the name of Arsinoë, but the other quite unknown. I could not make out to whom it referred, but the next day I saw quite clearly. The top of the tablet is occupied by two series of offerings made to the gods of the Heroöpolite nome by the King Ptolemy Philadelphus. Among the gods is his sister, and wife Arsinoë, with the two cartouches, num ab en shu, mer neteru ; Arsina. Below are twenty-eight lines of text, written clearly at the beginning and end of the stele, but, unfortunately, very carelessly in the middle. However, the monument is perfect : there is not one sign wanting. It is one metre and a quarter high, and about one metre wide. . . . One thing interested me particularly in the inscription : it is the name of a locality of which Osiris is the god, and which is called Pi-Keheret. Now, I cannot help thinking that we have at last got the Egyptian name for Pi-hahiroth, and (this conjecture, perhaps, is a little presumptuous) that it was called by the Greeks *φαγρωριόπολις*. This name of Pi-Keheret occurs twice in the text, perhaps oftener, — once in the offering scenes, and another time in the course of the narration. You will understand how important it would be to gain the site of this spot ; and that the mere fact of its being in the Heroöpolite nome, in the neighborhood of Succoth and Arsinoë, would definitely put aside Schleiden's and Brugsch's theory of the exodus through Lake Serbonis."

M. Naville is about to publish a narration of the whole work at Pithom, in which he will fully discuss the many interesting questions which have sprung from that work. — (*Academy*, April 7.) H. O. [1012

PHYSIOLOGICAL PSYCHOLOGY.

Children's minds. — In October, 1869, the pedagogical society of Berlin inquired by circular how many of the children who entered the primary classes had seen certain common animals, insects and plants, public buildings, museums, parks, suburban pleasure-resorts, etc. Other questions related to the home, farm, natural history, God, Christ, prayer, and many such subjects.

Profiting by this experiment, Mr. G. Stanley Hall, last September, undertook to ascertain the contents of children's minds on entering the Boston primary schools. Much pains was taken to collate such questions as would yield the best results, and to utilize the most skilful kindergarten teachers in putting the questions. Even with all these aids and cautions, the results were often very amusing. Two tables are given by Mr. Hall, setting forth the words, and the per cent of children ignorant of them. The high rate of ignorance is absolutely astonishing. About ninety per cent did not know where their ribs were situated, and seventy-five per cent could not describe an island. Furthermore, those who knew certain facts — for instance, that cheese comes from the cow — apprehended them in the loosest manner, thinking, perhaps, that the cheese is squeezed from the cow as the juice from a lemon. The same ignorance or indefiniteness of knowledge marked the opinions of the majority of the children concerning natural phenomena, natural history, and physical experiments of the simplest kind. The author comes to the following conclusions: 1. Children know next to nothing valuable at the outset of their school life; 2. Children can best be prepared for school by familiarizing them with objects; 3. Teachers should carefully explore children's minds; 4. The concepts that are most common in the children of a given locality are the earliest to be acquired, while the rarer ones are later. — (*Princeton review*, 1883, 259.) J. W. P. [1013

INTELLIGENCE FROM AMERICAN SCIENTIFIC STATIONS.

GOVERNMENT ORGANIZATIONS.

National museum.

Re-arrangement. — The collection illustrative of mammalian osteology, which is in many respects one of the finest in America, is at present undergoing a thorough examination, and will be re-installed for the purposes of exhibition and study. The collection is especially rich in carnivores and cetaceans.

Recent additions. — The French government has presented a complete series of Sèvres porcelains showing the stages of manufacture and the varieties of wares produced. —— The government collections of Washington relics, including the Lewis collection, have been transferred from the Patent office to the museum. —— Messrs. Prang and company of Boston have presented a beautiful collection illustrative of the art of lithography. —— The museum has received from the British museum one of its two stuffed specimens of the Senegal manatee (Trichechus senegalensis), together with a skeleton of the same species. All the recent species of the Sirenians are now represented in the collections.

Notes. — The American pharmaceutical association will hold its session in the lecture-hall of the museum in September. —— The preparators of the museum were severally awarded prizes for specimens of their art displayed at the taxidermists' exhibition held in New York in May.

