

Atwater and Dr. Hildreth, — with reference to the occurrence of iron implements in the mounds. From these statements, such inferences as the following have been drawn:—

The mound-builders understood working iron; they had intercourse with civilized peoples; the mounds were built since the arrival of the whites, or these iron objects belong to intrusive burials. Now, Mr. Putnam demolishes all these deductions at a single blow, by showing that none of the objects are iron. In other words, Mr. Atwater's "handle of either a small sword or a large knife" was an antler, in one end of which a hole had been bored, and around this part was a band of silver. The blade was evidently of native, cold-hammered copper. Dr. Hildreth's silver-plated ear-ornament is duplicated in some of our museums by a kind of plating, first described by Mr. Putnam. In this discussion, some light is thrown upon the spool-shaped copper objects that have been so long a puzzle to archeologists, by the finding of pieces of 'leather' between the plates, very closely resembling the skin from the ear of a Peruvian mummy. Important discoveries made during the last year, in mounds in Ohio, by Dr. C. L. Metz and Mr. Putnam, have brought to light a number of copper ornaments, some of which are covered, or plated, with thin layers of silver. The investigation shows us quite conclusively that we are no longer safe in our archeological deductions, except in the hands of a skilful guide. — (*Proc. Amer. antiq. soc.*, ii. 349.) O. T. M. [304]

Aztec music.—Mr. H. T. Cresson has been studying the musical instruments of the ancient Mexicans. The *huehuatl*, or large drum of the great temple, at the ancient pueblo of Tenochtitlan, was covered with the skins of serpents, and when beaten could be heard at a distance of several miles. Clay balls were placed inside of their grotesque clay images, also within the handles attached to their earthenware vessels, which are generally hollow. Some of these rattles in the Poinsett collection resemble the head of *Crotalus horridus*, and give forth a rattling sound. In this connection Mr. Cresson makes a very suggestive observation which we do not remember to have seen before: "It may therefore be supposed that these children of nature noticed and strove to reproduce sounds, which, however harsh and unmusical to us, to them were pleasing, because they recalled familiar objects." The author thinks he can recognize the Mexican *Hyladae*, macaws, parrots, and other bird-calls. A musical vase is spoken of. Mr. Barber's assertion that the fourth and seventh are wanting from the diatonic scale is denied, since, in the Poinsett collection, there exist Aztec flageolets capable of producing not only the fourth and seventh of the diatonic scale, but also the entire chromatic scale. This subject is elaborated at great length. Mr. Cresson thinks that the musicians of our day have arrived at a somewhat hasty decision in regard to the music of these ancient people, and its confinement within the narrow limits of a pentatonic scale. — (*Proc. acad. nat. sc. Philad.*, 86.) J. W. P. [305]

NOTES AND NEWS.

THE resolution of the American association, offering all the privileges of membership for next year's meeting to the members of the British association, was received by the latter with much enthusiasm; and the council of the British association, with which such matters lie, will, it is said, extend a similar invitation to the American association. The Canadian authorities have arranged for such members of the British association as may desire, to take the longer excursions planned for them *before* their meeting on Aug. 27, and thus allow them to attend the meeting of the American association in Philadelphia, Sept. 3, without losing their excursions. It is hoped that at least five hundred members of the British association, including many leading scientific men, will attend the Montreal meeting; while there seems to be a very general wish, more especially on the part of the younger scientific men, to attend the Philadelphia meeting as well.

—The following is the list of grants of money, which, according to *Nature*, the British association has granted for scientific purposes for the coming year; amounting, in all, to seven thousand dollars. When may we hope for even the beginning of such a list from the American association, with its two thousand members?

