

THE CHOLERA IN 1884.

When the English took possession of Egypt last year there was, for a time, a live panic, which was caused less by the political upheaval that was possibly to be the consequence of the cannons fired at Alexandria and Tel-el-Keber than by the announcement of a new invasion of the cholera. Since the year 1865, thanks to the application of rigorous measures, that disease which spreads terror had not crossed the barrier of the Red Sea. The neglect of the usual precautions, and the freedom with which the British authorities threw aside international regulations, had its immediate consequences.

A ship which started with free license from Bombay brought the cholera to the banks of the Suez Canal, and in a few days the epidemic gained the whole of Lower Egypt. A rigorous sequestration of Egyptian and Indian merchandise, and an observance of quarantine regulations, protected us against contamination. Everything, then, led us to believe that we had been delivered from so terrible an invasion, when, lo and behold, without one of those offensive and quite frequently observed epidemics having occurred in Egypt, the telegraph apprised us one fine day that the cholera was raging at Toulon, that it had broken out in the middle of the port upon one of the stationary vessels of the fleet, and that it was on the way toward propagating itself in the city. The surprise was so much the greater in that we were sleeping, confident of the power of quarantine and of those severe regulations that had preserved us the year previous. Reassured for a moment by the announcement that it was a simple epidemic of sporadic cholera, it soon became necessary to surrender to the evidence. The diagnosis that had been solemnly made by an official was erroneous—it was indeed Asiatic cholera. Terror was now at its height, and such terror is difficult to calm, however slow be the epidemic in its evolution. Asiatic, or true, cholera is endemic in India. Has it existed there from all times, as is asserted by Dr. Thologan, and are traces of it to be found in the writings of antiquity? Was there formerly only a malady that had other characters, and was capable of being thereby confounded with cholera? Was it a question of cholera morbus? All these are questions upon which epidemiologists are divided, and which the international conference at Constantinople could not decide.

Dating from 1817, this disease, which started from the banks of the Ganges, has established itself permanently in India, notably in Bengal. Every year this endemic focus gives rise to epidemics of varying seriousness that strike Madras, Pooree, and other regions where pilgrimages occur, and, consequently, the agglomerations of Hindoos. At a little more distant intervals it extends into other provinces.

Up to 1823 the cholera, despite such endemicity, had not crossed the frontiers of Asia. At that epoch it was carried by caravans into Persia, reached Astrachan, and, fortunately for Europe, soon disappeared in that province. But it could already be foreseen that if a serious barrier had not been opposed the scourge would have advanced further. This is what happened in 1830—the epoch of the first cholera epidemic in Europe. Coming from Persia, it entered Russia through the Caucasus, and thence, after ravaging the entire district of Astrachan, it ascended the Volga, extended into Russia, and reached the rest of Europe in passing through England before entering France.

In 1846, starting from the same points, it again entered through Russia, and proceeding by successive marches, always in the same identical path, and reaching distant regions in measure with emigration, it traversed Germany, France, and entire Europe. This second epidemic lasted nearly ten years. The best authorities on cholera are agreed in connecting the return of it in 1852–55 with the epidemic of 1846. It cost France alone 250,000 persons.

The epidemic of 1865 inaugurated the importation of the disease by way of the ocean. As in the preceding year, it came from India, and was imported into Hedjaz by ships coming from Calcutta and Bombay loaded with pilgrims. The boats landed thousands of these pious travelers at Suez on their return from their pilgrimage. The disease soon broke

out at Alexandria, then spread with the emigrants to Constantinople, Smyrna, Marseilles, and Odessa, and from thence to other parts, as far as to America.

Like the preceding, this epidemic did not become extinct until after a number of years. The slight epidemics of Galicia, Bohemia, and Paris in 1873 may be considered as the last throes of the scourge. Under the influence of local causes, telluric conditions, or other circumstances, some foci where the disease had not been fully stamped out, or had quartered itself in an endemic state, suddenly kindled the flames again.

The Toulon epidemic presents the curious character of having apparently been generated *in situ*. We say apparently, since there is no doubt that the ordinary laws of choleric transmission presided over its birth. Messrs.

which they stopped. The dose of poison, either because it was too small or the receptiveness insufficient, brought about in them only a simple diarrhea, but one that was capable of giving rise to an epidemic of perhaps considerable seriousness.

