

ART. X.—*The March of Cholera in 1892, with Hints on Treatment.*<sup>a</sup> By J. W. MOORE, B.A., M.D. Univ. Dubl., F.R.C.P.I.; Diplomate in State Medicine, Univ. Dubl.; Physician to the Meath Hospital, Dublin; Fellow of the British Institute of Public Health.

FOR the third time within the last quarter of a century we are in view of the possible—nay, the probable—extension of epidemic cholera from the eastward to the British Islands. Happily, both in 1872 and in 1883, this country was spared the calamity of a visitation of this terrible disease, and it is devoutly to be hoped that on the present occasion also the threatened outbreak may be averted.

Past experiences of the march of cholera show that it has travelled to Europe from its home in Asia by three routes. First, “it has passed through the North-West Provinces of India into Afghanistan, and thence along the caravan routes by way of Balkh, Bokhara, and Khiva, it has reached the Russian province of Orenberg.” Secondly, “it has spread along the trade lines from Southern India to Persia, and radiated thence south-westward to Syria and Egypt, and north-westward across Persia to the Caspian Sea, thence to Astrakhan at the mouth of the Volga, and up that river to Saratov and Kasan in European Russia (as in 1830).” Finally, “in 1865–66, it travelled by a new route, appearing first in Suez in relation with the pilgrim traffic, and extending thence through Egypt to the Mediterranean basin. Since 1865 the epidemic has always taken this route, and we have come to regard the Red Sea ports as the vulnerable point.” The passages quoted are from the first of a comprehensive series of articles on the “March of Cholera” which have been appearing almost weekly in the *British Medical Journal* since July 9, 1892.

In the present year cholera has struck out a route which is partly new, but approaches most nearly to the first or northern route, which it followed in 1829 and in 1843–44. The modified route of 1892 has been determined by the building of the Transcaspiian Railway, which runs from Samarkand, in Turkestan, touches the Persian frontier at Askabad, and strikes westward to the eastern shore of the Caspian Sea. The trading route then crosses the Caspian to the western seaport Baku, the great petro-

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leum depôt, and the terminus of the Transcaucasian Railway; which runs by way of Tiflis into Southern Russia. There is also a large coasting trade from Baku northward to Astrakhan at the mouth of the Volga. Cholera has followed this latter route from Askabad to Saratov, which is 500 versts above the mouth of the Volga, and even as far north as Samara, Kasan, and Nijni Novgorod by the steamboat traffic up that great river. On July 15th, 59 persons were reported to have been attacked at Moscow.

The date at which cholera began to spread in Afghanistan is not known precisely, but it was undoubtedly prevalent in that country at the end of April or the beginning of May. It broke out on the Afghan-Persian frontier about the middle of May, shortly afterwards reaching Meshed, the principal town of North-Eastern Persia, on the road from Kandahar and Herat to Askabad. This last-named town, a station on the Transcaspian Railway, became infected at the end of May or beginning of June, and from it the epidemic spread with unparalleled rapidity along the railway eastward to Samarkand, westward to the Caspian. Baku, on the western shore of this great inland sea, was infected early in June, and so the cholera entered Europe.

From Baku the epidemic, as already stated, has spread northwards to Astrakhan and up the Volga; but, unfortunately, it has also spread westwards along the Transcaucasian Railway to Tiflis; thence it has "leaped" the Caucasus, following a trade route to Stavropol, Rostov and Azov, so that by July 15 the disease had become established on the shores of the Sea of Azov. This was a situation full of danger, foreshadowing an approaching infection of Southern Russia at large, of Odessa, Batoum, and other Black Sea Ports. In consequence, quarantine has been established by Bulgaria at Varna and Bourgas, by Turkey at the Black Sea mouth of the Bosphorus. Such precautions, we need hardly say, are quite unreliable.

Since the foregoing was written (August 16), the disquieting news has come to hand that Asiatic cholera has crossed the Russian frontier into Poland and Austro-Hungary, and that it has caused a considerable number of deaths in and about Lemberg, the capital of the province of Galicia. It is thought likely that the infection may have been imported into that town in rags—in which articles of commerce the Jewish inhabitants of the district do a large trade (*Brit. Med. Journal*, August 20, 1892, page 421).

Still more recent and still more alarming news is that an out-

break of true epidemic cholera has taken place at Hamburg, where 126 cases occurred on Monday, August 22, of which many terminated fatally. On Thursday, August 18, soon after the arrival at Grangemouth, on the Firth of Forth, Scotland, of a vessel from Hamburg, one of her crew was taken ill of Asiatic cholera, and died next day. There can be no doubt that at the time of writing cholera exists at Antwerp and at Havre. At the last-named port, since July 30, there have been 365 cases and 104 deaths. The city of Berlin is seriously threatened by way of Hamburg, and Gravesend has been actually infected from the same port.

