

Chemistry, Physics, Technology.

SPREADING DIPHTHERIA BY KISSES.

From the report of the physicians in attendance upon the grand ducal family of Hesse-Darmstadt during the recent outbreak of diphtheria which resulted in the death of Princess Alice, the range of the disease appears to have been sharply limited. From November 8 to the 14th six of the family were attacked; on the 6th, Princess Victoria, aged 16; in the night from the 11th to the 12th, Princess Alice, aged 6; on the 12th, Princess Mary, aged 4; in the night from the 12th to the 13th, Princess Irene, aged 12; in the afternoon of the 13th, the Hereditary Grand Duke Ernst Ludwig, aged 10; and on the 14th, the Grand Duke himself. Of the entire family, the Grand Duchess (Princess Alice of Great Britain) and one daughter (Princess Elizabeth) were only spared at the outbreak of the disease. The Grand Duchess, however, was attacked afterward. Immediately after the first member of the family (Princess Victoria) had fallen ill, she was seen by a physician and at once separated from all the others. The same caution was observed after the falling ill of the other princesses, but without preventing the outbreak of the disease in the rest of the family. In all cases there were large patches of false membrane on the tonsils, and in most of them swelling of the lymphatic glands in the angle of the jaw. All the patients recovered with the exception of Princess Mary, in whose case the disease from its very beginning had shown a very insidious character. No member of the household (in all 60 persons), no nurse, no physician was infected. It is, therefore, clear, the *British Medical Journal* asserts, that "all the cases were produced by direct infection, doubtless by kisses." The physicians ascribe the intensity and limited extension of the epidemic to three conditions: 1. To the intensity of the infection carried from outside, because the membrane in the case of the first patient (Princess Victoria) looked from their very appearance discolored and ecchymosed; 2. To the direct transference of the infectious matter by kisses; 3. To the condition of the mucous membrane of the tonsils and of the pharynx of the infected persons, all of them having suffered very frequently from acute and chronic affection of these parts.

The lesson to be derived from this not exceptional experience is very clear.

As every physician knows, it is no uncommon thing for adults to have diphtheria so mildly that it is mistaken for an ordinary sore throat resulting from cold; yet such a person can easily infect a child, and the child become a center of malignant infection. In view of the fatal prevalence of diphtheria, therefore, the kissing of a child upon the mouth by a person with a sore throat is hazardous, if not criminal; and scarcely less so is the practice of allowing children to kiss their ailing playmates. It would be wise to exercise great caution in this matter, if not to discontinue the practice of kissing upon the mouth altogether.

ENGRAVING BY ELECTRICITY.—A M. Bayley, of Paris, has invented an electric spark pen which possesses some points of interest. If a sheet of thin paper is attached to a plate of copper or zinc, it is stated that an engraving may be made with extraordinary facility by means of this pen. If one of the poles of a Ruhmkorff machine is attached to the plate and the other to the upper end of the pen, the current will run through, and in drawing the paper is perforated. When the drawing is finished, ink is laid on with an ordinary roller, and the greasy fluid penetrates through the holes. The plate is then plunged in water, which detaches the paper, and it is ready for immersion in the acid. The advantage claimed for this method is that the artist does all parts of his work and has no more trouble than if he were working with an ordinary pencil. He can even work in a dark room without any other light than the glare from the induction spark.—*Nature*.

MR. EDISON has perfected a machine for measuring the current used in the electric light—at least, so it is said, a saving clause which is necessary in any announcement with which Mr. Edison's name is coupled. If so, then we may shortly expect to learn the real nature and wonderful mystery of Mr. Edison's light. It is worthy of remark that the "notice to proceed" has been opposed in this country, a step rarely taken unless the opponents are tolerably sure of their facts, for of course it has to be taken in almost complete ignorance of the real nature of the inventions. A technical contemporary publishes the statement that Mr. Edison had not lodged any patent specifications in his own coun-

try for electric lighting, but on the other hand we are told that his patents will be issued at Washington next week. The fact appears to be that Mr. Edison has taken out so many patents and has still so many applications pending, that no one but himself or his agents can possibly know whether he has patented the electric light of the future. He has already reduced its expense below that of gas, but does not intend to disclose the results until he has found the minimum of cost. According to an "interviewer" of the *New York World*, Mr. Edison said:—"It is almost impossible to calculate with certainty the resources of my light, but I have engaged a mathematician to work out the problem from my data." We are afraid rather those reporters have fine imaginations. The statements made and the beliefs expressed by Dr. Siemens and Mr. Fresco of the Society of Arts last week will tend to allay the fears of the shareholders in gas companies.

BORAX AS A PRESERVATIVE.—It is known that borax has been advantageously applied in preservation of meat. Some experiments have lately been made by M. De Cyon, as to the physiological action of that substance. He fed dogs, in one series of experiments, on meat preserved by M. Jourde's process, and in another on fresh food to which various quantities of borax were added. It was found that borax added to meat to the extent of 12 grammes daily (which is ten times what the Jourde's process requires), may be taken in diet without causing the least disorder of general nutrition. Further, borax substituted for marine salt increases the power of assimilating meat, and may greatly increase the weight of an animal, even when the alimentation is exclusively albuminoid. These observations, we are reminded, apply only to pure borax, i.e., containing neither salts of alum and lead, nor carbonate of soda, which are often met with in the borax of commerce.

A NEW continuous brake is coming out. In addition to the usual brake blocks resistance is by the aid of electricity applied to the revolutions of the axles of the wheels. The inventor is Mr. W. Wiseman, of the Indian Public Works Department. We hope the invention is something better than the idea of increasing the adhesion of the engine wheels by converting them into magnets.

DEPRIVATION OF SOLAR LIGHT.—It has been repeatedly claimed depriving miners of solar light injuriously affects their health. This point has recently engrossed the attention of Dr. Favre at the Commentry collieries. He does not think that the mortality of miners must be attributed to the action of the deprivation of solar light upon the blood, and cites by way of confirmation that he examined the blood of certain of the horses which were kept underground all the year, and he found the normal number of corpuscles in the blood.

GREEN INK.—Dissolve 180 grains bichromate of potassa in one fluid ounce of water, add while warm half an ounce spirit of wine, then decompose the mixture with concentrated sulphuric acid until it assumes a brown color; evaporate this liquor until its quantity is reduced to one-half, dilute it with two ounces distilled water; filter it and add half an ounce of alcohol, followed by a few drops of strong sulphuric acid; it is now allowed to rest, and after a time assumes a beautiful green color. Add a small quantity of gum arabic and it is ready for use.

REMEDY FOR COLOR BLINDNESS.—*La France Medicale* states that M. Delbœuf has found that if a person afflicted with Daltonism looks through a layer of fuchsine in solution, his infirmity disappears. A practical application of this discovery has been made by M. Joval, by interposing between two glasses a thin layer of gelatine previously tinted with fuchsine. By regarding objects through such a medium all the difficulties of color blindness are said to be corrected.

STANDING ROOM FOR THE HUMAN RACE.—An Englishman with a hobby has discovered that there is room for all creation on the Isle of Wight. According to the most recent estimate the population of the earth is about 1,440,000,000. Two square feet of standing room being allotted to each individual, this number would cover 66,115 acres; and the area of the island is 93,341 acres.

A MAN WHO BURST.—A German medical journal gives an account of a man who literally burst from taking four plates of potato soup, and many (how many is not stated) cups of tea and milk, followed by a large dose of bicarbonate of soda to aid digestion. His stomach swelled enormously, and tore the diaphragm, causing immediate death.