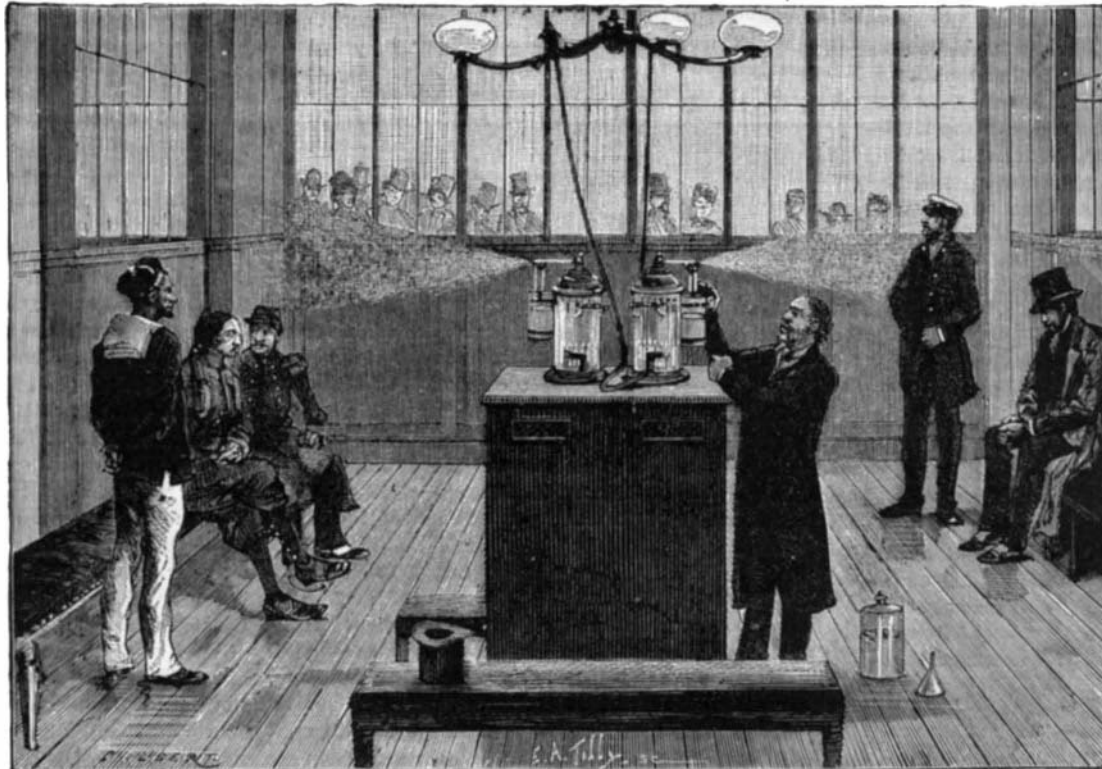
But such are not the sole agents of transmission, for the linen or effects that have belonged to a cholera patient are contagious to the highest degree if they have not been subjected to perfect disinfection. Certain goods, like wool, skins, and rags, should be regarded as suspicious when they have traversed regions that were being ravaged by the disease. It has long been asked whether a subject in perfect health can transmit cholera. The reality of such a transmission has not as yet been demonstrated, and the facts that have been interpreted in favor of such an opinion may be explained on the theory of a simple contact with cholera subjects, or by a simultaneous carriage of objects or clothing soiled with cholera matter.

Once transported through one of these various intermediaries, cholera makes its appearance. At first, there is but a small isolated focus, but one that soon extends farther and farther to a more distant point through the same mode of transmission. Under such circumstances, taking into consideration the organization of our present social life and our frequent moving about, people find it hard to explain why it is that certain localities absolutely escape the contagion or see but a limited epidemic appear. It is because there are conditions which are very favorable to the extension of the scourge, and which are not met with everywhere. These conditions are natural ones, such as the arrangement and composition of the subsoil, and local ones, such as the bad management of sewers and privy vaults, and overcrowding in dirty, badly ventilated, and badly lighted

houses, etc. These natural, telluric conditions give of themselves an explanation of the immunity of certain points. Lyons, for example, is one of those rare cities which presents a very curious case of immunity. The hygienic conditions of this city do not differ perceptibly from those of Paris or other great centers. Now Lyons absolutely escaped the epidemic of 1832–35, which caused considerable ravages at Marseilles and on the shores of the Rhone. In 1865 the cholera passed almost unnoticed; in 1849 the cases were but few; but in 1854 the disease was more serious, and got about 200 victims.

Such an immunity is connected with a peculiar arrangement of the subsoil, and with an almost constant equality of the subterranean stratum of water, whose sudden variations at other points permit of and favor the decomposition of organic matters. This stratum of water is fed almost exclusively by the Rhone, and is constantly purified by the power and abundance of that stream. The organic matters and the cholera or other germs that it contains do not find conditions that are suited to their development and dispersion. What tends to prove that this assertion is well founded is that in 1854, the only year in which the cholera made a serious appearance there, the waters of the Rhone had descended to a level that had never before been observed, and they were, for several months, two-thirds lower than their mean. The influence of these different telluric and hygienic conditions is so real that we might ask, if a cholera germ were introduced into a village that was an ideal of cleanliness, provided with excellent potable water, and peopled with inhabitants obedient to the strict laws of hygiene, whether it would find therein conditions sufficient for its development and multiplication. Although this question remains hypothetical, the opposite of it surely finds one of the most decisive answers in the epidemic of 1884. The unheard-of state in which the sewer of Toulon had been left certainly favored the rapid extension of the cholera in that city.

