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.

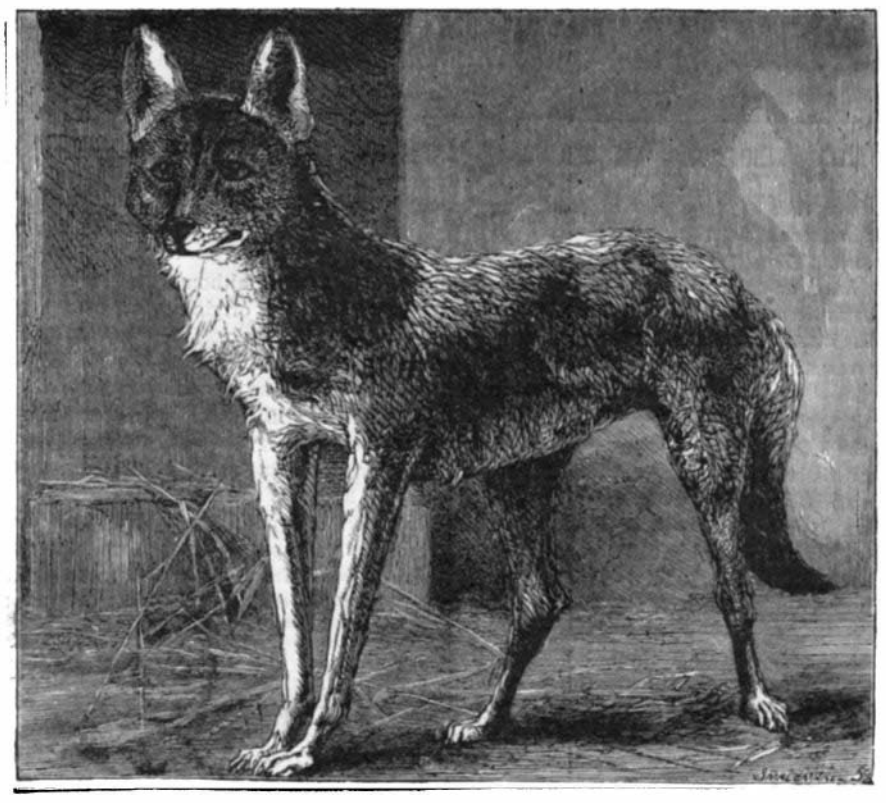
Our Petroleum Industry.

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 6⅛d. per gallon (a fraction over 1*l.* 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.*



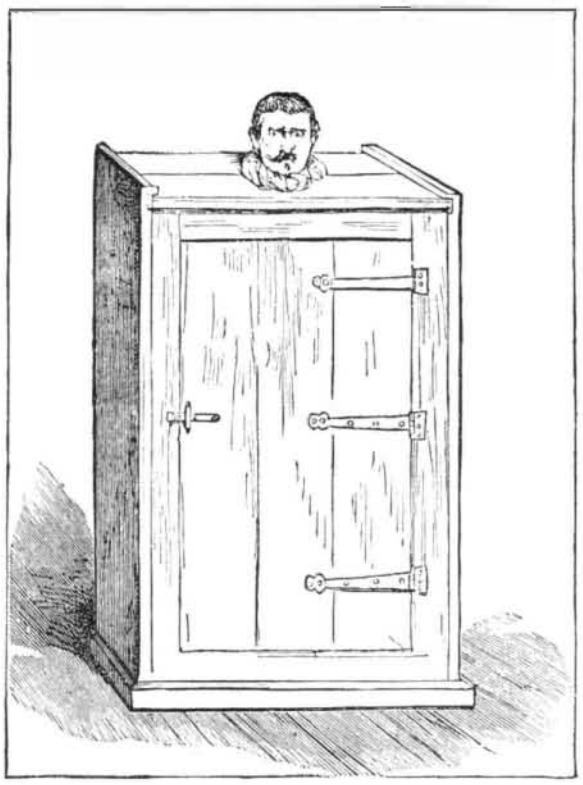
A PRAIRIE WOLF, CAUGHT IN EPPING FOREST.

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 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 Woebler, who discovered aluminum, has been working for twenty-eight years to solve the problem of making cheap aluminum in commercial quantities. 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 nontarnishing 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 *Yllama*, 12 feet long, or species of boa constrictor, found by him on Tres Marias Island.