STATE INSTITUTIONS.

State laboratory of natural history, Normal, Ill.

The fauna of Lake Michigan and the smaller lakes of the north-eastern part of Illinois. — Two weeks were spent by Mr. Forbes and assistants in continued dredging off Chicago for a distance of fourteen miles alongshore, from the harbor to about ten miles out. Animal life here was scanty, except within half a mile of shore. The commonest invertebrate forms were Amnicola limosa, Somatogyrus isogonus, Pleurocera elevatum, Goniobasis liveseens, and Sphaerium solidulum, among Mollusca; and Daphnia hyalina, Cyclops Thomasi n. s., Diaptomus sicilis n. s., and Limnocalanus macrurus, among Crustacea. Pontoporeia also occurred occasionally. The most abundant macroscopic plant was Nostoc pruniforme, forming small gelatinous nodules on stones. Vaucheria tuberosa was also not rare.

In order to obtain material for a study of the bottom fauna of the deeper regions of the lake, a trip was made to Grand Traverse Bay in Michigan, a long narrow arm of the lake of extraordinary depth near shore. Here, with the assistance of a steam-tug and a crew of four men, the dredge and trawl were hauled repeatedly in water varying from a depth of thirty to one hundred and two fathoms, and the margins of the bay were searched thoroughly and carefully from a yawl. Numerous specimens of Cottidae were ob-

tained, among them Tauridea spilota, Uranidea gracilis, and several examples of Triglopsis Thompsoni (heretofore found only in the stomachs of fishes). An undescribed variety of Mysis relicta was also very abundant. The commonest copepod was Epischura lacustris, a very peculiar new genus and species. A Nitella was dredged here at a depth of thirty fathoms.

In addition to these operations upon Lake Michigan, ten of the lakes of Lake and McHenry counties were sounded and thoroughly dredged, and full collections made of the plant and animal life of each, from the shore to the deepest water. These lakes were shallow, rarely exceeding a depth of fifty feet; and for purposes of comparison with deeper waters of the same series, Geneva Lake in Wisconsin, having a depth of twenty-three fathoms, was thoroughly searched with dredge and trawl. Later an especially minute and exhaustive study of both the plant and animal life of Cedar Lake was made, not only for the purpose of determining the contents of its waters, but also to afford material for a careful study of the entire system of interactions obtaining among them.

The determination of these collections has but just been commenced, but some general results have already been reached. It was found, that, with the exception of Lake Michigan, the deeper interior portions of these lakes were largely barren of either plant or animal life, probably ninety per cent of their inhabitants being collected within a few rods of the shore. This was apparently due chiefly to the peculiar character of the bottom, which was here a very deep, soft, almost impalpable ooze, consisting of the finest particles of the surface-soil washed in from the adjacent country. No forms peculiar to the deeper water were found in any lake except Michigan. A species of Lumbriculus and larvae of Chironomus were the only bottom animals common in the interior of the smaller lakes (and these occurred equally at all depths), except such as ranged from the surface downward. Larvae of Corethra and many Entomostraca were found in countless numbers at or near the bottom by day, but rose to the surface at night.

PUBLIC AND PRIVATE INSTITUTIONS.

Davenport academy of natural sciences.

Relics from southern mounds. — Observing in SCIENCE, p. 349, a notice of a quantity of astragali of deer, etc., collected from mounds in Ohio, I would call attention to the occurrence of similar objects in southern mounds, with, however, a very interesting peculiarity not mentioned in connection with the Ohio specimens.

We have in the museum of the academy some thirty of those astragali exhumed by Capt. W. P. Hall from mounds in Arkansas, where he has, in several instances, met with a considerable number arranged in a row near a skeleton.

Twenty-two of those we have are ground down at the two ends, forming two faces approximately parallel to each other, and cutting away enough to reduce the bone, as a whole, to something nearly approaching a cubical form; i.e., reducing the length to about equal the width of the bone. In some cases the sides, which are naturally nearly parallel to each other, are ground off a little also, to make them more perfectly flat. The convex side is not ground at all in any of these specimens, nor is the opposite or concave side.

