

of this kind must be extremely easy, so that it can be learned without difficulty." Indeed, Esperanto's grammatic rules are few in number, for they are all gathered upon four pages only. A part of the Lord's Prayer sounds as follows: "Panon nian chioutagan donu al nihodiaŭ; kaj pardonu al ni shuldantoj; ne konduku nin en tenton, sed liberigu nin de la malvera char." An International-English and an English-International vocabulary stands at the close of the small volume. The real name of the author who has hidden himself and his ingenious system under the pseudonym of "The Hopeful" is Dr. Samenhof.

NOTES AND NEWS.

It has been long known that glass is attacked and dissolved in small quantities by ordinary water. This dissolving process Herr Pfeiffer, according to *Nature*, has recently sought to prove and measure by change in the electric conductivity of the water (*Ann. der Physik*). He measured the increase of conductivity undergone by one cubic centimetre of pure water when it has been in contact for one hour with one square centimetre of glass surface, and concluded that the amount of glass dissolved at 20° C. was one to two millionths of a milligram. He found, too, that with temperature rising arithmetically, the growth of solubility is considerably more rapid than that of a geometrical series; that the increase of conductivity of the water for a given kind of glass under like conditions is a characteristic constant; and that later, when a certain quantity of alkali is dissolved, further action involves a dissolving also of silicic acid, and the salts then formed may cause a decrease of conducting power.

—R. W. Shufeldt, M.D., delivers, during January, four lectures on biology, at the Catholic University of America, Washington. The titles are: "Its History and Present Domain," "Its Relations to Geology," "Its Value as a Study," "Its Growth and Future Influence."

—Towards the end of last March the citizens of Sydney were astonished, as we learn from *Nature*, by the sudden discoloration of the water in Port Jackson. In the harbor the water presented in many places the appearance of blood. This remarkable phenomenon, which was soon found to be due to the presence of a minute organism, has been made the subject of a paper, by Mr. Thomas Whitelegge, in the Records of the Australian Museum (Vol. I. No. 9). On March 31, Mr. Whitelegge went to Dawe's Point and got a bottle of water, in which there was a good supply of the organism in question. At first he thought it was a species of the genus *Peridiniidæ*; but further research convinced him that it was a new species of the closely allied genus, *Glenodinium*. So far as Mr. Whitelegge is able to judge, fully one half of the shore fauna must have been destroyed by these small invaders. The bivalves were almost exterminated in those localities where the organism was abundant during the whole of the visitation. Mr. Whitelegge is of opinion that the great destruction of life brought about by an organism apparently so insignificant is of the highest interest from a biological point of view, showing, as it does, how limited is our knowledge of the causes which influence marine food supplies. This, he points out, is particularly the case in regard to the oyster, which has often mysteriously disappeared from localities where it formerly abounded.

—In a report by the British vice-consul at Alexandria, it is stated that the plague of locusts which has been devastating Morocco has been extending itself to Egypt. Some little time ago, clouds of locusts made their appearance and settled, for the most part, on the banks of the Nile or on the edge of the desert, forming large yellow patches, easily discernible at a distance. They at once began to breed, and, although immediate steps were taken to destroy them, large numbers of the eggs have already been hatched. An examination of about thirty deposits of eggs is said to have shown that the usual number laid by each female is from ninety-seven to a hundred. The government at once

issued the strictest orders to the mudirs to use every possible means to destroy the locusts, and competent officials were sent round the country to organize and direct the work of extermination. Millions of locusts and eggs have been destroyed, but there are still large numbers in the country. When eggs are discovered, either the field is ploughed up or flooded, or the eggs are collected and destroyed. The old locusts are easily destroyed while breeding, but the young crickets, in the earliest stage, when they are hopping about in every direction, give more trouble. The usual method followed in this case is to enclose the spot in which the crickets are found by a number of men drawn up in the form of a crescent. A ditch is then dug from one horn of the crescent to the other, and the men close in, driving the young locusts, by means of palm branches, into the ditch, where they are destroyed and buried. When the young locusts are further developed, they cease to hop, and march in densely packed armies. It is at this stage that they are said to be most destructive, but they are more easily exterminated, as they move slowly, and can be surrounded with fuel and burned. From the energetic measures taken by the government, it is hoped that this pest may be stamped out before any serious harm has been occasioned, but as many eggs are still known to be deposited in the country, it is impossible to foretell the extent of the calamity, and it is possible that many eggs are being hatched in the desert. Up to the present time it is reported that little damage has been done to the cotton crops, but it is difficult to obtain any reliable information on the subject. The system employed in Cyprus for the destruction of locusts has been adopted in Egypt when practicable. Another insect plague, in the shape of a repulsive-looking scale insect, made its appearance in Alexandria some time ago, and last year committed great ravages in the gardens adjacent to the town, attacking trees, shrubs, and the fruit of the date palm. Various measures have been tried, but the only efficacious one appears to be that of cutting the branches and carefully brushing the boughs. Unfortunately, however, no general regulation has yet been put into force, and consequently the efforts of some individuals are nullified by the apathy of others, and the plague still continues and threatens to spread throughout the country. The insect has been classified as *Crossotoma Egyptiacum*, and was probably imported from America. It is popularly known as *cotonina*, from its resemblance to cotton. A decree has now been issued, prohibiting the transport of trees and shrubs from Alexandria to other parts of the country.