Let us now pass to the history of the present epidemic, of which we shall give but a short resume. On the 14th of June, while the sanitary state of Toulon exhibited nothing abnormal, the board of health suddenly made it known that cholera had appeared upon the Montebello. This vessel, the Jupiter, the Alexander, and the Kleber, are old boats that have been converted into barracks, and that are anchored in the old wet dock. Each of these vessels lodges 400 and often 500 or 600 sailors belong-

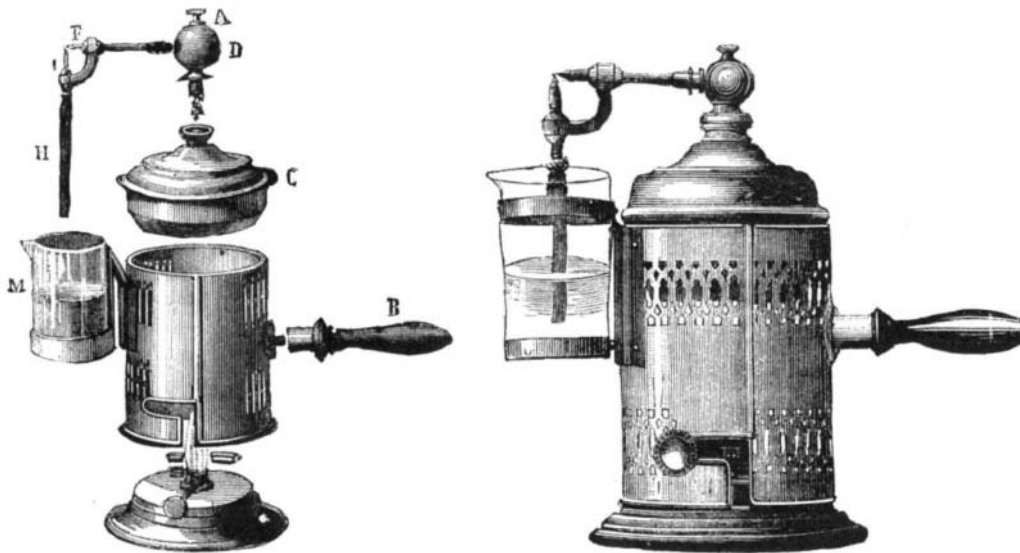


DISINFECTING ROOM AT THE LYONS RAILWAY STATION.

Brouardel and Proust's severe and searching inquest did not succeed in discovering the mode in which it was imported. But a light will perhaps be thrown upon the enigma some day by some detail that has passed unnoticed. Cholera most assuredly reaches us from India or Indo-China. It may be that a partially extinct focus in Egypt was the point of its origin in this case.

The transmission of cholera always occurs in the same manner. It was long ago proved that air is not the vehicle of the contagion; but, notwithstanding this, agents for transmitting it are not wanting. In the front rank of these stand the sick. We do not speak here of those who, through diarrhea, cramps, or cyanosis, are confined to a bed which they will perhaps never leave, but those who, ignorant of their contamination, are in the period of incubation, who have only the premonitory symptoms, and who will perhaps not go beyond this first stage.

Through necessity, or ceding to fear (which is more contagious than the disease itself), these unsuspecting choleric emigrate from the city, flee to a distance before the disease, and spread the epidemic to the four points of the compass. It is not in their clothes that they carry the poison, but in



STEAM ATOMIZERS.

their stomach, as a very distinguished physician has remarked. They have a slight diarrhea only, and they go to lodge in a hotel or at a friend's house. Their dejections, which are, as a consequence of their contamination, pestilential, create a genuine focus of contagion. They have transported the cholera unbeknown to themselves. They may leave, cured of their indisposition, but an epidemic breaks out behind them which has its origin in the house in

ing to the fleet. The patient was at once taken to the hospital. The next day a second case occurred on board of the same vessel, then another on board of the Jupiter, and two on board of the Alexander.

The first two sailors had not been on the sea in two years, and had had no communication with the city or the rest of the fleet. These first cases were attributed to cholera morbus. This supposition was so much the better founded in that these vessels are anchored in an annex of the port, which is merely a vast sewer mouth. At Toulon they are still back in the practices of the Middle Ages, and if a traveler who stops there in the evening does not run the risk of getting an unsavory bath, he is lucky. Sewers do not exist there, and each inhabitant empties the entire contents, liquid and solid, of his night vessel into the brooklet that flows past his door. If the weather is rainy, or if by a lucky accident the waters of the reservoir reserved for washing the streets are turned on at this moment, the filth is swept along a little more quickly. All this ordure runs into the Old Port, into the wet dock in which the vessels of the division are anchored. There being no tide to carry it off every day, this deposit accumulates and forms a fecal mass, from which, when a stick is plunged into it, an abundance of mephitic gases is disengaged.