In the towns of the lower Volga the epidemic is apparently now subsiding, having, as it were, burned itself out; but while it lasted it was very severe. Thus, in Astrakhan, on July 8th, the cases numbered 191, and the deaths 32; on July 12th, there were 27 deaths; on July 15th, 391 cases with 225 deaths; on July 16th, 269 cases with 218 deaths; on July 17th, 433 cases with 256 deaths. The rate of mortality shown by these figures, assuming them to be correct, is fearfully high. In Baku also the death-rate was estimated at 90 per cent. of the cases.

On August 5th, 9 cases and 4 deaths occurred in Moscow. On that day there were in the whole of Russia 6,076 cases and 2,901 deaths, while on August 7th the numbers as given officially had declined to 4,261 cases and 2,177 deaths. Estimates based on official statistics are to the effect that 25,000 persons had succumbed to cholera in the Russian Empire down to the end of June. On Monday, August 15th, there were in Petersburg 44 cases and 9 deaths. For the whole of Russia an official cholera return issued daily shows a total of about 7,600 cases and 3,900 deaths for Tuesday, August 16th. A later similar return gives 6,806 cases and 3,429 deaths for Saturday, August 20th.

Such is the history of the epidemic of 1892 as chronicled so far. Although the area of infection is no longer distant, there is reason to hope that strict sanitary precautions may check the westward progress of the outbreak. At all events, it behoves us to set our houses in order without a moment's delay, so that we may keep the foe at bay until the advancing season and the winter's frost will stay its ravages.

The Local Government Board for England issued a General Order in July prohibiting the importation of rags from France on the ground that "cases of an infectious disease, alleged to be cholera, now exist in certain parts of France." The expe-

diency of this precautionary step will be understood when it is considered that some 15,000 tons of rags annually find their way from France to England, mainly to the ports of London, Hull, Goole, and Liverpool (*Brit. Med. Journ.*, July 16, 1892 page 136). The epidemic in France, however, is stated to be one of cholérine, or cholera nostras—not of Asiatic cholera. Another "General Order" has since been issued prohibiting the importation of rags from ports on the Black Sea, the Sea of Azov, and in Turkey in Asia.

Similar General Orders have been issued by the Local Government Board for Ireland. Copies of these "General Orders," which are respectively dated July 26, 1892, and August 17, 1892, have been courteously placed in my hands by Sir Francis MacCabe, F.R.C.P.I., the Medical Commissioner of the Board. I am also indebted to Sir Francis for a copy of Regulations for the prevention and treatment of cholera issued by the Local Government Board for Ireland to the Coast Guard and Officers of Customs, as well as to the various Sanitary Authorities in this country, under date December 6, 1890, together with an Order issued on July 26, 1892, as a supplement to the Order of 1890. This recent Order deals only with the littoral boundaries of certain Port Nuisance Authorities which have undergone alterations since the issue of the Order of 1890.

Both port and inland sanitary authorities and Medical Officers of Health should remember that cholera is a "filth disease," and that "our first line of defence" against imported sickness is the removal of all unwholesome conditions and the protection of the water supplies against pollution. If these essentials are attended to, there is no need for alarm, still less is there any occasion for panic.

The official *Reichsanzeiger* of July 28th, published at Berlin, in an article on cholera and its treatment, names as the best disinfecting substances "milk of lime," chlorinated lime, a solution of "potash soap" (soft soap), a solution of carbolic acid, steam sterilisation, and the boiling temperature. Exact directions for preparing the milk of lime are given as follows: 1 litre (35 ounces) of broken-up quicklime is mixed with 4 litres of water—that is to say, three-quarters of a litre of water are poured into a vessel and the quicklime is slaked in it. The rest of the water is then stirred in. The solution thus obtained may be kept in a well-closed vessel, which must be shaken before

use. The solution of soft soap is made by dissolving 3 parts of the soap in 100 parts of water—that is, about a pound of soap in 17 litres of water. The solution is made more effective by the addition of 1 part in 20 of carbolic acid, stirred in while still hot. In order to disinfect by boiling, the articles to be disinfected must be boiled for half an hour in water, the water to be kept at boiling point and to cover the articles completely. If by mischance, disinfecting substances should not be at hand, it is recommended that such articles as cannot be burned should be exposed to the air, but protected from rain, in a warm, dry, and—if possible—sunny place for six days.

Under date July 24, 1883, the Royal College of Physicians of Ireland issued an important Memorandum on the then threatened approach of cholera. The question was discussed under three headings—(1.) Possible introduction of Cholera into the Port of Dublin; (2.) Management of a Cholera Epidemic in the City of Dublin; (3.) Suggestions for the use of the Public, as to the treatment of early or suspicious symptoms at seasons when cholera is threatened, or is epidemic.

Leaving the first two topics to the Sanitary Authorities, it may be advisable here to reprint the “Suggestions” of the College for the public benefit:—

“The College advise no alteration in the habits of living, where these have previously been moderate and regular. All excess should be carefully avoided, especially in the use of alcoholic drinks, as it is, of noted experience, the intemperate who most certainly fall victims to the most fatal type of cholera, as of other epidemic diseases.