—A large and influential meeting has been held in the Liverpool Town Hall, the Mayor in the chair, for the purpose of establishing a geographical society for the city. It was decided, on the motion of Mr. Forwood, M.P., to establish such a society. Mr. Forwood said that statesmen had a knowledge of continents, but they had no knowledge of the value of the trade in these continents. He felt sure that if, some years ago, those who were at the head of public affairs in this country had been informed by a practical society, such as he had no doubt would be formed in Liverpool, that in Africa there were great resources, that there was a great field for the expansion of this country's trade, the condition of the map of Africa would be very different from what it now was. He had before him a map prepared by the African section of the Chamber of Commerce, which showed that the coast lines of different countries interlaced, but that no arrangement seemed to have been made by any one of them as to who was to have the sphere of influence in the interior. Many railways had been by British enterprise recently built in Mexico, Central America, and the Argentine, but there was really nothing known in this country about the resources of these countries, and there was no place where this information could be got. Such a centre of information in Liverpool would be of inestimable value. Probably their society would take a more practical and less scientific line than the Royal Geographical Society, who were giving them their cordial sympathy and support.

—The Meteorological Office of Paris has recently published its *Annals* for the year 1889, in three volumes, as in previous years. Vol. I., under the title of *Memoirs*, says *Nature*, contains a treatise by M. Fron on the course of the thunder-storms during the year,

accompanied by daily charts. M. Moureaux has published the details of the magnetic observations made at St. Maur, with a summary of the disturbances; eight plates reproduce exactly the photographic curves of the most remarkable disturbances. M. Angot gives the results of the first simultaneous observations made at the Central Meteorological Office and on the Eiffel Tower. The diurnal variation of pressure at the summit of the tower shows that the first minimum (4h.-5h. A.M.) is much more pronounced in all months at the summit than at the base, and appears to occur rather later. The first maximum (9h.-10h. A.M.) is much less important at the summit, especially during the summer months, and also appears to occur later. The second minimum (2h.-3h. P.M.) is much less important at the summit, and the second maximum (about 10h. P.M.) is rather more pronounced at the summit than at the base. The temperature of the air at the summit of the tower during the night differs constantly from that of St. Maur by less than the normal value; during the day, on the contrary, the difference of temperature is much greater between the two stations than the normal value. The wind, during all months, has a diurnal variation quite different from that at the Central Office; the maximum occurs at the middle of the night, while the minimum occurs at about 10h. A.M., and rather later in winter. Vols. II. and III. contain respectively the general observations and the rainfall values at the various stations.

— Two theories have been proposed to explain the formation of blowholes in steel castings, neither of which has so far succeeded in satisfying all parties. When it was discovered at Terrenoire that an addition of silicon to the molten metal tended towards the production of sound castings, the theory was advanced that the blowholes were due to carbonic oxide, which compound is broken up by silicon at high temperatures. But the discovery that the gas contained in these blowholes was principally hydrogen and nitrogen, with but a small proportion of carbonic oxide, did much to unsettle this theory, though its advocates by no means abandoned the field. In a recent work, M. Le Berrier, Engineer-in-Chief of mines and professor at the Conservatoire des Arts et Métiers, has proposed a theory, according to *Engineering*, which accounts for the effect of silicon in producing sound castings and also for the presence of hydrogen in these blowholes. According to him, a bath of cast steel is a super-saturated solution of hydrogen and nitrogen. If it solidifies quietly, nothing disturbs the molecular equilibrium, but if, by a secondary reaction, bubbles of some other gas are produced in the body of the molten fluid, this disengagement, feeble as it may be, destroys the equilibrium, just as in a super-saturated solution of a gas in a liquid, the passing in of a few bubbles of some other gas may cause the disengagement of the first. This carbonic oxide, though forming only a small part of the total gas set free, is quite capable of liberating the other gases with which the blowholes are mainly filled.

— The Brooklyn Institute of Arts and Sciences January Bulletin is as follows: Jan. 4, Department of Microscopy, lecture by W. J. Kerstetter of New York on "Nature as Revealed by the Microscope;" Jan. 5, Department of Philology, first lecture in the series on "The Modern Novel," by Professor Hjalmar H. Boyesen of Columbia College, "Victor Hugo," with personal reminiscences; Jan. 5, Department of Entomology, lecture by Professor George Macloskie of Princeton College on "Some Notes on the Physiology of Insects;" Jan. 6, Department of Geology, lecture by Professor Henry L. Fairchild of Rochester University on "The Age of Reptiles;" Jan. 7, Department of Political and Economic Science, lecture by Mr. Elio S. Youtcheff, a Bulgarian exile, on "The Policy of the Czar in the Expulsion of the Jews and the War Movement in Europe;" Jan. 7, Department of Painting, meeting at the Brooklyn Art Association Building; Jan. 8, Regular Monthly Meeting of the Board of Trustees; Jan. 8, Department of Electricity, illustrated lecture by Mr. Osborn P. Loomis on "Practical Experiences in Dynamo Designing;" Jan. 9, Department of Political and Economic Science, first lecture in the course on "The Great Political Leaders of the Empire State," by Professor Charles H. Levermore of the Massachusetts Institute of Technology, Boston, "William Livingston and the Sons of Liberty;" Jan. 11, Department of Astronomy, paper by Mr. Gar-

