May 13. — Professor Joseph Leidy exhibited specimens of a curious parasite (Pentastomum proboscideum), found in the lung of a large rattlesnake (Crotalus adamanteus) from Florida. They are cylindrical, incurved, annulated, largest at the head, tapering behind, becoming again larger, and rounded at the end, and terminating ventrally in a short, conical point. They vary from nine lines to thirty-one lines in length, and from one and a half to three lines in width at the head. Although these curious creatures, in their mature stage, are cylindrical, worm-like, limbless bodies, they are allied, by their structure and embryonic peculiarities, to the Arachnida, or spiders. —— Mr. Edward Potts announced the discovery in Harvey's Lake, near Wilkesbarre, of vast colonies of a species of the beautiful polyp, Cristatella. He had not been able to determine whether or not it belongs to one of the three described species of the genus. They may prove to be distinct, although it is not improbable that all the species may hereafter be considered as one. The specimens were collected from the smooth, inclined surface of logs, and from the branches and twigs of submerged trees. Colonies had since been formed on the sides of a collecting-jar, each statoblast having developed into from three to eight polyps. The colonies are not circular, but have a persistent appendage which contains none of the polypiferous cells. Supposing the form to be new, he proposed for it the name Cristatella lacustris.

Colorado scientific society.

May 5. — Messrs. W. F. Hillebrand and Richard Pearce made a preliminary communication in regard to an interesting group of minerals recently found in Utah, some of them being new to the United States. The minerals found are, enargite and the secondary hydrous arseniates, olivenite, and conichalcite (Dana's System of min., p. 565), with two amorphous substances corresponding, apparently, to pitticite and chenevixite. The olivenite occurs in small, distinct crystals; the conichalcite, in form similar to that from the only locality previously known, in Spain, while its chemical composition is also very near to that of the original mineral, a small amount of copper being replaced by zinc. Jarosite, turgite, and one or two as yet undetermined species, occur sparingly with the above. Mr. Pearce also exhibited pseudo-malachite associated with hübnerite from near Phillipsburg, in Montana.

Society of arts of the Massachusetts institute of technology.

April 24. — Prof. Charles R. Cross gave a lecture on 'The determination, history, and present standards of musical pitch.' After referring to the use of the sonometer for determining the relative number of vibrations of any two notes, Professor Cross gave a description of the methods of determining the absolute number of vibrations of any fork, giving an account of König's researches (*Amer. journ. otology*, October, 1880), and explaining the use of Scheibler's tonometer. The only good standard was stated to be the tuning-fork, which varies its rate less than $\frac{1}{9000}$ per degree (Centigrade) of change in temperature; while the organ-pipe and the oboe, sometimes used as standards, vary much more with changes of temperature. The history of pitch was discussed, and tables given showing the change in the standards from time to time. The principal change had been a gradual rise of the standard. Some measurements made by Professor Cross in 1880 had given results, of which the following is an abstract: —

	Number of vibrations, C_3.
Ritchie, copy of Chickering's standard	269
Mason & Hamlin, French pitch	259.1
Hook & Hastings, old flat organ-pitch	264.6
Organ in Church of Immaculate Conception, Boston	266.7
Chickering's standard fork	268.5
Smith American organ company	267.2
New-England organ company	268.2
H. F. Miller pianos	268.9
Hook & Hastings' standard	270
Weber pianos	270.3
Thomas's pitch, 1879	271.1
Music-Hall organ	271.2
Steinway's pitch	272.2
Highest New-York pitch	273.9

The standard used by the Boston symphony orchestra in 1882–83 was an A-fork of 448 double vibrations; that used in 1883–84 was a French A of 435 vibrations. The standard French pitch of the New-England conservatory of music is a middle C, a *true* sixth below the normal A, hence of 261 vibrations. Owing to the difference between the true and tempered sixths, the C-fork used with the orchestra which has A for its standard does not agree with this. Chickering and Miller have had C standard forks made which are a *tempered* sixth below the French A, making 258.7 vibrations, and which could therefore be used with the orchestra which has A for a standard. Thomas's present pitch is an A a little sharper than the French A. Comparing the highest New-York pitch given above with the standard in Handel's time, when the C-fork had 249.6 vibrations, the difficulty of singing some old music is readily understood. —— Mr. A. P. Browne explained the Deerfoot safety milk-can, by which the introduction of any adulterating substance into the can is rendered impossible, while the thorough mixing of the milk and cream is insured every time any milk is drawn out.