A. — Mathematics and physics.

Brown, Prof. Crum, Meteorological observations on Ben Nevis	£50
Foster, Prof. G. Carey, Electrical standards	50
Schuster, Prof., Meteoric dust	20
Abney, Capt., Standard of white light	20
Scott, Mr. R. H., Synoptic charts of the Indian Ocean	50
Stewart, Prof. Balfour, Meteorological observatory near Chepstow	25
Shoolbred, Mr. J. N., Reduction of tidal observations	10
Darwin, Prof. G. H., Harmonic analysis of tidal observations	45

B. — Chemistry.

Odling, Prof., Photographing the ultra-violet spark spectra	10
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C. — Geology.

Etheridge, Mr. R., Earthquake phenomena of Japan	75
Williamson, Prof. W. C., Fossil plants of Halifax	15
Sorby, Dr. H. C., British fossil polyzoa	10
Prestwich, Prof., Erratic blocks	10
Etheridge, Mr. R., Fossil Phyllopoda of the paleozoic rocks	15
Hull, Prof. E., Circulation of underground waters	15
Evans, Dr. J., Geological record	15
Green, Prof. A. H., Raygill fissure	15
Prestwich, Prof., International geological map of Europe	20

D. — *Biology.*

Newton, Prof., Zoological bibliography . . .	£50
Slater, P. L., Natural history of Timor Laut . .	50
Lankester, Prof. Ray, Table at the zoological station at Naples	80
Harrison, J. Park, Facial characteristics of races in the British Isles	10
Hooker, Sir J., Exploring Kilimandjaro and the adjoining mountains of equatorial Africa . .	500
Cordeaux, Mr. J., Migration of birds	20
Foster, Dr. M., Coagulation of the blood . . .	50
Stainton, Mr. H. T., Record of zoological literature	100

E. — *Geography.*

Godwin-Austen, Lieut.-Col., Exploration of New Guinea	100
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F. — *Economic Science and Statistics.*

Brabrook, Mr. E. W., Preparation of the final report of the anthropometric committee . .	10
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G. — *Mechanics.*

Bramwell, Sir F., Patent legislation	5
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—Lieut. Ray returned to San Francisco, Oct. 7, by the schooner *Leo*. He left that port on July 18, 1881, under instructions from the signal-service bureau to establish a permanent signal-station at Point Barrow, and to remain there until the summer of 1884, unless otherwise ordered. The order for the party to return created great surprise, as the work was successfully carried on. Lieut. Ray stated, that, apart from the scientific importance of the station, it was a necessity, as a refuge for the crews of whaling-vessels. Every year, in the Arctic Ocean, there are, on an average, forty vessels, worth, with their cargoes, four million dollars, and employing sixteen hundred men. Out of eighty-seven vessels, fifty have been lost within a hundred miles of Point Barrow, in one year alone. In 1877 twelve were lost, with all on board. The crews would not abandon their vessels, knowing there was nothing on the shore. Had the station then existed, it is probable that all their lives would have been saved. Since the station was established, two years ago, over fifty lives have been saved. Lieut. Ray states, that all the party lived comfortably, and enjoyed good health, the climate being particularly beneficial to those suffering from malaria. Besides their regular provisions, the party had seal, walrus, and white whale meat; the last being the best, as it was sweeter and more nutritious. Lieut. Ray expressed regret at his recall.

—Lieut. Schwatka, who, with his party, was picked up by Lieut. Ray at St. Michael's, speaking of his trip up the Yukon River, Alaska, says they started from Fort Vancouver, W.T., on May 21, and travelled twenty-eight hundred miles overland, reaching the head waters of the river, where they constructed a raft of logs to navigate the stream to its mouth. They procured a crew of six Indians, and proceeded down the gradually increasing stream within two hundred and fifty miles of Fort Chilcat, where rapids were encountered. Down these the

Indians refused to go, and attempted to force the raft ashore. Schwatka succeeded in suppressing the mutiny, and the rapids were run. The voyage on the raft was eighteen hundred and twenty-nine miles. From the mouth of the Yukon they proceeded to St. Michael's, where they boarded the *Leo* for this port. Signal-service officer Leavitt, who has been stationed at St. Michael's, and who also came down on the *Leo*, says he has ascended the Yukon to Fort Selkirk two thousand miles from its mouth. He describes the river as being one of the largest in the world, discharging fifty per cent more water than the Mississippi, and as being in places seven miles in breadth.

