hampered the science of astronomy, will be utterly demolished. All the special excellences which have been claimed for the speech and mental traits of the Indo-European stock, will be found exemplified in as high degree among some of the American nationalities. The singular opinion which has been maintained by writers of no mean distinction, that the descendants of a barbarous community of nomadic herdsmen who, four or five thousand years ago, wandered over the central plains of Asia and Europe, and, moving southward, gradually gained from Assyrian, Egyptian, and Dravidian sources the elements of culture, are endowed by nature with certain peculiar gifts of intellectual and moral greatness which entitle them to subdue, dominate, regulate, and, if they think proper, entirely suppress and exterminate any alien community that comes in their way, will be found to be as directly opposed to scientific truth as it is to the first principles of humanity and justice. HORATIO HALE.

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THE LAFAYETTE GRAVELS.

PRESIDENT CHAMBERLIN, accompanied by Professor R. D. Salisbury, has spent the holidays in the south and southwest, examining the beds of gravel and sand called by Dr. Hilgard the "Orange Sand," but recently renamed by him "Lafayette." The same beds have also been called "Appomattox" by Mr. McGee. The party went first into the north-western part of Alabama and adjacent parts of Mississippi, where this formation, as well as an older one composed of very similar materials, is seen in great force. This older formation is the Tuscaloosa of the Alabama survey, equivalent to the Potomac of the Middle States. From Sheffield they went across to Columbus, Ga,, where they were joined by Mr. W. J. McGee. At Columbus the same two formations are admirably exposed, as well as a third, a division of the Columbia formation of Mr. McGee, the "River Terrace" of the Alabama survey.

From Columbus the party came to Montgomery, where the Lafayette gravels and sands are to be seen in contact with the sands of the Eutaw division of the Cretaceous. From Montgomery they went to Tuscaloosa, where they were met by Dr. Smith and spent a day in examining the beautiful exposures of the Tuscaloosa and Lafayette formations in the railroad cuts at Cottondale, at Box Spring, and in the gullies of the town of Tuscaloosa. Sir Charles Lyell, in describing the geological formations at Tuscaloosa, says: "The lower beds of the horizontal Cretaceous series in contact with the inclined coal measures, consist of gravel, some of the quartzose pebbles being as large as hens' eggs, and they look like an ancient beach, as if the Cretaceous sea had terminated here, or shingle had accumulated near a shore."[1]

Professor Tuomey afterwards showed that these pebble beds belonged to a much more recent formation, for he traced them southward and found them overlying the Tertiary rocks of the lower part of the State.[2]

As a matter of fact, both the Cretaceous (if the Tuscaloosa or Potomac shall prove to be Cretaceous, as seems most probable) and the Post-Eocene deposits are exposed in the gullies cut in the slopes of the hill towards the river in Tuscaloosa. All the large gravel belongs, however, in all probability, to the later formation, which we now call Lafayette, while the underlying stratified clays and cross-bedded sands are of older date, the clays containing many plant remains which fix the age as probably Cretaceous. It thus seems that Sir Charles Lyell was mistaken in his identification of the gravel beds as Cretaceous, while Professor Tuomey, though undoubtedly correct in his classification of the gravel and overlying red loam, did not discriminate between these and the underlying laminated clays and cross-bedded sands, which were first clearly distinguished in Alabama by Harper and Winchell, and afterwards described in detail by Smith and Johnson in 1883 and following years.[3]

The age of these later gravels has lately become matter for difference of opinion among geologists. Professor Tuomey thought that they belonged to the Drift, though having but few points of resemblance to that formation at the north. Dr. Hilgard also has always considered them as belonging to the Quaternary, and, more or less remotely, of glacial origin. Messrs. McGee and Chamberlin, on the other hand, consider them much older than the Quaternary, and as probably Pliocene, because of their occurrence beneath beds which these geologists consider the very oldest of the Quaternary series. The vigorous manner in which the study of this formation is being pushed in widely-separated parts of the United States, leads us to hope that these differences of opinion will soon be reconciled.

From Tuscaloosa the party went westward to Vicksburg, Natchez, and other points on the great river, where the same gravel beds are exposed in contact with the overlying Port Hudson and Loess of unquestioned Quaternary age. From New Orleans the party will return to their homes.

E. A. S.

ARTIFICIAL LANGUAGES.

THE enthusiasm for the creation of new international languages was at its height a few years ago, but is by no means over. The too well-known *Volapük* is probably the best of them, and has set the stone rolling; it tries to combine the peculiar, especially phonetic, features of most European languages. It is doing good work as a medium of commercial correspondence, but probably will never be adopted as a medium for conversation, and through the agency of time is subjected, like other languages, to phonetic and many other changes. Some attempts dating from 1891 have adopted the principle of uniting the elements of the Romance languages only into a new form of speech. "Un lingua internazional" was composed by Julius Lott in Vienna (Springergasse 32); "Un lingue commun pro le cultivat naziones" by Dr. Alberto Liptay and "fixed up" for Spanish, French, and German speaking people; another, perhaps the most consistent in its principle, is "Nov Latin," by Dr. Rosa of Turin. A passage taken from Lott's "Suplent folie" reads as follows: "Le doktes inter si pote usare le historïk ortografie, ma le homo de komercie ese saep in dubie en use de dublkonsonantes. Sin perdite pro le klarité noi pote tolerare le skripzion; gramatik pro grammatika, etc. In il question le majorité averé le decision." In reading this sort of jargon we cannot help asking ourselves, Would it not be greatly preferable to use plain French or Italian to make oneself understood?

Another more elaborate "Attempt towards an International Language" was written by Dr. Esperanto of Warsaw, Russia, and translated into English by Henry Phillips, Jun. (New York, Holt, 1889. 56 p. 8°). It combines radical elements of the Germanic and the Romance languages, and tends to put into reality the principle, that "a language

[1] "Travels in the United States, Second Visit," Vol. II., p. 68 (Harper & Bro.).

[2] "First Biennial Report on the Geology of Alabama," p. 160.

[3] Bulletin No. 43, U. S. Geol. Surv., "On the Tertiary and Cretaceous Strata of the Tuscaloosa, Tombigbee, and Alabama Rivers."

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.

IN 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. Whitlegge 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 Ægyptiacum*, 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,