NOTES AND NEWS.

SEVERAL members of the New-York legislature, from the western part of the state, a year ago called the attention of their state board of health to the necessity of draining certain large, swampy, and miasmatic lands that lie in a shallow trough on the back of the hard Niagara limestone between Rochester and Niagara. In response to their memorial, Mr. Gardiner, director of the state survey, was requested by the board of health to make an accurate topographical map of the district, and to report upon a plan by which it could be drained; and accordingly sur-

veys were actively carried on last summer, with a result now presented in Mr. Gardiner's 'Report on the drainage of the Tonawanda and Oak-Orchard Swamps,' in the fourth annual report of the board of health, just issued. The two swamps are connected, but only the latter or eastward one was thoroughly examined. It is long and narrow, with irregular margins, covering an area of twenty-three thousand acres. Although nearly level, it has a sufficient slope for drainage from the sides towards the middle, and from east to west following the creek, which leaves it at the western end; but, on account of the resistance of the hard limestone over which the outlet flows, it has failed, as yet, to cut a passage deep enough to dry the ground, or wide enough to discharge the spring rains and melting snow. The report contains valuable discussions of the rainfall of western New York, of the ratio between rainfall and stream-discharge (taken largely from the invaluable reports on the Cochituate and Sudbury water-supplies for Boston), and of the proper size and slope for discharge-channels: it is accompanied by maps and sections. If legislators in other states, contemplating the advisability of establishing a survey of their domains, would examine p. 3 of this report, they would find the encouraging statement that it is "necessary to secure, as a basis for any adequate plans and propositions for successful drainage, *an accurate topographical map.*"

— The organization of the Yale college observatory is now proceeding quietly. The control of the observatory will come directly under the corporation, the old board of managers being abolished. The bureaus of horology and thermometry, on account of their outside relations, will be placed on a business basis.

— The American institute of electrical engineers, recently organized in New York, consists of members, honorary members, and associates. Members and honorary members are professional electricians and electrical engineers. Associates include persons practically engaged in electrical enterprises, and all suitable persons desirous of being connected with the institute. All members and associates are equally entitled to the privileges of membership.

At the meeting, May 13, officers were elected as follows: president, Norvin Green; vice-presidents, A. Graham Bell, Charles T. Cross, Thomas A. Edison, George A. Hamilton, Charles H. Haskins, Frank L. Pope; managers, Charles F. Brush, William H. Eckert, Stephen D. Field, Elisha Gray, Edwin J. Houston, G. L. Hillings, Frank W. Jones, George B. Prescott, W. W. Smith, W. P. Trowbridge, Theodore N. Vail, Edward Weston; treasurer, Rowland R. Hazard; secretary, Nathaniel S. Keith. —— A letter was read from C. J. Kintner, of the patent office, deprecating the large surplus turned into the U. S. treasury each year by the office, especially in view of the press of new inventions, which, in the electrical department, are now four months behind. —— Resolutions were passed, pledging the influence of the institute "to prevent any restriction of the rights and privileges of inventors, as they now exist under the laws, and that the institute of electrical engineers earnestly desires the passage of Senator Platt's bill, or its equivalent, in order that the work of the patent office may be put on a more efficient footing." —— Mr. Isaac Trumbo of San Francisco made some remarks on the state of electric lighting on the Pacific slope, and stated that he had been investigating various systems of lighting for use in the west.