At the first news of the epidemic, Drs. Bouardel and Proust were delegated by the Minister of Commerce to proceed to an investigation of the nature of the cholera and of its origin. The disease at length appeared in the city; on

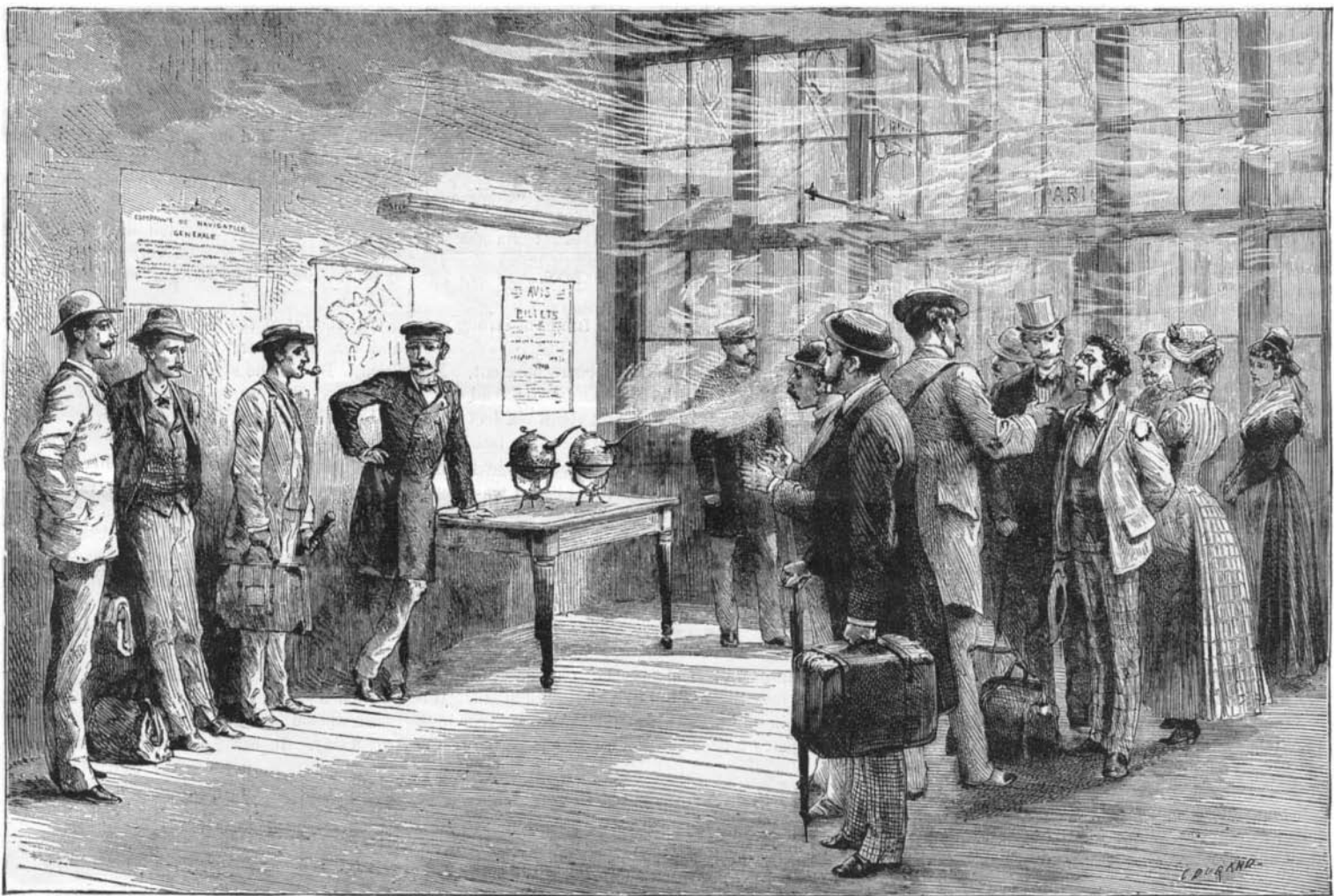
of quarantine the sanitary state had been perfect. In the presence of these facts, which do not permit of the possibility of contagion by way of the ocean being seen, Drs. Bouardel and Proust were obliged to hold themselves in reserve as to the nature of the cholera. They had scarcely any doubts upon an examination of the cases, but they could not, however, give the minister an official, categorical affirmation, since proofs were wanting. In default of the true source of importation, some facts of a new order removed their scruples and allowed them to have no further hesitation. These facts were the importation of the cholera to a distance by travelers from Toulon. On Friday, a student who had started from the college the evening previous died of cholera at Marseilles. On the same day six other cases broke out in the same city, three of which occurred in a group of contiguous houses in front of which there is a fair held. This fair had occurred a few days previous, and some peddlers from Toulon had attended it.

