

John M. Clarke, and others. Three of those present at that gathering had attended the meeting of the American Association for the Advancement of Science at Albany in 1856, at which Prof. Hall presided, and which was the largest scientific gathering up to that time held in America. They were Joseph Le Conte, Thomas H. Feary, and Wm. H. Hale.

The proximity of Niagara, and the new applications of power, gave special interest to the Section of Mechanical Science and Engineering, and twenty-two papers were read. Henry T. Eddy, Thomas Gray, J. E. Denton, D. S. Jacobus, and Octave Chanute were among the contributors. A most important paper was read by Elmer L. Corthell, entitled "Some Notes, Physical and Commercial, upon the Delta of the Mississippi River." Mr. Corthell has made a special study of the Mississippi for many years. He points out certain measures where he pronounces necessary to preserve navigation of the delta. The United States has already expended thirty-eight million dollars in the improvement of the Mississippi.

The Chemical Section was crowded with papers, about seventy being read. Among the contributors were A. A. Noyes, A. B. Prescott, H. W. Wiley, R. B. Warder, F. W. Clarke, T. H. Norton, C. B. Dudley, W. P. Mason, J. L. Howe, C. F. Mabery, H. A. Weber, E. W. Hilyard, A. R. Leeds, Wm. McMurtrie, L. L. Van Slyke, and E. A. de Schweinitz. The papers were mostly technical, and were arranged in groups according to the subjects. The programme of the American Chemical Society, which met in the preceding week, was also a long one, indicating an unusual interest in chemistry. At the meeting Prof. Dennis stated that he had found potassium platino-cyanide,  $K_3Pt(CN)_6$ , by far the best material for painting fluorescent screens for X-ray investigation.

Physics also aroused much interest, and it was remarked that the Section had never had a better programme. Of the thirty-two papers presented, Wm. A. Rogers read five. In one of these he maintained that X-ray pictures could be obtained by the use of static electricity, and he exhibited several pictures taken in that manner. Among others, papers were read by Ernest Merritt, Edward L. Nichols, and Alexander Macfarlane.

The Section of Mathematics and Astronomy was the lightest of all, having only ten papers and no presidential address, Mr. Wm. E. Story being absent in consequence of sickness in his family. Alexander Macfarlane was elected vice-president in his place. G. W. Hough contributed a paper on motion of the great red spot and equatorial belt of the planet Jupiter from 1879 to 1896, and L. A. Bauer one on component fields of the earth's magnetism.

The evening addresses before the Association were by J. W. Spencer, on "Niagara as a time-piece," and by E. D. Cope, on "The results of cave explorations in the United States, and their bearing on the antiquity of man." Spencer's last estimate of the age of Niagara is 31,500 years. In about 5000 years he predicts that the elevation of the north-east will suffice to turn the drainage of the great lakes into the Mississippi River. Prof. Cope gave an exhaustive review of cave explorations.

Contributions to the monument to Pasteur were solicited from the Association, but funds were not available, except from Mrs. Esther Herrman, a patron of the Association, who contributed 100 dollars for that purpose. Grants for research were only made to the extent of 200 dollars, for the same reason; and were allocated as follows:—To the Marine Biological Laboratory, Woods Holl, Mass., for a table (appointment to be made by the vice-presidents for Sections F and G and the director of the laboratory), 100 dollars; to Francis E. Phillips, for investigations on the properties of natural gas, 50 dollars; to L. A. Bauer for investigations on terrestrial magnetism in connection with the magnetic survey of Maryland, 50 dollars.

The President and Vice-Presidents of the next meeting are:—President, Wolcott Gibbs. Vice-Presidents: (A) Mathematics and Astronomy, W. W. Beman; (B) Physics, Carl Barus; (C) Chemistry, W. P. Mason; (D) Mechanical Science and Engineering, John Galbraith; (E) Geology and Geography, I. C. White; (F) Zoology, G. Brown Goode; (G) Botany, George F. Atkinson; (H) Anthropology, W. J. McGee; (I) Social and Economic Science, Richard T. Colburn.

An unusually large number of Fellows were elected, among whom must be mentioned Wolcott Gibbs, he having been elected honorary fellow in order to qualify for the presidency of the Association, of which he had not been a member for nearly thirty years.

The matter of the approaching jubilee (in 1898) of the As-

sociation was discussed, but no definite decision was arrived at. As the probable place of meeting that year, Secretary Putnam suggested Boston, a city already memorable in the annals of the Association as the place where the largest meeting of members—not counting foreign guests—was held.