—Professor Oswald Heer, of the university and federal polytechnic school of Zurich, the celebrated Swiss paleontologist, died at Lausanne, Canton de Vaud, the 27th of September. Heer has done more for fossil botany and fossil insects than any one else during the last forty years, and his death will leave a place in science which it will be difficult to fill.

RECENT BOOKS AND PAMPHLETS.

Bernheim, G. Incombustibilisation des théâtres et bâtimens. Nice, *impr. Gauthier*, 1883. 16 p. 4°.

Berthelot, M. P. E. Explosive materials: series of lectures delivered before the Collège de France, Paris; to which is added a short historical sketch of gunpowder. Translated from the German of Karl Braun by J. P. Wisser, and a bibliography of works on explosives. New York, *Van Nostrand*, 1883. (Van Nostrand's sc. ser., no. 70.) 24°.

Bourassé, J. J. Histoire naturelle des oiseaux, des reptiles et des poissons. Tours, *Mame*, 1883. (Bibl. jeun. chrét.) 288 p., illustr. 12°.

Briggs, R. Steam-heating: an exposition of the American practice of warming buildings by steam. New York, *Van Nostrand*, 1883. (Van Nostrand's sc. ser., no. 68.) 108 p., illustr. 24°.

Brooks, W. K. The law of heredity: a study of the cause of variation and the origin of living organisms. Baltimore, *Murphy*, 1883. 2+336 p., 2 pl., illustr. 16°.

Browne, W. R. The student's mechanics: an introduction to the study of force and motion. London, *Griffin*, 1883. 16+210 p., illustr. 16°.

Campagne, E. Les mines, or, argent, fer, cuivre, plomb, étain, zinc, mercure, et platine. Rouen, *Megard*, 1883. (Bibl. mor. jeun.) 190 p., illustr. 8°.

Carrière, E. A. Étude générale du genre pommier, et particulièrement des pommiers microcarpes ou pommiers d'ornement, pommiers à fleurs doubles, etc. Mesnie, *impr. Firmin-Didot*, 1883. 179 p. 18°.

Foye, J. C. Chemical problems, with brief statements of the principles involved. New York, *Van Nostrand*, 1883. (Van Nostrand's sc. ser., no. 69.) 24°.

Freeman, E. A. English towns and districts: a series of addresses and sketches. London, *Macmillan*, 1883. 13+455 p., 11 pl., map. 8°.

Gladstone, J. H., and Tribe, A. The chemistry of the secondary batteries of Planté and Faure. London, *Macmillan*, 1883. (Nature series.) 11+59 p. 8°.

Gomme, G. L. Folk-lore relics of early village life. London, *Stock*, 1883. 8+246 p. f°.

Grant, B. A few notes on St. Helena, and descriptive guide. To which are added some remarks on the island as a health resort, Capt. J. R. Oliver's geology of the island, and numerous appendices. St. Helena, *Grant*, 1883. 127 p., 8 phot. pl. 8°.

Haeckel, E. The pedigree of man and other essays. Translated by E. B. Aveling. London, *Freethought publ. co.*, 1883. 15+352 p., illustr. 16°.

Kiddle, H. A text-book on physics, being a short and complete course, based upon the larger work of Ganot; for academies, high schools, etc. New York, *Wood*, 1883. 272 p., illustr. 8°.

MacLeod, J. Leiddraad bij het onderwijzen en aanleeren der dierkunde. Algemeene dierkunde. Gent, *Vuysteke*, 1883. (Willems-fond, uitgave 104.) 4+151 p., 1 pl., illustr. 16°.