The three subjects were attacked on the same day, and nearly at the same hour, and all three died within an interval of a few hours. Another proof was drawn from the observation of what are called interior cases in hospitals, that is to say, of patients who had long resided in the wards and who contracted the disease from the entrance of choleric persons. At the last moment, while the convinced delegates were en route to Paris, Dr. Cuneo telegraphed to one of them that the disease had caused two deaths at Valette and Pradet, clean and well ordered villages in the environs of

upon not only a rigorous quarantine, but a sanitary cordon, reflected upon the practical difficulties that such a process involves?

Establish a sanitary cordon around a city, Toulon if you please, since that is the cradle of the present epidemic; then, in the first place, it will be necessary for you to have a second one, and a third, since the first will be certainly contaminated through contact with emigrants. Suppose you grant an entire army for this work of safety. But have you thought of the fright of those five, ten, fifteen, twenty thousand persons who are fleeing before this epidemic, who, for want of railway transportation, are piling into all the vehicles possible? When this excited mass shall present itself pressing against your sanitary cordon, give the order to use weapons, and cause a horrible massacre. There is not a government that would take the responsibility of such measures.

Sanitary barriers are impracticable, quarantine subserves no purpose, and disinfections are of not much more account! Why this is so we have explained at the beginning of this article, where we stated that it was less through clothing that cholera was propagated than through diarrhetics who were not yet sick and who might not be so at all. But such measures do not trouble travelers much, and do not infringe upon personal liberty, and we see no harm in continuing them. At the Lyons railway station the prefect of police has taken measures to have all travelers coming from Toulon undergo a quick disinfection. To effect this, a waiting



THE CHOLERA IN FRANCE.—FUMIGATION OF TRAVELERS.

the 21st of June a young pupil died at the Lyceum; then the deaths increased, and the doctors seemed to be in accord in recognizing the characters of Asiatic cholera. The Sarthe, a boat from Cochinchina, was accused of introducing the disease into France. The inquest of the sanitary delegates had the following questions to solve: Was it truly an epidemic of Asiatic cholera, and, if so, how was it imported?

The first question was a delicate one to determine, since in the two forms of cholera the symptoms and the lesions recognized upon an autopsy do not offer sufficient dissimilarity to allow the nature of an epidemic to be established from this fact alone. It became necessary, then, before everything else to seek the origin of it. Admiral Krantz placed himself at the disposal of the delegates, and facilitated all researches and investigations. But the inquest did not allow of the true origin being established. The Sarthe, which had been regarded as the cause of all the trouble, could not be criminated. It will be allowed that the public was not all wrong in suspecting this vessel. At the moment of her leaving Cochinchina she had a man (a machinist) on board who had the cholera, and who was put on shore and died in a few hours. All his personal effects—clothing, satchel, hammock, etc., were put off at the same time. The Governor at once ordered a quarantine at Cape St. James, at 15 kilometers from Saigon. There a second case showed itself. The boat was then ordered to return to the wharf, her whole cargo was landed, and she was completely disinfected, fumigated, scraped, and painted.

On the 20th of April the vessel proceeded to sea again, and arrived at Toulon on the 3d of June, where, after remaining in the bay for three days, she was admitted to the port. During these forty-three days of navigation and three

Toulon, the subjects being persons who had recently come from that city.

There was no longer any doubt as to the true nature of the epidemic—it was indeed Asiatic cholera; and although the inquest did not bring to light its true point of origin, it nevertheless fixed upon the character of the epidemic.

Up to the present the scourge has quartered itself at Toulon and Marseilles; but we have seen by the means of transmission what facilities may be offered to its diffusion. So all cities have taken their precautions to prevent such an invasion. Foreign countries have made themselves conspicuous by the energy with which they have taken measures against it, by disinfection of stations, and by frontier quarantining. These are useless precautions, and purely vexatious. The only result that can be expected from them is perhaps a moral effect, but the value of these different prophylactic means is more than doubtful.