### THE RECENT CYCLONE IN PARIS.

THERE seems to be very little doubt that Paris on Thursday last was visited by a tornado, the first time within the memory of man. It was accompanied by that mysterious circular motion that is special to this class of storm, and extended over a very small area, beginning at the Place St. Sulpice and ending at the Boulevard de la Villette, a distance of nearly two miles. It, however, caused considerable damage, resulting in, it is said, seven deaths and many severe injuries. On the day in question there had been since noon a succession of showers, and it was towards the last of these—about 3 p.m.—that the tornado showed itself. M. Angot, head of the Meteorological Bureau, was at the Pont Royal, about to take a boat, when he noticed small dark clouds, very low down, apparently moving against the wind, which was not at all high, the velocity not being more than five or six yards a second. He soon, however, perceived that the clouds had a rapid circular motion, not horizontal, but oblique. When making these observations he judged the distance of the storm to be about a mile, and its diameter about 170 yards. At the Tour St. Jacques, the meteorologist there states that the storm lasted less than a minute. Some black clouds passed swiftly overhead, and there was one flash of lightning. The barometer suddenly fell from 748 mm. to 742 mm., a drop of 6 mm.; a fact unprecedented for years, but almost immediately afterwards rose again. Advancing from this point towards the north-east, branches and, in some cases, whole trees fell on the roadways, and boats on the river were torn from their moorings and dashed on the quays. Omnibuses were upset, cabs thrown about, and stalls overturned. So strong was the force of the wind that the Palais de Justice had its windows broken and was partly unroofed. The roofs of the Opéra Comique, the Châtelet, the Tribunal of Commerce, and the Préfecture of Police were considerably damaged, and in some cases partly removed. Owing to the great damage done to the numerous windows of every house, the streets were strewn with enormous quantities of glass broken into small pieces. Some curious instances are related. A kiosk in front of the Ambigu, in which were seated two policemen, was carried, together with the policemen, to the other side of the street; the kiosk was completely wrecked, but the policemen were unhurt though shaken. The heavy rain which continued during the storm did considerable damage, filling up cellars, &c., and flooding the river Bièvre. It was owing, perhaps, to this rain, which had cleared the streets of people, that the number of accidents was not greater than was recorded.

We have received the following further details from a correspondent in Paris:—

"The storm which we experienced took meteorologists quite by surprise, and it was found impossible to follow the track of the cyclone out of Paris. It appears that it developed at the Place St. Sulpice, and disappeared at La Villette, seven kilometres in the north-north-east direction.

"The path of destruction was limited to about one hundred yards, but omnibuses were overturned, boats on the Seine wrecked, five persons killed, seventy wounded, and about 100 trees uprooted. One of the most extraordinary places of devastation was the Square de la Tour Saint Jacques, where the Central Municipal Observatory is established. The branches of trees accumulated by the wind were so numerous that I was obliged to use ladders for visiting the observers, who were practically prisoners in the observatory. Most interesting observations were taken from the top of the Eiffel Tower; these will be discussed in the forthcoming International Congress of Meteorology."

In a later communication our correspondent says:—

"A singular observation was registered on the barometer at 2h. 40m. p.m. on the 10th, when the storm raged in Paris. A rise of 1 mm. of mercury was registered, but of such a short duration that it was hardly possible to detect the two separate strokes for the greater part of the variation. (It may here be

stated that the instrument was a self-recording one, the mode of registration being graphical.) A similar aerial commotion was registered at the Tour St. Jacques; but, instead of marking an increase of pressure, the trace showed a depression of 6 mm., and of very short duration."

### PREHISTORIC EUROPEAN ART.

IT is important to determine how far culture can independently arise in a given district, and how far it is dependent upon other centres of civilisation. For many years M. Salomon Reinach has devoted himself to these problems, especially in reference to the culture of prehistoric Europe. In his essays on "Le Mirage Orientale" he opposed the very prevalent idea that all our culture necessarily came from the East, and during the last three years he has contributed to *L'Anthropologie* a series of articles on "Sculpture in Europe before the Greco-Roman Influences." This long series of papers is concluded in the current number (No. 2, vol. vii.) of that journal, and it forms a mine of information which cannot but prove of immense value to archaeological students, especially as it is illustrated with 441 outline sketches culled from a vast array of authors. His general thesis comprises two arguments—the one negative, the other positive.

(1) M. Reinach tries to prove that the most primitive European artistic remains are far from justifying the view that the first models and tentative efforts came from Egypt or Babylon. One cannot trace any imitation of Assyrian cylinders or of Egyptian funereal figurines. The fauna figured by the rude artists of Europe is purely European; there is no lion, panther, or camel. An apparently very grave difficulty occurs in the series of figures representing nude females, which authors agree in regarding as imitations of the Babylonian Astarte. M. Reinach argues that this type was indigenous, and so far from owing its existence to Babylonian influence, it, on the contrary, worked its way, in all probability, towards the valleys of the Euphrates and Tigris. He thinks that Europe (*i.e.* the Balkan Peninsula, the Archipelago, the Caucasus, and the west coast of Asia Minor) only later, and to a restricted degree, became dependent upon the old civilisations of the Orient. In his opinion culture is polygamist. He admits multiple centres of creation for art, and refuses to believe that all illumination has come to us from the Euphrates and the Nile. He thinks that the Danube and the Rhine have some rights which should not be neglected, and that the future barbarians who dwelt along the borders of these rivers were not reduced to receive everything from without.

