the state, with Greylock, our highest mountain mass. Contours will be shown twenty feet apart, and bring out in fine relief the bolder slopes of this part of the state. Y.

Boston, June 1.

NOTES AND NEWS.

THE Imperial university of Japan (Teikoku-Daigaku), founded by imperial decree of March 1, 1886, includes the two institutions formerly known as the Tōkyō university (Tōkyō Daigaku) and the Imperial college of engineering (Kobu-Daigakko), these institutions having ceased to exist. The university comprises five colleges, each with its own director; and at its head is the president, Hiromoto Watanabe. The secretary is Kiuichiro Nagai. The directors of the different colleges are: College of law (Hōka-Daigaku), the president (*ex officio*); College of medicine (Ika-Daigaku), Prof. Hiizu Miyake; College of engineering (Kōka-Daigaku), (acting) Prof. Dairoku Kikuchi, M.A. (Cantab.); College of literature (Bunka-Daigaku), Prof. Masakazu Toyama; College of science (Rika-Daigaku), Prof. Dairoku Kikuchi, M.A. (Cantab.). All communications to the Imperial university, whether on its own behalf or as the representative of the two above-mentioned institutions now defunct, should be addressed to the president; communications to the colleges, to the director of each college.

— Dr. Charles Upham Shepard, well known for his collections in mineralogy, died at Charleston, May 1. For a considerable portion of his life he was identified with the South Carolina medical college, and aided greatly in giving that institution an honorable standing. He was also connected with Amherst college; and to this college he gave his vast collection of minerals, which was unfortunately destroyed in 1880.

— A note from Dr. Hyde of Honolulu, to the *Missionary herald* for June, reports that "news has just come that on March 6 the bottom fell out of the volcano, and that Kilauea is now only a black hole in the ground; no lava, no fire, to be seen. But such phenomena have been seen before; and the wonderful crater may fill up again, and be active once more. There were forty-nine earthquakes on the island of Hawaii at the time, and probably some new vent opened for the subterranean fires."

— The house committee on commerce has reported favorably the bill providing for an expert commission to visit Mexico, Brazil, Cuba, and the Central American states for the purpose of investigating the merits of the methods pursued by Drs. Freire and Carmona for the prevention of yellow-fever by inoculation. In their report the committee say, "Dr. Carmona states, that in one series of observations during the prevalence of yellow-fever, of three hundred and eighty persons protected by inoculation, less than three per cent contracted the disease; while under the same circumstances, of one hundred and seventy-five persons not inoculated, thirty-two per cent were seized with it. He also states that seventy-six inoculated soldiers marching from Vera Cruz to Acayucan were joined by a soldier who had not been inoculated. Upon their arrival at the latter place, the unprotected soldier was seized with yellow-fever, and died, while no case of the disease occurred among his seventy-six comrades. Other facts of a similar character are related by Drs. Carmona and Freire, which certainly tend very strongly to show the success of this preventive treatment. It is therefore important that further scientific observations and experiments should be instituted in order to establish beyond controversy the facts relating to this subject, so vital to the interests of sanitary science, commerce, and humanity."

— The following assignments have been made in the topographical department of the geological survey: Mr. Mark Kerr is in Oregon; Prof. A. H. Thompson is in charge of the western division, with headquarters at San Francisco; Mr. Renshaw will be sent to Kansas and Missouri this week; and Mr. Richard Goode will go to Texas.

— The announcement of the death of Von Ranke was succeeded by that of George Waitz, one of his most painstaking and industrious pupils. Professor Waitz was born at Flensberg in 1813. He became professor of history at the University of Kiel in 1842, in 1848 he was a member of the Frankfort assembly, and in 1849 he was called to Göttingen. Waitz succeeded Pertz as editor of the 'Monumenta Germaniae historica,' and in connection with this work he has achieved a considerable reputation. His most important writings are, 'Deutsche verfassungs-geschichte' (2d ed., 1865, 4 vols.), Schleswig-Holstein geschichte' (1851-54, 2 vols.), 'Grundzüge der politik' (1862), and 'Die formeln der deutschen königs- und der römischen kaiserkrönung vom 10 bis zum 10 jahrhundert.' Of late years Professor Waitz has resided in Berlin.

— Pending the action of the appropriation committee, no instructions can be issued by the coast survey to continue work after June 30. As soon as the appropriations are available, preparations will be made to organize parties for field-work after July 1.

— Mr. R. M. Bache has been ordered by the coast survey to continue the topographical work on the south-east shore of Staten Island, and on the south side of Raritan Bay towards Sandy Hook ; Mr. F. W. Perkins is daily expected from his field-operations on the coast of Louisiana.

—Velhagen & Klasing (Leipzig) have begun the publication, in twelve monthly parts, of a new edition of Andree's 'Allgemeiner handatlas.' It will contain a hundred and twenty maps.