When the International Conference prescribed quarantine at sea, it knew that by this practice the countries of Europe could be effectively protected. A strict, vigorous quarantine (which is unfortunately a rare exception) prevents the invasion of the cholera into the Red Sea. If a neglect to observe the regulations allows Egypt to be contaminated, Europe will be greatly imperiled, since all the points of the Mediterranean may become pestilential foci. When once cholera has crossed the Mediterranean and is in Europe, do not try to defend yourself by quarantining, for it is useless. The network of a sanitary cordon will never prove closely enough drawn to retain this terrible microbe, and all you will do will be to interfere with commerce and paralyze the movement of business. But it will be said, these are interfered with in another way by ocean quarantine. Agreed, but then we are sure as to the result. Have those who insist

room has been specially arranged as shown in Fig. 1. Here fumigating vessels disengage nitrous acid vapors in quantities that are scarcely perceptible to the sense of smell, but sufficient to destroy any microbes that may chance to be upon the surface of one's clothing. In addition to this there are employed two steam atomizers which were constructed by M. Waseige, and which are shown in Figs. 2 and 3. The liquid used in these apparatus consists of 1 gramme of thymol and 10 grammes of boric acid to a liter of water.

Travelers have to remain in this room about half an hour. Baggage undergoes a similar disinfection in another room, where it is submitted to the action of sulphate of nitrosyle. It is not till after these different operations have been performed that travelers are allowed to go about Paris. Their names and addresses are carefully taken, in order that the administration may be able to verify every new case of contagion.

At Marseilles and Toulon, the city governments have, in conformity with an old custom in times of epidemic, caused great fires to be lighted at the street corners. Crowds gather around these, and, at Toulon, great numbers hail the lighting of them every evening. On several occasions a quantity of tar furnished by the superintendent of the gas works has been burned upon Place de la Liberte in the last named city.

It appears useless to point out in this place the hygienic measures to be taken in order to avoid the cholera. The Committee on Hygiene has already published them in the papers. The surest thing is to live calmly and tranquilly without changing one's ordinary habits, not to get fatigued by overwork, and not to get at all frightened. Fear has a bad effect upon the viscera; it puts the entire organism into a psychical and physical state of depression which renders

it more apt to contract disease. Let us preserve ourselves from fear, live an ordinary life, and hope that we shall avoid the appearance of this dangerous visitor.—*La Nature*.

Suture of Nerves.

The report that has just appeared to the effect that M. Tillaux has communicated to the Academy of Sciences the successful suture of nerve in two cases, and that in one case function has been restored in a nerve divided for a period of fifteen years, is, if confirmed, one of the most important facts we have had presented to us in our day. The physiologist, not less than the surgeon, will be led to important work by this event, and fresh fields of inquiry relative to nerve conduction may open new and unexpected advances in the theory as well as the practice of the medical art.

Our Petroleum Industry.

A retrospect of the past condition of the American petroleum industry, compared with its present state, discloses some interesting facts. The first American petroleum was exported in 1852. Charles Lockhart, of Pittsburg, sent nearly 600,000 gallons to Europe in that year, and sold it for \$2,000 less than the cost of transport. In 1883 nearly 400,000,000 gallons were exported, for which \$60,000,000 was returned to America. At the present day there are 20,000 producing oil wells in Pennsylvania, yielding 60,000 barrels of oil a day. It requires 5,000 miles of pipe line and 1,600 iron tanks of an average capacity of 25,000 barrels each to transport and store the oil and surplus stocks. There are now nearly 38,000,000 barrels stored in the oil region tanks.

Besides the 5,000 miles of pipe line in use in that region, there are in operation 1,200 miles of trunk pipe lines connecting the region with Cleveland, Pittsburg, Buffalo, and New York, and lines building to Philadelphia and Baltimore. In the line between Olean and New York 16,000 barrels of oil are transported daily. These are all the property of the Standard Oil Company, except one between Bradford and Williamsport, Pennsylvania. The Standard employs 100,000 men. The products of its refineries require the making of 25,000 oak barrels of 40 gallons each, and 100,000 tin cans holding 5 gallons each, every day. The money actually invested in petroleum production since 1860 is estimated to be more than \$425,000,000, of which \$200,000,000 was capital from New York city. Since 1880 more than \$12,000,000 has been used in building iron tanks, and nearly as much in pipe lines, all by one corporation. The tanks cost on an average \$8,000 each. A 35,000 barrel tank is 90 feet in diameter and 28 feet high. The lowest price ever brought by crude petroleum was 10 cents a barrel in 1861. In 1859, when there was only one well in existence, Colonel Drake's "Pioneer" at Titusville, the price was \$24 a barrel. The value of crude petroleum delivered in London is now 6½¢ per gallon (a fraction over 12 or \$5 per barrel, containing, on an average, 40 gallons).

AN ENGLISH WOLF.

