

fatal symptoms. Accordingly, by the introduction of oxygen into the viens the phosphorus is thus oxidized and prevented from robbing the blood corpuscles of their oxygen, which would otherwise be the inevitable result. The operation of injecting the oxygen being inexpensive and presenting no difficulty to the medical practitioner, we may expect to see this remedial method generally adopted in cases of poisoning by phosphorus.

*Analysis of human milk.*—The question whether a sucking bottle is an efficient substitute for the milk of the mother can only be settled satisfactorily by a careful comparison of the chemical constituents of human and cow's milk respectively. We are, therefore, interested to learn that a great German chemist has recently submitted samples of woman's milk, and cow's milk to a series of careful analysis, though only for the more limited and specific purpose of determining the relative proportion of albumen in each. Every precaution was taken to assure favourable conditions, and the following is the result of the analysis:—Woman's milk (according to the average from eight analysis) contains 2.5 per cent of albumen, whilst cow's milk (according to four analysis) contains 3.5 per cent., or one per cent, more than woman's milk. In these observations the quantity of albumen was estimated from the amount of nitrogen present which was readily determined. We should add here that the author of these experiments states distinctly that woman's milk contains no substance except albumen, which contains nitrogen. When we reflect that albumen, (which is composed of the four cardinal elements, oxygen, hydrogen, carbon, and nitrogen) is the most sustaining and most readily assimilated of all animal compounds, the results of these, the latest investigations on the constituents of milk will not seem unimportant.

*An artificial eye.*—We have all heard of the ingenious person who constructed a model duck whose internal parts were contrived with so much mechanical nicety that a piece of food, on being inserted into the mouth was instantly swallowed and digested. This feat has lately been paralleled by Dr. William Siemens, who has devised an artificial eye which is sensitive to light. This wonderful invention, which is based upon the action of light upon the electric conductivity of selenium, may be described as follows: A hollow sphere, suitably supported, is provided with two openings, in one of which is placed a converging lens, and in the other a selenium plate, the latter in communication with an electric current and a galvanometer. The lens being covered with two movable screens, the whole is comparable to an eye, in which the screens represent the lids, and the selenium plate the retina. Whenever the screens are removed, the galvanometer is seen to deviate, and the degree of deviation depends on the colour of the light which converges upon the selenium. It is very slight if the light is blue, more if the light is red, and still more if white light be transmitted. The eye may be placed in communication with an electromagnet, which may automatically operate the screens, in manner similar to lids. "Here," says Dr. Siemens, "is an artificial eye, sensible to light and to difference in colour, which gives signs of fatigue when it is submitted to the prolonged action of light, which regains its strength after resting with closed lids," and which, by an electro magnet attachment, may be made to close itself, as does the human eye involuntarily, on the occurrence of a vivid flash.

*New method of measuring distances.*—The well known method of measuring the depth of a well or shaft by the time a stone is heard to reach the bottom may be improved upon by taking into account the time required for the sound to reach the ear from the bottom of the shaft, a correction only of any consequence when the shaft is very deep, as half a second is all the essential for the sound to pass over a distance of nearly five hundred and fifty feet. It, however, small fractions of seconds could be appreciated, it would then become possible to determine distances by sound with entire readiness and with the greatest possible degree of accuracy. This latter is what is now claimed to be accomplished by M. De Boulanger, a Belgian engineer and artillerist; that is, on seeing the flash or smoke of a gun, he touches one key of an instrument, and, the moment the sound is heard, the other key is touched—in the meantime, the clockwork of the instrument has been set in motion by touching the first key, while it has been stopped by the second key, and the space passed over gives the time within one-twentieth of a second, which answers to an accuracy

within fifty feet. The advantage of this in artillery, especially for coast defence against an attacking fleet, is expected to be very great, as it will enable the gunners to make the determination of the distance of hostile ship, the work of a moment merely.

*Comet tails.*—The well-known Italian astronomer, M. Schiaparelli, has made some interesting investigations concerning the formation of the tails of comets, and the nature of the repulsive force which contributes to that phenomenon. The actual existence of such a force is established by the accurate observations that have been made by different parties, and the results have been from time to time given in scientific journals. An examination has been made by M. Schiaparelli, of the various theories that have been put forth—the electrical theory proposed by Zellner, the molecular theory of Zenker, and the theory of Faye that repulsion is exerted by all incandescent surfaces, and that thereby the gaseous matters attending the comets are repelled from the surface of the solid nucleus—though the latter explanation is deemed of but slight weight. The conclusion to which M. Schiaparelli has come is that the repulsive force acting upon comets is a force exterior to the comet itself; and, since this force evidently operates in the direction of the radius drawn from the comet to the sun, it must consequently be regarded as having, for its origin, the sun or some medium surrounding the sun, and this he believes is about all that is at present known on the subject.

*Cold and Drink.*—Curious statistics of total abstinence in the Arctic regions.—Among other results of the Arctic Expedition some curious statistics have been obtained with reference to the question of total abstinence. The abstainers who went out with the expedition were six, viz. William Mallay, Adam Ayles, William Gore, Joiner and Self, of the Alert, and Henry Petty, of the Discovery. There were two or three other seamen who joined the temperance cause during the commission, and it is only fair to state that the novices suffered from scurvy like the rest of the crew. Mallay was not employed on any long journeys, but was repeatedly out with supporting parties. He states that the sleighing parties of the Alert suffered greater privations than those from the sister ship. They had pushed beyond the limit of animal life, and their supplies of reindeer and musk-ox were soon exhausted. They were consequently obliged to subsist entirely upon ship's stores, and this enforced abstinence from animal food made them in a special degree susceptible to scurvy. On the termination of the sleighing duties at the end of July, the abstainers found that they had surpassed the remainder of the Alert's crew in the number of days' sleighing performed. On this occasion Ayles had been out 110 days and Mallay 98, "and it is a remarkable fact," the latter remarks, "that neither of us was attacked by scurvy, but enjoyed good health, and were only weakened by our arduous duties in sledging work." Adam Ayles is a teetotaler of many years' standing. He was not only out for 110 days sledging, but on one occasion he was out no less than 84 days from the ship at a time. On this occasion scurvy had attacked the party, and had gained on them so suddenly that with the exception of Lieut. Aldrich and Ayles the whole of the men (seven in number) were in a helpless condition. Dolge and Mitchell still managed to struggle by the side of the sledge, but the other invalids, who had held out until the last moment, were obliged to be carried. We have already stated that of the two who were free from scurvy Adam Ayles was one. The other was Lieut. Aldrich, who, although not an abstainer, was next door to one, diluting his rum more than any other member of the expedition. During the whole of his sledge journeys Ayles ate and slept well, and bore the cold even better than those who were accustomed to take stimulants. The rest of the party had a double allowance of grog, forty-five above proof, before turning in. They also smoked a good deal, but for his part, Ayles says he neither drank nor smoked, and he took care that his allowance of grog was stopped on joining the ship. Twice a week there was beer served out, which was considered a great luxury, as it occupied much room in the travelling, and was dealt out very sparingly. He was never in better health in his life than at the present time.

Henry Petty, a teetotaler of 16 years standing, was the only total abstainer in the Discovery. He accompanied Capt. Stephenson in all his sledging excursions, and as it fell to his lot to act as cook while they were away from the ship, and he was thus obliged to get out into the cold for an hour and a half in the morning and for the same period in the evening, he