(2) M. Reinach recognises that it is not sufficient to affirm that art can be born in diverse places, and that the germ has not arisen from two or three privileged centres of the ancient world; and so he sets himself to show how the rudiment of art has been able to arise, even among peoples whose genius was for a long time in abeyance. To that purpose M. Reinach has "insisted on the evolution of the most simple decorative motives which, at a certain point, quite naturally suggested the idea of the human or animal form. In these not very numerous cases one can follow the transformations of a plastic motive down to the entirely geometric figure from which it arose. But the taste for geometric forms and the tendency to conventionalisation (*stylisation*), that is to say, to the purely decorative modification of organic lines, have been, for long centuries, so powerful in Europe, that even foreign types have not escaped their petrifying action. *A fortiori*, the indigenous types, arisen from geometrical devices, have always been constrained to return back to them again. It is not denied that in Europe, as elsewhere, the imitation of surrounding nature has given origin to some plastic attempts; but there is proof that this inspiration drawn from nature has been feeble, even in the imitation of animal forms, which represented only a very small number of the animals known to the people."

The author admits that several statuettes figured in this memoir reflect outside influences, particularly of Italy, where Ionian art early took root. But these influences were not exercised in an immediate manner, and the indigenous style appears to have always been predominant even when brought face to face with foreign objects. A similar phenomenon is noticeable in Italy itself, which was Hellenised very slowly, and was only partially Orientalised under the Roman empire.

Such is an outline of M. Reinach's position. There is no

doubt that it will open up a wide discussion, as he covers a great deal of ground, and deals with some matters which admit of diversity of opinion.

M. Reinach, in an earlier section of his memoir (*L'Anth.* v., 1894, p. 305), definitely states that "in the primitive art of Central Europe the geometric form (a triangle) has suggested the anthropomorphic form, and it is not the anthropomorphic figure which is degenerated into the geometric." Possibly some, at all events, of these flat plates had indications of features painted on their surface, and thus they may have been more realistic than now appears, and later they were made more human-like as the fabricators became more skilled, or as they valued greater realism.

The investigations of quite a number of men of science show that so-called "geometric" designs are often really highly conventionalised representations of natural objects, mainly of animals; others are suggestions of textiles, or other handicrafts. Probably relatively few "geometric" designs are purely meaningless decorations. So far as available evidence goes, there are not many (if any) examples of the evolution of human or animal forms by "suggestion" from purely geometric designs, but the reverse process is extremely common. Doubtless some of the problems involved in this memoir will be fully discussed at the forthcoming meeting of the British Association at Liverpool during the great discussion, which has been arranged for, on the culture and origins of the Mediterranean race. We understand that M. Reinach intends to be present on this occasion, when he will be able to state his views and reply to his critics.

### NOTES.

THE seventh annual general meeting of the Federated Institution of Mining Engineers began, with a good attendance, at Cardiff on Tuesday last, under the presidency of Mr. G. A. Mitchell. The report of the Council showed satisfactory progress. It was announced that Mr. Lindsay Wood has been elected President of the Institution.

THE third annual congress of Sunday Societies is announced to take place at Newcastle-on-Tyne, on October 10 and two following days. Copies of the programme of proceedings may be had of the Honorary Secretary, Mr. Mark H. Judge, 7 Pall Mall, S.W.

A REUTER dispatch from Naples says the death is announced of Senator Palmieri, Director of the Vesuvius Observatory. Luigi Palmieri was born in 1807. He was successively Professor of Mathematics at Salerno, Campobasso, and Avellino, Professor of Physics at the Royal Naval School at Naples, and Professor at the University in the same town. In 1854 he was appointed Director of the Vesuvius Meteorological Observatory. He was inventor of several instruments for the observation of natural phenomena, including an electrometer for ascertaining the amount of electricity in the atmosphere, a rain gauge, and a seismometer.

PROF. J. C. BOSE, of the Presidency College, Calcutta, is at present in this country, having been deputed by the Indian Government to visit the various laboratories in Great Britain and on the continent, with a view to the extension of the Calcutta Presidency College Laboratory, and the establishment of a new magnetic observatory in connection with that College. Prof. Bose is the holder of a Royal Society grant for researches in regard to electricity. He is a D.Sc. of London University.

IT was announced at a banquet given to Dr. Nansen at Christiania, on Thursday last, that a Nansen fund had been formed for the advancement of science. Subscriptions to the amount of 210,000 kroner had already been received.

THE Russian Geographical Society has been asked by the Governor-General of Turkestan to send some men of science to Shighnan and Roshan next summer, for the purpose of making a thorough exploration of those regions.