that might appear among us, would give us the best chance for prompt action to prevent any extension of the disease. Now, it is a lamentable fact that the most careful analysis of symptoms does not always enable us to distinguish, in a given case, cholera morbus from genuine Asiatic cholera. Indeed, it is held by some physicians that the two diseases differ in degree only, and not in kind.

Without stopping to consider this point, we must yet face the fact that our usual methods are inadequate to differentiate with absolute certainty an attack of violent and fatal cholera morbus from one of true cholera. The kind of reasoning hitherto employed by physicians has necessarily been of the *à posteriori* variety. That is to say, if a suspicious case recovered, and was not soon fol-



lowed by other and rapidly fatal cases, the disease was classed as cholera morbus. If, on the other hand, the first suspicious case was quickly followed by an increasing number of fatal cases, the diagnosis of Asiatic cholera was subsequently made. Manifestly, a method of this kind might give the cholera a chance to secure a dangerous foothold before being recognized as such; and one need not be an alarmist to entertain grave apprehensions should such a misfortune befall us. But in view of recent discoveries, it now seems possible to decide positively and in a very short time whether we are dealing with the comparatively benign cholera nostras, or with the eminently malignant Asiatic cholera.

The finding of the specific organism of cholera by Koch was no surprise to those who had long since concluded, without this final and convincing evidence, that cholera must be a parasitic disease caused by a particular and distinct microbe. The grounds on which Koch based his assertion that the comma-bacillus was the causative agent of cholera were, that it was found to be present in all well-marked cases of the disease, and, further, that it was never present in the healthy body or in cases of any other disease.

Koch's conclusions were accepted without hesitation by those who know him best, and who have had occasion to witness his conscientious and painstaking methods of conducting all scientific work. Thus, in Germany, Herr Von Gossler, Minister of Public Worship, Education, and Medical Affairs, has already ordered that a certain number of medical men are to be summoned to Berlin every year to go through a course of study, lasting from a fortnight to three weeks, in order to learn the new methods of investigation connected with bacteria and micro-organisms, but chiefly to become acquainted with everything connected with the comma-bacillus and the methods of cultivating it according to Koch's method. The several Federal Governments have been likewise officially requested to select a number of medical men for this course, and to inform them to find themselves in readiness to come to Berlin. According to the latest Berlin advices these courses are now in active operation, and are very largely attended.

In our own country, however, there is still, even in the ranks of the medical profession, an unfortunate disposition to regard the entire subject of bacteria as trivial or fanciful, and unworthy of serious consideration. There are of course some notable exceptions to this rule. Thus Dr. Austin Flint, Sr., in a recent paper on cholera expressed his unqualified belief in the truth of Koch's assertions. He showed that, wherever cholera appeared the complete destruction of the parasite directly it left the body could be secured, and by this means every case of the disease would be rendered sterile. Koch had proved that the cholera microbe was readily killed by drying, while cold did not destroy its vitality. The local conditions under which the parasite would thrive best outside the body were not yet definitely known, but there could be no doubt whatever that filth was very favorable to its development. Inside the body Koch had shown that the acidity of the gastric fluids was inimical to it. In order that an individual should contract cholera it was probable that there should be a predisposition or susceptibility to it, as was the case in tuberculosis. Hence when we hear it credibly reported that Dr. Klein, of London, a member of the English Cholera Commission now investigating the disease in India, in order to show his disregard for, and lack of faith in, Koch's comma-bacilli, made a meal of them, we can well afford to laugh at such puerile business. Indeed, the *Berliner Klinische Wochenschrift* says: "We had looked for something better from Dr. Klein, and must confess that this so-called auto-experiment gives us no great idea of the discernment and powers of criticism of the above-named gentleman." And the *British Medical Journal*, fully appreciating how ridiculous the affair is, states that everybody in London ridicules the experiment.

To-day there seems no longer any possible doubt about the significance of the cholera bacillus. In the *German Medical Weekly* of November 6, 1884, just to hand, Koch has finally disposed of the various objections that had been made against the binding force of his assertions. He has proved by actual scientific demonstrations that the comma-bacillus is the specific micro-organism of genuine Asiatic cholera. The disease has also been artificially produced in animals by the introduction of pure cultures of the parasite in question.

It is not necessary here to reproduce Koch's last article; enough has been said to show that in scientific bacterioscopy we have quite possibly a ready means of detecting with certainty the existence of cholera. But in order to familiarize ourselves with the necessary details of these modern methods, earnest study and some experience are essential. I hold that we have not the right to ignore the light that has been shed on the true nature of infectious diseases by the keenly searching spirit of modern experimental inquiry. In my opinion, it is the duty of our Government to imitate what has been already done abroad. Physicians, or other competent persons, should be sent to Berlin at the expense of individual States, or the Federal Government, to join the classes that have just been organized under Koch's supervision. They should become personally familiar with every step of his painstaking and strictly scientific methods. In a few weeks, or at most months, they could return and be experts and teachers of modern bacteriology.

Should this be found impracticable, however, then let the State Health Boards organize properly equipped laboratories for the purpose of affording suitable facilities for this kind of study and research. Individual physicians with sufficient time and private means should take an active interest in all that relates to the examination and cultivation of bacteria. Is the medical profession of our country to be put to shame by its attitude of apathy toward matters of serious concern to the public welfare? Are we to be made the laughing-stock of our transatlantic confrères? Two well-known physicians of our country have already attempted to overthrow the diagnostic significance of the bacillus of tubercular consumption, the one by claiming it to be a fat-crystal, the other by asserting its identity with shreds of fibrin. But neither the one nor the other had at the time of his pretended discovery ever beheld the true bacillus tuberculosis. To avoid similarly ridiculous errors we need expert teachers of bacterioscopy. This new and highly important branch of medicine should be made an essential and obligatory part of the regular medical curriculum.

That scientific bacteriology is as yet in its infancy all will admit. But let us not blindly ignore its actual accomplishments. We may never be able perhaps to completely eradicate consumption or suppress all contagious diseases, but at present we are without the slightest doubt nearer to such a desirable consummation than we were before the era of bacterioscopy. This is a most important epoch in medicine, and it has been well said by an eminent physician of New York: "It would be to the present era that posterity would look back as the time when those signal discoveries were made which led to the final adoption of the parasitic theory of the origin of all infectious diseases. Was the medical profession in this country to have an active share in this great work of investigation and in these brilliant discoveries, or was it to be content to wait patiently until the announcements of the results of their labors were made by the scientific men of Europe? There was certainly no lack of ability on the part of American medical men, but it seemed to him that there was, at all events, a certain want of self-reliance and energy." If our State authorities are unable or unwilling to help the good work, let the munificence of private citizens proclaim to the world that democracy is at least not inferior to paternal forms of government in producing noble specimens of the *genus homo*.