The specimens in this collection must be, some of them, from larger animals than even the elk, — possibly the buffalo, — as they measure from three-fourths of an inch to one and three-fourths in width; and the largest must have been at least three and one-fourth inches long before being subjected to the process of grinding into the desired form. Were they kept as charms, mementos or trophies of the chase perhaps, instruments for gambling? — who will explain? W. H. PRATT.

Cranial deformation. — There are now in the museum thirty-three skulls from the mounds of the lower Mississippi valley, — Tennessee and Arkansas, — of which a considerable number, though not the greater portion, present the peculiarity of an occipito-frontal compression, in several instances so great as to cause the transverse considerably to exceed the longitudinal diameter. Four of these crania give the following measurements in inches: —

Longitudinal diameter	5.50	Parietal diameter	6.28
" "	5.35	" "	6.03
" "	5.68	" "	6.25
" "	5.96	" "	6.15

while the *normal* form seems to give a length exceeding the breadth by an average of nearly one inch.

All of those so very much compressed are, judging from the condition of the teeth, the heads of young persons, say, from fifteen to twenty-five years. Several of those of older individuals exhibit the same flattening in a less degree, as if partially outgrown after the compression had been discontinued.

In those most flattened, the front especially appears to have been confined by a rigid flat body, as the forehead presents a large surface, which is almost a perfect plane; while the back, where the compressor has been applied, is in some instances slightly concave where the sutures unite.

These skulls are rather thin, and quite well preserved. They are found with the prehistoric pottery; and not unfrequently the very large vessels — fifteen inches or more in diameter — contain one or even two crania, and the other bones of the skeleton. W. H. PRATT.

Peabody museum of American archaeology, Cambridge, Mass.

Mound explorations in the Little Miami valley, Ohio. — A group of mounds on the estate of Mr. Turner, in Anderson township, was systematically explored last season by Messrs. Putnam and Metz, and a careful survey made by a civil engineer, Mr. Hasbrook. The group embraces 13 mounds and 2 earth-circles, all enclosed by 2 circular embankments, one of them on a hill, and connected with the other by a graded way. The altar-mounds mentioned in SCIENCE, No. 12, were found here. The larger of two mounds within the earthwork on the hill, a plan of which was published by Col. Whittlesey in 1850, proved a most interesting structure, unlike any thing heretofore discovered. It contained a small central tumulus, surrounded by a carefully built stone wall, and covered in by a platform of stones, over which was a mass of clay. On this wall were two depressions, in each of which a body had been laid; and outside the wall, in the surrounding clay, were found several skeletons, one of them lying upon a platform of stones. With these skeletons were found a copper celt, ornaments made of copper and shell, and two large sea-shells. With each of three of the skeletons were a pair of spool-shaped ear-ornaments. The thirteen mounds within the large enclosure differ so much from each other in their structure, that detailed descriptions of each would have to be given, in order to convey a correct idea of this singular and interesting group. Under one of the altar-mounds a large ash-pit, six feet deep, and similar to those in the ancient cemetery at Madisonville, was discovered;

and under another altar-mound were eighteen pits of smaller size, but of similar character. Beneath a small mound containing skeletons was an excavation, six feet wide and twenty-seven inches deep, filled with ashes mixed with animal bones, potsherds, and other objects. This is the first time that pits of this character have been discovered in connection with the mounds; and their presence gives an additional interest to this group. In another mound, containing a human skeleton, a small copper celt was found on the bones of a hand, which is of special interest, as it has a cast of the papillae of the fingers distinctly preserved in the carbonate of copper. Under the centre of one mound was a bed of ashes, in which were three pottery vessels.

