RECENT PROCEEDINGS OF SCIENTIFIC SOCIETIES.

American philosophical society.

The Proceedings of the society, vol. xxi., No. 114, from April to December, 1883, to be distributed to the members and correspondents of the society in January, contains: 1. A memoir on the migration of the Tutelo tribe of Indians, by Horatio Hale (with a map); 2. Medieval sermon-books, etc., by Prof. I. F. Crane of Cornell university; 3. The latitude of Haverford college, by Isaac Sharpless; 4. A crinoid with movable spines, by H. S. Williams (with a plate); 5. The *rôle* of parasitic photophytes, by W. N. Lockington; 6. The reversion of series, and its application to the solution of numerical equations, by J. G. Hagen, S.J.; 7. The conversion of chlorine into hydrochloric acid in the deposition of gold from its solutions by charcoal; 8. A brief account of the more important public collections of American archeology in the United States, by Henry Phillips, jun.; 9. Photodynamic notes, No. viii., by Pliny E. Chase; 10. Introduction to a study of the North-American Noctuidae, by A. R. Grote; 11. Revision of the Lysiopetalidae, by A. S. Packard, jun.; 12. The Perry county fault, by E. W. Claypole; 13. Seeds sprouting in ice, by Joseph Lesley; 14. A relic of the native flora of Pennsylvania, by E. W. Claypole; 15. The Portage rocks in Perry county, by the same; 16. The genus Rensselaeria, by the same; 17. A large Catskill crustacean, by the same (with a plate); 18. Obituary notice of Henry Seybert, by Monclure Robinson; 19. The zone of asteroids and ring of Saturn, by Daniel Kirkwood; 20. Obituary notice of Dr. John F. Meigs, by Dr. William Pepper; 21. Kintze's fire-damp indicator, by Charles A. Ashburner; 22. Obituary notice of Oswald Heer, by Leo Lesquereux; 23. Obituary notice of Dr. John L. LeConte, by Dr. George H. Horn; 24. Aerial ships, by Russell Thayer, C.E.; 25. Section of Chemung rocks at Le Roy, Bradford county, Penn., by A. T. Lilley; 26. Distribution of Loup Fork formation in New Mexico, by E. D. Cope; 27. Second addition to the knowledge of the Puerco epoch, by the same; 28. The trituberculate type of tooth in the mammalia, by the same; 29. Delaney's synchronous multiplex telegraph, by Edwin J. Houston; 30. The microscopic examination of timber with regard to its strength, by Frank M. Day (with a plate). Several papers requiring illustrations are left over to be published in No. 115, as it is the custom of the society to publish its two annual numbers of its proceedings as nearly on the 1st of January and June as possible. No. 114 includes pp. 1 to 350 of the current vol. xxi.

The society has also published, as part i. of vol. xvi. of its transactions, a Dictionary of Egyptian hieroglyphics, by Edward Y. McCauley, U.S.N. (240 p., 4°), printed from relief-plates photographed from Commodore McCauley's manuscript.

The society is printing the last pages of its library catalogue, the fourth and last part of which will be published in February or March. The whole catalogue (three parts of which have been distributed in previous years) will make about fifteen hundred pages octavo. There will be subsequently published an alphabetical index of author's names, and a supplement of books received since a certain date.

The society is also printing, as a volume of about five hundred pages octavo, a succinct transcript of its minutes from 1744 to 1837, made by the secretary in 1882. Its proceedings were first published in 1838, and subsequently in one series up to the current No. 114. The possible destruction of the minute-books, by fire or otherwise, has always been a cause of anxiety. When this volume from 1744 to 1837 is printed, a complete history of the society will be secured. Already proof-reading has reached p. 288 (minutes of 1800), and the volume will probably be published in May next.

Cincinnati society of natural history.

Jan. 8. — Dr. Walter A. Dun read a paper on some recent explorations of mounds in the Scioto valley. The paper gave a detailed description of the mound, a large one, its dimensions being thirty-three feet in height, and a hundred and fifteen feet in diameter. The shaft sunk from the top showed several intrusive burials, and that the mound was constructed of successive layers of sand and clay. At the depth of twenty-five feet a vault constructed of logs was found, in which was a large quantity of root-like fibres, with a skeleton in a fair state of preservation. The skull was saved almost entire, and was described in detail by the doctor, who found it to compare closely with the figures of mound-builder skulls in Squier and Davis's 'Monuments,' and Morton's 'Crania americana.' A number of flint arrow-points, shell beads, and a small octagonal piece of sandstone, were also found in the 'vault.' The vault was eight feet high, five feet and a half long, and four feet wide.

The discovery of an authentic mound-builder's skull was regarded as important, and worthy of record. Dr. Dun also read a detailed description of the teeth and jaw of the skull, prepared at his request by Dr. E. G. Betty. Mr. Joseph F. James remarked that a skull found near Memphis, Tenn., associated with some earthen pots bearing dates of 1654–1708, showed the same remarkable flattening of the occipital region shown in Dr. Dun's specimen.

Mr. J. R. Skinner said that he had lately observed that the symbol of the Aztec god, Itzcoatl (← ), was the same as a marking upon what is known as the Richardson tablet from Wilmington, O.

Society of arts, Massachusetts institute of technology.