Concerning the animal depicted in our engraving, which has aroused much interest among naturalists and others, Mr. A. D. Bartlett, the Superintendent of the Zoological Society's Gardens, Regent's Park, writes thus: "The prairie wolf now being exhibited in these gardens was presented by Mr. R. Payze, of Leytonstone, who says he bought the animal about a year ago. It was then a very small cub; it was one of three that had been taken in Epping Forest by some farm laborers, Mr. Payze believing at the time that it was a fox cub. Its subsequent growth, however, caused him to suspect that it was not a fox, and as it became troublesome on account of its destructive habits, notwithstanding that it had been reared perfectly tame, he decided to get rid of it, and accordingly presented it to this Society. Inquiry is now being instituted with a view to ascertain, if possible, the manner in which the parents had been introduced into that part of the country. It is said that, some years ago, some foreign cubs, supposed to be foxes, were turned out in the neighborhood of Epping Forest."—*London Graphic*.

A Sea Atmosphere for the Sick Room.

The solution to be used and diffused as spray consisted of solution of peroxide of hydrogen (10 volumes strength) containing 1 per cent of ozonic ether, iodine to saturation, and 2 50 per cent of sea salt. The solution placed in a steam or hand spray diffuser can be distributed in the finest spray in the sick room at the rate of two fluid ounces in a quarter of an hour. It communicates a pleasant sea odor, and is the best purifier of the air of the sick room I have ever used. It is a powerful disinfectant as well as deodorizer, acting briskly on ozonized test solutions and papers. Mr. Carl R. Schomberg has recently invented a large spray producer, which will diffuse the artificial sea air through a hospital ward.—*B. W. Richardson, M.D.*

FUMIGATING PASSENGERS FOR CHOLERA.

Those persons whom business takes to the infected districts of Southern France—for few are likely to resort thither for pleasure at the present time—will be glad to learn that the fumigation system at the Marseilles and Toulon railway stations has been abolished as useless and vexatious. This disagreeable ordeal was in full force at Avignon early in July, as is shown by this sketch by Mr. E. Prioleau Warren, A.R.I.B.A., who, with other unfortunates, was



CHOLERA FUMIGATING BOX.

exposed for a quarter of an hour to the fumes of strong carbolic acid.

In Geneva, according to another correspondent, Mr. Thomas Howie, still more stringent precautions are adopted. The suspected person is placed in a box about six feet high, and in which he stands upright, with only his head outside, a towel being wrapped round his neck. The process occupies from three to four minutes, and the disinfectants used are chloride of lime and carbolic acid. The top piece of the box is made to slide in, and is removed when the process is completed by simply pulling outward. While the sliding board is being removed, the towel comes in handily as a respirator.—*London Graphic*.

Manufacture of Aluminum.

Heretofore aluminum has always been made by treating its chloride with metallic sodium as a reducing agent. But the great trouble in handling this material, and its very high cost, have made such a process difficult and expensive—the

Within the past few years, he has discovered and secured patents throughout most of the civilized world, for a process that now produces aluminum in a commercial way at one-third the cost of any other, with almost a certainty of being reduced to \$1.25 per pound avoirdupois when worked in a large plant, with proper technical and practical management, ample capital, and perfected mechanical and chemical means.

Instead of using metallic sodium as before mentioned, he uses a vapor, produced or generated in a suitable vessel from a mixture of sodium carbonate, or other suitable compound of sodium, and carbon or other reducing agent. And this sodium vapor, not metallic sodium, as used in the Deville process, is made to react in various ways upon the aluminous materials to produce aluminum. Therefore, the economy of the proved Frishmuth process is about as follows, estimated for illustration on a theoretical basis: The manufacture of 20 pounds of aluminum requires 115 pounds of sodium carbonate, at a cent a pound, or 50 pounds metallic sodium at from \$2.50 to \$3.50 a pound. Therefore, one pound of aluminum requires, by the Deville process, 2½ pounds metallic sodium, costing from \$6.25 to \$8.75; or by the Frishmuth process, 6 pounds sodium carbonate, costing say 6 cents. Practical operations are said to increase the quantities by the Deville process to from 3 to 4 pounds of metallic sodium, and by the Frishmuth process to say 12 pounds sodium carbonate.

Both Deville and Frishmuth have to use the double chloride of aluminum and sodium, although Frishmuth has a patent for his successful use of the double fluoride of aluminum and sodium in making aluminum. This is another great item of cost in making this metal. But Frishmuth has made improvements in making the double chloride of aluminum and sodium that reduce its cost to a few cents a pound, and consequently that of the metal. As this double chloride is the cheapest of a few known chemical substances used in making aluminum cheaply and in commercial quantities by chemical or electrical processes, the saving in cost, through such discovery by Frishmuth, in making this metal, will be very great, and almost as much as by the use of his sodium mixture in place of metallic sodium.

On account of the use of sodium and chloride, the wear and tear on retorts, crucibles, and apparatus is usually great. But in the apparatus now used in Philadelphia, designed by Frishmuth, this item of cost is much reduced, and will be further reduced when heated by Wilson producer gas instead of coke.