Dr. Metz also examined a conical mound on the farm of Mr. Gould, about two miles from Reading, on an elevated and commanding site. The mound was six feet high, and sixty feet in diameter at the base. An earth embankment, three feet high and twenty-two feet wide at its base, encloses the mound, forming a circle about it one hundred and fifty feet in diameter, with an opening thirty-seven feet wide looking to the south-east. The mound was found to be stratified; the outer layer was composed of fifteen inches of very hard yellow clay; under this was a layer, ten inches in thickness, of hard clay, burnt to a brick-red color, and mixed with ashes and charcoal; below this was a stratum fifteen inches in thickness of compact grayish ashes containing pieces of burnt stone; beneath this again ten inches of burnt clay, in which were a small chipped flint and a fragment of burnt bone, which was the only piece of bone found in the mound; beneath this last stratum, and occupying the central portion of the mound, was a conical heap of hard gray earth in which were small flakes of charcoal. This gray earth was so hard that it could only be removed by the use of the pick: it was eight by ten feet in diameter, and twenty-two inches in thickness in the centre. Under this hard mass, and below the natural surface of the clay, were four circular pockets or excavations about four inches apart, each of which was ten inches deep and fourteen inches wide; three of them were filled with a dark pasty substance, which became hard on drying, and the other contained fragments of stone, burnt clay, and earth. The structure of this mound is unusual; and the purpose for which it was erected over the four small holes is at present unknown, adding one more to the problems relating to the mounds, which we can only hope to solve by thoroughly exploring such as have not yet been disturbed.

NOTES AND NEWS.

Since the first pages of this issue were in form, it has been announced that a party for the relief of the observers under Lieut. Greely at Lady Franklin Bay will leave St. Johns, Newfoundland, on one of the steam sealing-vessels belonging at that port, about June 15, probably accompanied by a naval vessel as tender. It will be commanded by Lieut. E. A. Garlington, U.S.A., and composed of twelve men, of whom ten are stated to be old sailors and accustomed to the use of boats. Twenty dogs, native drivers, and a supply of fur clothing, have been secured at Godhavn, Greenland. The party at Lady Franklin Bay will be reached and withdrawn if the state of the ice permits. If not, the relief-party is to be landed on Littleton Island; and, while part of them are engaged in preparing winter quarters, Lieut. Garlington will endeavor to open communication by sledges with Greely's people. In the failure of the first attempt, another will be made in the spring of 1884. It is to be hoped, if Greely is not reached, that an attempt will be made to leave at Cape Hawkes or Cape Sabine, if not the relief-party as a whole, which would be best, at least a boat by which the open water to be anticipated between those points and Littleton Island next year (1884) may be passed by a retreating party, which might well find their own boat unseaworthy after dragging it over many miles of hummocky ice, if, indeed, they did not find themselves obliged to abandon it.

— The schooner Leo is on the point of sailing for Point Barrow to withdraw the signal-service observing party under Lieut. Ray, in compliance with the act passed by the last Congress. To utilize the opportunity, Mr. Marr of the U. S. coast-survey will accompany the vessel with the design of making absolute magnetic determinations, of fixing the astronomical position of the station, and of making pendulum observations.

— In 1880 the French minister of public instruction appointed a commission to investigate the zoölogy and physical features of the deep sea under the direction of M. Alphonse Milne-Edwards. It carried on its investigations that year principally in the Bay of Biscay; in 1881, in the Mediterranean; and, in 1882, in the Atlantic as far as the Canaries. This year it will push its researches farther in the Atlantic as far as the region opposite the coast of Senegal and in the Sargasso Sea. The present commission is composed of Professor Alphonse Milne-Edwards, president; the Marquis de Folins; Professors Léon Vaillant and Edmond Perrier, of the Paris museum; M. Fischer, aide-naturaliste at the same establishment; and Professors Marion of Marseilles and Filhol of Toulouse; MM. Charles Brongniart and Henry Villaine, of Paris, are also attached to the commission as 'membres adjoints.'

— By the programme for the summer meeting of the American institute of mining engineers, the opening session will be held in Roanoke, Va., on June 4. A visit to Lynchburg will be made on June 5. On arrival at Lynchburg, a train will take the party to the iron-mines on the James River, at Riverville, and, if time allows, also to Stapleton. In the afternoon a session of the institute will be held. Return to Roanoke in the evening. On June 6 there are to be local excursions around Roanoke, visiting the Crozer furnace, Upland and Houston mines, Rorer iron company's mines, and the Roanoke machine-works; evening session. June 7, excursion to Pocahontas (Flat Top coal-fields), and the Southwest Virginia improvement company's coal-mines and coke-ovens. Returning, the Ripplemead mines