rett P. Serviss, president of the Department, on "The Periods of Rotation of Mercury and Venus;" Jan. 11, Annual Meeting of the Corporation of the Institute for Election of Trustees; Jan. 12, Department of Philology, lecture in the series on "The Modern Novel," by Professor Hjalmar H. Boyesen, "The French Novel;" Jan. 12, Department of Engineering, lecture by Mr. C. J. H. Woodbury, vice-president of the Boston Manufacturers' Fire Insurance Company of Boston, on "The Proper Construction of Buildings to Resist Destruction by Fire;" Jan. 13, General Meeting of Members of the Institute, lecture by Sir Edwin Arnold on "The Light of the Orient;" Jan. 14, Department of Zoology, lecture by Mr. Ernest Ingersoll of New York on "The Embryology and Structure of the Turtle;" Jan. 15, Department of Psychology, first lecture in the course on "The Psychology of Aesthetics," by Dr. Benjamin Ives Gilman of Cambridge, Mass., "Musical Notes;" Jan. 15, Department of Geography, lecture by Mr. Robert D. Benedict on "The Hereford Map of the World," or "The World as Known in the Thirteenth Century;" Jan. 16, Department of Political and Economic Science, second lecture in the course on "The Great Political Leaders of the Empire State," by Professor Charles H. Levermore, "The Clintons and the Rise of the New York Democracy;" Jan. 18, Department of Archaeology, lecture by Professor Daniel G. Brinton of the University of Pennsylvania on "The Origin and Early Distribution of the White Race;" Jan. 18, Department of Physics, by invitation of the secretary of the Pratt Institute, the Department will visit and inspect the work of that institution; Jan. 19, Department of Philology, lecture in the course on the Modern Novel, by Professor H. H. Boyesen, "Realism and Romanticism;" Jan. 19, Department of Botany, lecture by Dr. Smith E. Jelliffe, curator of the Department, on "Mosses;" Jan. 20, Department of Architecture, lecture by Professor A. D. F. Hamlin of Columbia College on "The Great Museums of Europe;" Jan. 20, Department of Mineralogy, General Exhibition of Minerals from the Famous Patterson Quarries; Jan. 21, General Meeting of the Members of the Institute, address by the Rt. Rev. John J. Keane, president of the Catholic University of America, on "Leo XIII. and the Social Problems of the Day;" Jan. 22, Department of Psychology, lecture in the course on the "Psychology of Aesthetics," by Dr. Benjamin Ives Gilman, "Simultaneous Structure, Chords;" Jan. 22, Department of Electricity, lecture by Dr. A. D. Rockwell of New York on "The Uses of Electricity in the Treatment of the Human Body;" Jan. 23, Department of Mathematics, subject for discussion: "The Teaching of Geometry;" Jan. 23, Department of Political and Economic Science, lecture in the course on "The Great Political Leaders of the Empire State," by Professor Charles H. Levermore, "Martin Van Buren and the Triumph of the New York Democracy;" Jan. 25, Department of Music, the Second Concert given by the Department will be conducted by Mr. Max Spicker, first vice-president of the Department, assisted by Mr. Arthur Friedheim, piano; Mr. Richard Arnold, violin; Mr. Rudolph Nagel, cello; and Miss Olive Fremstadt, alto; Jan. 26, Department of Philology, lecture in the series on "The Modern Novel," by Professor H. H. Boyesen, "The Russian Novelists and Nihilists;" Jan. 26, Department of Photography, lecture to be announced; Jan. 27, Department of Philology, French Section, lecture by Professor Charles Sprague Smith of New York on "Victor Hugo's L'Année Terrible;" Jan. 27, Department of Physics, lecture by Mr. Walter H. Weed of Washington, member of the U. S. Geological Survey, on "Geysers and the Physics of Geyser Action;" Jan. 28, General Meeting of the Institute, address by the Hon. Theodore Roosevelt, United States Commissioner of the Civil Service, on "The National Service;" Jan. 29, Department of Psychology, lecture in the course on "The Psychology of Aesthetics," by Dr. Benjamin Ives Gilman, on "Successive Structure, Measure;" Jan. 29, Department of Chemistry, lecture by Mr. Lucien Pitkin of New York on "The Germ Theory in its Relation to Sanitary Chemistry;" Jan. 29, Department of Philology, German Section, lecture by Professor Frederick W. Grube on "The Philology of German Case Endings;" Jan. 30, Department of Political and Economic Science, lecture in the course on "The Great Political Leaders of the Empire State," by Professor Charles H. Levermore, "Thurlow Weed, William H. Seward, and the Rise of the Republican Party."