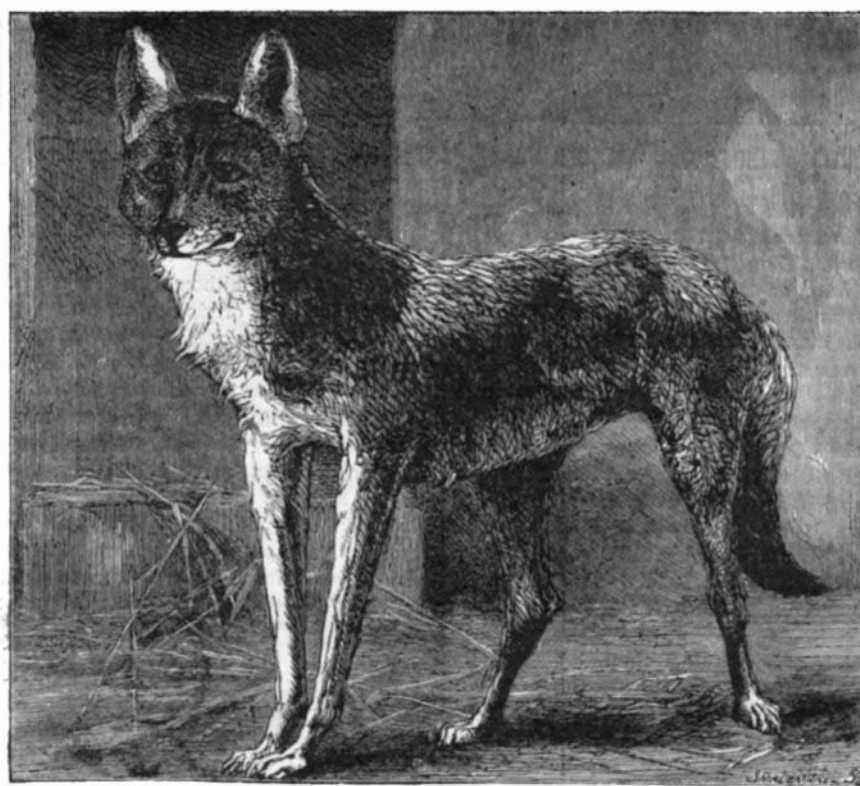
The metal is superior in quality to the French, being purer and whiter. Its specific gravity is 2.73. It has been tested in New York, London, and Paris, in a commercial way, and can be sold at the market price. All manufacture has been in the experimental and developing way, and Frishmuth has sold metal thus made to the extent of many thousands of ounces. Recently he made in a few days several ingots of 40 ounces Troy each, the quality of which was severely tested.

The use of the metal will increase as the price decreases, and when sold eventually, say, at 30 cents an ounce, the consumption here and in Europe should be 120,000 ounces Troy a day. It has greatest value as an alloy, especially with silver and copper, as it gives a non-tarnishing and noncorrosive quality to such metals, and greatly increases the tensile strength. Aluminum bronze is made by alloying 10 pounds of aluminum with 90 pounds of copper, and has a tensile strength of three tons per square inch more than Bessemer steel. Frishmuth has invented a solder for aluminum that welds the metal with itself or with copper, tin, lead, and iron. The color is the same as the metal. This will greatly increase the use of the metal, and is of great benefit to the arts and industries.

Hay Fever.

This is the period for hay fever, a malady from which many suffer, and which admits of few methods of relief not embodying change of altitude or climate. Dr. W. T. Phillips, of Andover, recommends belladonna—one and one-fourth minims of the succus every hour until relieved (30 m. to 3 ounces of water, teaspoonful dose). Dr. G. E. Dobbson, in the *Lancet*, has had satisfactory success by the inhalation of the vapor of camphor and steam, made to come in contact with the outer surface of the face about the nose by means of a paper cone, placed with the large end downward in a vessel containing hot water and a drachm of coarsely powdered or shredded camphor. He asserts most positively that if this procedure is continued for 20 minutes, and repeated 3 or 4 times in as many hours, great and usually permanent relief follows.

CAPT. WILLIAM LUND, of the Hawaiian brig Dora, lately presented to the Academy of Sciences, San Francisco, a collection of water snakes found ten miles at sea; also a live *Illama*, 12 feet long, or species of boa constrictor, found by him on Tres Marias Island.



A PRAIRIE WOLF, CAUGHT IN EPPING FOREST.

price of aluminum at present being higher per ounce Troy than silver. This has limited its uses and its manufacture in commercial quantities to the sole factory in Paris, France.

William Frishmuth, a German chemist, living in Philadelphia, and a pupil of Woehler, who discovered aluminum, has been working for twenty-eight years to solve the problem of making cheap aluminum in commercial quantities.