Dec.. 27. — Mr. John Ritchie, jun., exhibited and explained a model showing the orbit of the comet of 1812, and Mr. J. R. Robinson described his safety-seam steam-boiler. Mr. Robinson's first invention consisted in reaming out the edges of the rivet-holes in the plates on the inside, or where they come in contact, making them conical for a short distance.

When the rivet is put in, it flows out and fills the space thus formed, becoming, therefore, of greater diameter at the middle than at the ends. When the plates are under tension, the rivet will cant, and the ring-like projection around its centre will pry the plates slightly apart, as Mr. Robinson has satisfactorily demonstrated by experiment, thus allowing the escape of the steam in the case of a boiler, and avoiding an explosion; while, on the removal of the stress, the plates come tightly together again, provided the strain on the rivet were adapted not to exceed its elastic limit. The simple conical reaming-out of the holes, however, was not found to be just what was wanted; as it was possible for the metal of the rivet to be forced out between the plates farther than was wished, preventing their coming together tightly at all, even at first. To obviate this objection was the object of Mr. Robinson's second invention, which consists in cutting out a small hemispherical ring in each plate around the rivet-hole, and reaming out to this ring, so that when the plates are put together the conical enlargement of the hole at the centre is followed by a chamber in the shape of a circular ring; and into this 'relief-chamber' the metal of the rivet can flow out. But, as the amount of metal to be so forced out is never to be great enough to fill this chamber, the plates are brought closely together in the process of riveting, while the action of the rivet under great pressures is the same as has been described.

INTELLIGENCE FROM AMERICAN SCIENTIFIC STATIONS.

GOVERNMENT ORGANIZATIONS.

Geological survey.

Geology. — Prof. L. C. Johnson reports that the Ripley group of the cretaceous in Alabama and Mississippi presents some curious and interesting features. It is an interrupted formation. Beginning in Mississippi, north-west of the Corinth group, it runs southward one hundred miles, and there runs out. It also appears in the extreme south-east, on the Chattahoochee River, in Barbour county, Ala., and extends westward to a point undetermined, but not reaching the Alabama River. It also occurs as a wedge between the elder cretaceous and the great lignitic A.

Chemistry. — The chemical division of the survey is at work on analyses of alkaline and saline waters from the Great Basin, collected by Mr. G. K. Gilbert and I. C. Russell; notably, the waters of Humboldt River, Walker Lake, Pyramid Lake, Mono Lake, Lake Tahoe, etc. There are also on hand, awaiting analysis, specimens of water from Helena hot-springs, Montana, from warm springs of Emigrant Gulch and from Livingston, in the Yellowstone valley, in Montana, collected by Dr. A. C. Peale during the past summer.

Prof. F. W. Clarke is also engaged upon a complete revision of his specific-gravity tables, which form part i. of the Smithsonian Constants of nature.

A white porcelain-like clay from the Detroit copper-mine, near Mono Lake, California, proves, upon analysis by Professor Clarke, to be a very pure halloysite, thus adding another to the list of localities for this mineral.

A mineral sent in from Big Springs, Texas, said to occur there in abundance, proves to be a mixture of gypsum and sulphur, the latter predominating.

Miscellaneous. — The topographical parties have all returned to the office in Washington. The total area surveyed during the season amounts to fifty-one thousand square miles.

Early in September, while attempting the ascent of the 'Three Sisters,' a group of peaks in the Cascade range in Oregon, Ensign Hayden, who accompanied Mr. J. S. Diller in his reconnaissance of the Cascade range, was thrown from the edge of a cliff by the crumbling of the rocks, and seriously injured. As a result of the accident, he has recently had to suffer an amputation of one of his legs. The operation was performed at Portland, Or. Mr. Diller, in rescuing Mr. Hayden, was also hurt, but not seriously, by the falling rocks.

The library of the survey has just secured a copy of the 'Codex Cortesianus,' by Léon de Rosny, of which eighty copies have just been published in Paris (1883). The line of Mexican manuscripts for the study of the Maya alphabet, in the library of the survey, is now complete, with the exception of a manuscript in the possession of Señor D. Alfredo Chavero, in the city of Mexico. It is entitled 'A MS. explanation in Italian of the Codex Borgiana, by Fabregat.' Steps are being taken to secure a copy of it for publication.

The manuscript for two survey bulletins has been sent to the government printer: viz., No. 3, 'On the fossil faunas of the upper Devonian, along the meridian of 76° 30′, from Tompkins county, N.Y., to Bradford county, Penn.,' by H. S. Williams; and No. 4, 'Lists of elevations,' by Henry Gannett.

Five volumes of the monographic publications of the Hayden survey are still unpublished. The general direction of the completion and publication of these quarto reports has been put in charge of the director of the geological survey. Two of these volumes are almost wholly in type, and will be issued shortly.

The London *Graphic* of Nov. 17 has a double-page illustration of the Transept in the Kaibab Grand Cañon of Colorado River, which is an engraving reduced from plate xviii. of the atlas accompanying Capt. Dutton's 'Tertiary history of the Grand Cañon' (vol. ii. of the monographs of the survey).

PUBLIC AND PRIVATE INSTITUTIONS.

Massachusetts institute of technology.

The new photographic laboratory. — Since the recent invention of the gelatine dry-plate, photogra-