“All food likely to cause indigestion or bowel complaint should be carefully avoided, particularly fruit in a large quantity or in an unripe, decayed, or unsound state; likewise, fish or meat when in the least tainted.

“Water should be used for drinking purposes only after being boiled; and, in consequence of the possibility of milk being diluted with infective water, it likewise should be boiled before use.

“Strict personal cleanliness should be practised, and the clothing should be adapted to the season and weather.

“All debilitating causes should be carefully avoided—such as excessive and long-continued fatigue and fasting; overcrowding; exposure to moist, stagnant air, or to air loaded with organic effluvia.

“During the prevalence of cholera any person affected by any of the following complaints should at once obtain medical advice—

1. Diarrhœa, or looseness of the bowels;
2. Vomiting or sickness of stomach;
3. Pains in the stomach or bowels;
4. Pains or cramps in the legs.

“While such aid is being obtained, the patient should be put to bed immediately, and warmth should be encouraged by the application of heat to the body and limbs. Also, in case of sickness of stomach a large mustard poultice should be applied over the abdomen. In the event of cramps ensuing, diligent rubbing of the limbs should be resorted to.

“Hot brandy punch should be administered in small and repeated doses, and the diet should be restricted to rice, milk flavoured with cinnamon and brandy, or arrow-root prepared with milk or port wine.

“Should relief not be shortly obtained, and the looseness of the bowels continue, ten grains of aromatic chalk powder with opium, or twenty drops of dilute sulphuric acid, with five drops of laudanum, should be administered in a tablespoonful of water, to which a little brandy may be added. This dose, which is intended for an adult, may be repeated every hour for three doses.

“The discharges from the bowels should be disinfected, and disposed of as quickly as possible. A wine-glassful of the following disinfectant mixture should be poured into the vessels used by the patient, viz. :—

“Common sulphate of iron (green copperas), one ounce;

“Carbolic acid, a quarter of an ounce;

“Water, twenty fluid ounces, or one imperial pint.

“Infected bedding and all articles of clothing worn by the sick should be destroyed by fire.”

To the foregoing I would merely add that in both the preventive and the curative treatment of cholera during the present outbreak, perchloride of mercury is destined to play an all-important part. No more powerful antiseptic and disinfectant exists than a solution of this salt of the strength of from one in one thousand to one in two thousand parts of water. In using such a solution only porcelain or wooden vessels should be employed. Internally, perchloride of mercury may be given in the form of the official solution—in combination with 5 minim doses of

that excellent pharmacopœial preparation, the tincture of chloroform and morphin.

Within the past few years I have seen good results follow the internal administration of frequent small doses ( $\frac{1}{24}$ <sup>th</sup> of a grain) of permanganate of potassium in solution in cases of autumnal diarrhœa and cholérine or cholera nostras. All analogy points to a like beneficial effect of the remedy in cholera morbus.

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#### OPERATIVE PROCEDURES AT THE BASE OF THE BRAIN.

DR. ERNEST LAPLACE of Philadelphia read a paper on "Operative Procedures at the Base of the Brain" before the American Medical Association on June 9th, 1892. The following particulars and illustrative case are of interest:—"To open the anterior fossa the trephine must be applied immediately above the supra-orbital arch, at its junction with the temporal ridge. A set of malleable platinum-wire instruments, flat and wedge-shaped, are used for separation of the dura from the skull, and can be gently pushed over the rugosities of the skull, so as to reach all parts of the floor of the anterior fossa. For the exploration of the middle fossa the trephine is applied on a line extending from the middle of the zygomatic process to the external angular process of the frontal bone. The posterior fossa may be reached by applying a trephine immediately above the external occipital crest to the right or the left. This exposes the cerebellum below the lateral sinus. These operations were successfully performed on dogs. The chief advantage resulting from them will be the thorough application of scientific drainage in cerebral injuries, for the brain, being enclosed in a bony box, cannot expand when irritated or inflamed; hence the absolute necessity of a point of least resistance whence drainage can take place. Hæmorrhage is to be controlled with iodoform-gauze packing, or by gnawing off the edge of the bone and applying a hæmostatic forceps. Strychnin is to be relied upon chiefly to restore physiological equilibrium. Illustrative of the principles outlined, the case of a boy was reported who ran a fencing-foil under his left eye through the sphenoidal fissure into the brain. Consciousness was lost, and right hemiplegia and aphasia followed. Fifteen days after the accident the middle fossa of the brain was reached by trephining, and the platinum-wire instrument (a miniature egg-beater) insinuated as far as the cavernous groove, a teaspoonful of clotted blood being withdrawn. Improvement soon followed, and the case made a complete recovery. A remarkable feature was the amount of serous oozing from the trephine-opening, giving evidence of the great intracranial tension."