— The sixteenth and seventeenth annual reports of the trustees of the Peabody museum have just been published in one volume. The curator, Prof. Fred. W. Putnam, gives the results of his important discoveries, made in 1882 and 1883, in certain mounds in Madisonville, in the Little Miami valley, Ohio, as well as of the explorations of others in Tennessee and Wisconsin, and of shell-heaps upon the coast of Maine. The Madisonville mounds have disclosed the interesting fact, that their builders made use to a limited extent of meteoric iron for the manufacture of ornaments, as is proved by the careful analysis given by Dr. Kinnicutt. Of even greater interest is the discovery of a series of pits, provided with flues, which appear to have been employed for the purposes of cremation, although Miss Fletcher has suggested the possibility that they were caches for storing valuables, which could be burned when liable to be captured by enemies. Mr. Putnam makes an almost passionate appeal to the patriotism of the American people for the preservation of the more important of the fast-disappearing relics of the remote past of their country. These reports are enriched by five most valuable papers by Miss Alice Fletcher, giving complete and heretofore unknown information in regard to the religious belief and the ceremonial observances of different Indian tribes. Mr. Carr has added an exhaustive examination of the social and political position of woman among the Iroquois, establishing incontestably the preponderating influence wielded by her. There is also a thoroughly scientific study by Miss Studley, with complete tables of measurements, of the osteology of human remains brought by Dr. Palmer from four caves in Coahuila, Mex. Lastly, Dr. Barrett has given interesting notes of his observations of numerous instances of dental disease occurring in ancient crania of the extensive collections of the museum. We regret that we have not space to give such an account as they merit, of these reports, which equal, if they do not surpass, in importance, any of the valuable contributions which Mr. Putnam has made to our knowledge of American antiquities.

— The summer course in botany, from July 7 to Aug. 16, at the botanic garden of Harvard university, Cambridge, Mass., will be given by Professor Trelease, of the University of Wisconsin. This course of lectures is designed to present, in a familiar way, the more important principles of botany of flowering plants. The elements of morphology, microscopic anatomy, and physiology of plants will be illustrated in the lecture-room by living specimens, by demonstrations and experiments. Laboratory work of two kinds will be provided, — 1°, for beginners; 2°, a course of laboratory practice for advanced students, comprising demonstrations in microscopic anatomy

and development, special attention being given to the study of cryptogams. The fees for lectures and laboratory practice will be twenty-five dollars. Applications for places in the laboratories should be made to Prof. G. L. Goodale, Cambridge, before July 6.

— Old Providence Island, recently visited by the U. S. fish-commission steamer Albatross, was in old times the favorite resort of buccaneers; and the ruins of their fortifications, even some of their ancient cannon, are still to be seen. A glance at the beautiful little harbor of Catalina and its surroundings reveals the wisdom of its selection as a rendezvous by the lawless freebooters. The island is entirely surrounded by dangerous reefs, the entrance to the harbor being narrow, somewhat tortuous, and commanded by their batteries on shore. Ample supplies of wood, water, fresh meats, fruit, and vegetables, could be procured from the inhabitants, with whom they made it a point to be on friendly terms. Its location near to, but outside, the great routes of commerce, made it particularly valuable for their purposes.

The island belongs to the United States of Colombia, and has a population of about eight hundred, the Indian blood predominating; but there is a large African element. The English language is universally spoken, and the Protestant religion is the only one professed by the people. Schools are maintained, and it is the exception when a native is unable to read and write. The climate during the dry season, from November to May, is tempered by the trade-winds, which blow constantly, and is probably unexcelled by that of any island in the West Indies. There is no physician on the island, and the lack of proper medical attendance causes great suffering among the inhabitants. Dr. Herndon had a room fitted up on shore, and gave his whole time to the sick who came or were brought to him, the ship furnishing such medicines as could be spared.

As soon as they anchored, an officer was sent on shore to call on the magistrate, and to inform him of the mission of the Albatross. He received the officer very cordially, and offered every assistance in his power. The naturalists commenced work at once, and succeeded in making a very creditable collection. A large variety of fish was procured for specimens, and an ample supply for officers and crew was caught with the seine. Fresh beef, poultry, sweet-potatoes, yams, and fruit were plentiful at fair prices. Tortoise-shell and cocoanuts are articles of export.