— The following works of interest to scientific readers have been lately announced : 'Earthquakes and other earth movements,' by John Milne (New York, *Appleton*) ; 'A manual of mechanics,' by T. M. Gordon (New York, *Appleton*) ; a work on the labor question in America, by Professor Ely (New York, *Crowell*) ; 'Photo-engraving processes,' by A. F. W. Leslie (New York, *Fuchs & Lang*) ; 'The flow of water through pipes and open conduits and from weirs and orifices,' by H. Smith, jun. (London, *Trübner*) ; 'The world as will and idea,' vols. ii. and iii., by A. Schopenhauer. tr. by R. B. Haldane and J. Kemp (London, *Trübner*) ; 'The Indian empire : its history, people, and products,' by W. W. Hunter (London, *Trübner*).

LETTERS TO THE EDITOR.

**** Correspondents are requested to be as brief as possible. The writer's name is in all cases required as proof of good faith.*

A national zoological garden.

IN 1870 an act of incorporation was passed, establishing a zoölogical society in Washington ; but during the last sixteen years little or nothing has been done towards carrying out what the charter of this society provides for, or taking any steps in the direction of putting into effect the chief objects such an organization would have in view.

We learn from *Science* (vii. No. 160) that the public-spirited and venerable exhibiter of animals, Mr. P. T. Barnum, now comes forward and says, that, if congress will grant him thirty acres of the reclaimed flats on the Washington side of the Potomac River, he will expend the generous sum of two hundred thousand dollars in starting a national zoölogical garden.

Now, the eastern extension of these flats is not far from the Smithsonian grounds, and, taking every thing else into consideration, there is probably not a better site in this country for this particular purpose. The incalculable advantages that would be the outcome of such an establishment can be easily appreciated ; and it is only to be hoped that at an early day congress will take Mr. Barnum's proposition into favorable consideration.

Few institutions in any country afford better educational advantages than a large, well-kept, and well-managed zoölogical garden. No better proof of this can be brought forward than the report of Mr. P. L. Sclater, F.R.S., secretary of the Zoölogical society of London, for the year ending 1885. Mr. Sclater tells us that during the year quoted, 659,896 persons visited the gardens, and that the receipts of the society amounted to the extraordinary sum of £25,809 10s 1d ; while during the previous year 745,460 persons visited the gardens, and the receipts were proportionately greater ; in fact, £3,129 more.

Many of the larger animals in this country are now rapidly disappearing from off the face of the earth, — notably the bison, the elk, and moose, —while numbers of the smaller representatives of our splendid mammalian and avi-fauna are unfamiliar to the eyes of the vast majority of the people of this country, from the simple fact that we are so poor in institutions where the living specimens can be put on exhibition.

Mr. F. W. True, curator of the department of mammals in the Smithsonian institution, points out in *Science* (vii. No. 171) another deplorable neglect, which unfortunately we are likewise guilty of, and which the establishment of a zoölogical society in Washington would do much towards rectifying. With the disappearance of our larger animals and other vertebrates, the opportunities are forever being placed beyond our reach, to intimately know about the anatomical structure of these very forms. In regard to this, anatomists are too apt to say something like this : "Oh, yes ! a prairie dog ; no doubt its organization is very much like the squirrel's, and will not repay exhaustive examination." Now, I say that these related and interrelated types are the very ones that will repay the most exhaustive research.

A competent prosector attached to our zoölogical garden — one who combined the qualities of an artist, an author, and a general anatomist — would soon demonstrate the high importance of his work, and contribute the most efficient aid to animal taxonomy. The brilliant productions of Garrod and Forbes, in the Proceedings of the Zoölogical society of London, speak volumes in favor of this advantage.

A share of the pecuniary receipts that would accrue from such an establishment could be set aside to meet the expenses following the publication of handsomely illustrated memoirs, giving large colored plates of the rarer acquisitions to the gardens, and the investigations of the prosector into the structure of such animals as died from time to time, and thus fell into his hands. We have long felt, in this country, the need of just some such standard publication as the excellently conducted Proceedings of the Zoölogical society of London ; and this would certainly be realized, and follow as one of the natural results pending the establishment of our national zoölogical garden. R. W. SHUFELDT.

Fort Wingate, N. Mex., May 26.

Scent-organs in some bombycid moths.

At intervals during the past year or two, isolated observations have been made of peculiar filamentary processes protruding from the abdomen of the male of some of our common bombycids, Leucarctia acraea and Scepsis fulvicollis being the observed species. Not long since, I described a peculiar abdominal character in the male of Cosmosoma omphale ; and the recent capture and examination of specimens of Leucarctia acraea has enabled me to add something to the knowledge of the structure in that species. Between the seventh and eighth ventral segments is a narrow opening, entirely invisible in the dried insect, but readily discerned on a