— The German foreign office means to send a commissioner to the west coast of Africa, on whose report it will depend whether a German man-of-war shall be stationed in those waters, or not. Dr. Nachtigall, the German consul in Tunis, has been intrusted with this mission. He will be accompanied by Dr. Büchner, the explorer, and by a member of the German embassy in London. The gunboat Möwe has been sent there to supersede the corvette Sophie.

— The German government has awarded 135,000 marks to Dr. Koch for his services on the International cholera commission.

— The German iron and steel industry society is publishing an illustrated work on the uses of iron and steel in the building-trade, giving full directions for any workman to apply for himself. The expenses will amount to £1,750, and the members of the society call upon all interested in the iron-trade to contribute towards them.

— From *Nature* we learn that the electrical congress of 1884 adjourned, after deciding on the standard value of the ohm as satisfactorily as may be at present. It must, however, be considered as little short of disappointing, that no better standard of light could be suggested than that emitted from a square centimetre of platinum at the temperature of fusion; and in requesting that "the results of observations (of earth-currents) collected by the various administrations be sent each year to the International bureau of telegraph administration at Berne," the committee simply stated that they had nothing to report. M. Mascart grouped the results of ohm determination in the following useful table: —

Methods.	Experimenters.	Column of mercury in centimetres.
1. B. A.	British Association	104.83
	Rayleigh-Schuster	106.00
	Rayleigh (1882)	106.27
	H. Weber	106.16
2. Weber (I.)	Kohlrausch	105.81
	Wiedemann	106.19
	Mascart	106.33
3. Kirchhoff	F. Weber	105.02
	Rowland	105.79
	Glazebrook	106.29
	Mascart	106.33
4.	Rôiti	105.90
5.	Fr. Weber	105.33
6. Lorenz	Lorenz (first)	107.10
	Rayleigh	106.24
	Lenz	106.13
	Lorenz (second)	106.19
7. Weber (II.)	Dorn	105.46
	Fr. Weber	105.26
	Wild	105.68
	Baille	105.37
8. Heat	Joule	106.22

From this it appears that the figures obtained by the different methods were —

B.A.	106.21
Weber's (I.)	106.14
Kirchhoff's	105.93
Lorenz	106.19
Weber's (II.)	105.47
Joule	106.22

the mean of which was 106.02; but 106 was taken as a round figure, sufficiently near the truth for all practical and useful purposes: hence the congress decided that "the legal ohm should be the resistance of a column of mercury of one square millimetre section, and of 106 cm. of length at the temperature of freezing."

— Among those granted prizes this year by the French academy were, in geometry, Emile Barbier; in mechanics, Marcel Desprez; for his experiments

on electric transmission of power, in astronomy, Bouquet de la Grye, de Bernardières, Courcelle-Seneuil, Fleuriais, Hatt, Perrotin, Bassot, Bigourdan, and Callandreau, for their observations of the transit of Venus in 1882; Stephan, the Vally prize; in physics, Henri Becquerel; in chemistry, Etard and L. Cailletet, for his researches on the liquefaction of gases; in geology, Fontannes for his work on the basin of the Rhone, and Péron for his account of the geology of Algeria; in botany, Joannès Chatin for his studies of trichina, and G. Bonnier, L. Mangin, Klein, Ch. Maguier, Costantin; in physiology, Paul Regnard, and Balbiani; in aeronautics, Gaston Tissandier, Duroy de Bruignac, and V. Tatin.

— The following resolutions were passed at the Ornithological congress of Vienna: 1°. The chase, capture, and trade of birds of passage and their eggs should be forbidden during the second half of the winter and in the spring; 2°. All wholesale capture of birds of passage, and trade in them, should be forbidden, except during the hunting-season.

Dr. Karl Russ of Berlin received the highest honor diploma of the congress, for his works on bird-keeping, canaries, parrots, and his journal called the *Feathered world.*

— Parts xxvi. and xxvii. of Bütschli's 'Protozoa' have just appeared, and nearly complete the Flagellata. Kent's unsatisfactory classification is set aside for a new and more scientific system. Nearly two hundred species are known, divided into a hundred and ten genera. Bütschli reduces the number of genera, which might otherwise soon exceed the species, and establishes the following sub-orders: Monadina, Englenoidina, Heteromastigoda, and Isomastigoda. Although the work was originally planned to be complete in fifteen parts, and twenty-seven have already appeared, the Infusoria, and the general chapter on the Protozoa, are still to come.

— The *Illustrirte zeitung* states that the recommendations of the German cholera commission are being put in force at Hyderabad, especially with reference to the water-supply; the reform being hastened by the young Nizam having an attack of cholera.

— The death of Dr. Paul Pogge, the celebrated African traveller, is a loss to the German-African exploration society. He started from Loanda with Lieut. Wissmann; from Nyangure, on the Kongo, he returned, sending his companion to Zanzibar; from Loanda he meant to start on fresh explorations, but died.

— The last (fifth) report of the Archaeological institute of America is principally occupied with an account of the explorations, carried on for the society last year by Mr. Bandelier, in New Mexico and Arizona. An excellent map illustrates his various routes; and, in an extended report, he gives the conclusions he has drawn mainly from his architectural studies, of the different ruins investigated. He finds a well-defined system of growth from the temporary Indian lodge, to the many-storied pueblo building, which clearly does not owe its origin to any external influence. Mr. Bandelier is now in the mountains of northern Mexico, seeking for traces of any possible connection between the ancient Pueblos and the Aztecs; and it is announced that the report of his important studies in Mexico, in 1881, at Cholula and at Mitla, is nearly ready for publication.

Of the work in classical archeology, carried on by the institute, an account is given of the conclusion of the explorations at Assos, in Asia Minor, owing to the expiration of the three years' firman granted for that purpose. The main efforts of the past year have been expended upon the Agora and the Necropolis. A fair division of the objects discovered was arranged with the agent of the Turkish government; and two fine bas-reliefs from the temple of Athena, the human-legged centaurs and the heraldic sphinxes, have been received by the Museum of fine arts in Boston. Mr. Clarke is now in London, preparing a complete report of the explorations. The total cost of this expedition, so important for the knowledge of classical antiquity, and so honorable to American scholarship, has been a little more than nineteen thousand dollars. Appended is the third annual report of the committee on the American school of classical studies at Athens.

— Ostrich-farming is a new business, unknown till the English colonies of South Africa realized such wonderful results. We have already given some statistics of their enormous increase. The ostrich lays a minimum of forty, a maximum of sixty, eggs in a season, weighing about three pounds each, and which are laid in the sand, and left to hatch in the hot regions; but in cooler regions the male and female birds sit on the nest by turns, defending it with great courage. Forty days is the time for incubation. Since the importation of domestic ostriches into the United States, the South African farmers have become fearful of losing their great profits in case of a successful competition springing up.

— The *Academy* announces the death of Señor Don Eulogio Jimenez of the observatory at Madrid, one of the first mathematicians of Spain, and author of '*La teoria de los numeros*' and many educational works on mathematics, both original and translated.

— A coal-steamer, the Loch Garry, has left St. John's with five hundred tons of coal for the Greely search party, and materials for a house; these supplies to be landed on Littleton Island. The Bear got away from St. John's before any of the whaling-fleet, except the Norwhal, a slow vessel. The Thetis will convoy the coal-steamer as far as possible; and, in case of separation, they are to meet at Disco.

— The French association for the advancement of science will hold its thirtieth meeting in the town of Blois, from Sept. 4 to 11.

— The Franklin institute wishes to make a loan-collection of pieces of electrical apparatus of historic interest, one feature of the approaching electrical exhibition, and has issued a call to those having such pieces to send them to Philadelphia, where the proper care is guaranteed. Edwin J. Houston is the chairman of the committee on the historical electrical apparatus.