A European agency was also established for the collection of statistics indicating the prospective European demand for American grains and meats. The agency is in charge of Mr. Edmund J. Moffatt, and its headquarters are at the office of the consul-general at London. The results of this widening of the scope of the statistical division have already proved highly satisfactory.

Meeting of agriculturists. — Commissioner Loring has issued another call for a series of meetings of prominent agriculturists at the department at Washington, commencing Jan. 23. The subjects announced for discussion were: agricultural colleges and their work, the animal industries of the country, and the cotton crop and its relation to agriculture in the cotton States.

National experiment stations. — A bill is now before Congress, introduced by Representative Carpenter of Iowa, providing for the establishment of national experiment stations in connection with the agricultural colleges of the different States, and under the control of the department. An annual appropriation of $15,000 for each station is provided for, to be expended in salaries and the expenses of experiments. The bill has received the indorsement of Commissioner Loring, and is considered the soundest and most practical scheme in the way of agricultural legislation which has been brought before Congress since the agricultural college land grant of 1862. Small as the appropriation is, it will give a much-needed stimulus to the work of some of our smaller agricultural colleges, especially in the south.

Sorghum. — Since 1877, the efforts of the department to prove the possibility of profitable sugar-making from sorghum have attracted much attention throughout the country, and been variously commented on by the agricultural press. Some time since, the results of the investigations of Professor Collier, chemist of the department, were submitted to the National academy of sciences for an opinion as to their value. The report of the committee of the academy, first made, was withdrawn for revision on the 21st of last July, and returned to the commissioner on the 15th of November, when an abstract was given to the daily press. The entire report will be published as a special document. Realizing the fact that the results of the mill-work at Washington during the two previous years had been discouraging, Dr. Loring devoted the congressional appropriation for the continuance of experiments in 1883 to the remuneration of the successful manufacturers throughout the country, for operations conducted under his direction. In this way a great amount of practical experience from different sections has been obtained, and will soon be published in a special report. This course was heartily indorsed by the Cane-growers' association of the Mississippi valley at its recent annual meeting in St. Louis, and before which the commissioner delivered an address, in which he reviewed the whole subject of sorghum sugar-making, and urged that the effort to establish so important an industry as the production of sugar in the Northern States should be conducted with the same judgment, patience, and perseverance as have been applied to the great industries already established.

PUBLIC AND PRIVATE INSTITUTIONS.

Museum of comparative zoology, Cambridge, Mass.

Selections from embryological monographs. — One of the last numbers of the memoirs of the museum contains the first of a series of Selections from embryological monographs, compiled by Alexander Agassiz, Walter Faxon, and E. L. Mark. The object of these selections is to give to the student in an easily accessible form a more or less complete iconography of the embryology of each group of the animal kingdom. This selection is not intended as a handbook, but rather as an atlas to accompany any general work on the subject. The plates will be issued in parts, each part covering a somewhat limited field. The quarto illustrations are accompanied by a carefully prepared explanation of the plates, and by a bibliography in octavo, to be made as complete as possible.

The first part, Crustacea, is by Mr. Faxon. It consists of fourteen plates and twenty-eight pages of explanatory matter. The source from which each figure is taken is invariably indicated, while a general heading for the principal groups treated gives a list of the authors whose figures have been copied. A number of unpublished original drawings by Mr. Agassiz have been incorporated wherever they supplement published material.

We may form some idea of the activity of the different nations in the field of morphology by stating that these illustrations were copied from the memoirs of nine Germans, five Americans, four Russians and as many English, of three Scandinavians, two Belgians, one Dutchman, and one Frenchman; the importance of the contributions is also fairly represented in the above enumeration.

Dr. A. S. Packard, jun., and Dr. J. W. Fewkes, will assist the editors of the 'selections' in the preparation of the Insects and Acalephae. The second number of the bibliography, Echinodermata, by Alexander Agassiz, has been issued as No. 2 of vol. x. of the museum bulletin; the illustrations of that part will be published during the coming summer.

Academy of natural sciences, Philadelphia, Penn.

The Vaux gift. — Arrangements are being made for the reception and arrangement of the fine collections of minerals and antiquities belonging to the late William S. Vaux. The gift includes a sufficient endowment to provide for the appointment of a special curator and for the annual increase of both collections by purchase of specimens.

Professor A. Heilprin began a course of twenty-five lectures on physiography and paleontology, on Jan. 12, to be given on the successive Tuesdays and Fridays of each week. The lectures involve the consideration of the following general subjects: The rock masses of the earth's crust; present and past climates; wind and currents; geographical and geological distribution of animals; and the succession of life on the globe.

At the close of Professor Heilprin's lectures, Professor H. Carvill Lewis will deliver a course on mineralogy and lithology, a large portion of which will consist of a series of field-lectures upon the mineralogy and lithology of Philadelphia and vicinity, of which a fuller account will be given in a future issue. Similar courses delivered last year by Professors Heilprin and Lewis were well attended, principally by teachers in the colleges and higher schools of the city.

NOTES AND NEWS.

— A telegram from London, Jan. 17, informs us that Mr. George H. Darwin has been elected professor of astronomy and experimental philosophy in the University of Cambridge. Professor Darwin is a son of the late Charles R. Darwin, and, until very recently, has been a Fellow of Trinity College. Al-

though a young man, he has been for several years a Fellow of the Royal society, and has attained a world-wide reputation for his investigations in celestial mechanics.

Professor Darwin's more important papers are: On the influence of geological changes in the earth's axis of rotation; — On the bodily tides of viscous and semi-elastic spheroids, etc.; — On the precession of a viscous spheroid, etc.; — Problems connected with the tides of a viscous spheroid; — On the tidal friction of a planet attended by several satellites, etc.; — On the secular changes in the elements of the orbit of a satellite, etc.; — On the stresses caused in the interior of the earth by the weight of continents and mountains. These papers are all contained in the Philosophical transactions of the Royal society between the years 1876–82. Professor Darwin has also published many other papers on the above and cognate subjects, which are to be found in various scientific publications. One of his latest papers is the Report of the British association committee appointed for the measurement of the lunar disturbance of gravity; and on another page of this issue will be found a full analysis of a still more recent essay.

Professor Darwin's friends, both in America and England, must feel that the University of Cambridge has honored itself as much as it has honored him in appointing him to this high position, as his scientific ability and acquirements in the particular line of work to which he has chosen to devote himself rank second to those of no one living. American students who have had the pleasure of meeting Professor Darwin in Cambridge cannot help feeling a decided pleasure in hearing of his elevation when they recall his uniform kindness and generous hospitality.

— We regret to announce the death of the Rev. Titus Coan, whose contributions to our knowledge of the volcanic outbreaks of Mauna Loa are well known. Born at Killingworth, Conn., in 1801, he was sent in 1833 by the American board of commissioners for foreign missions to explore Patagonia, and, in the next year, as a missionary to the Hawaiian Islands, where for nearly half a century he has been a faithful and beloved pastor. In his mission district on Hawaii is the largest active volcano in the world; and its two craters, Mokuaweoweo and Kilauea, were carefully watched and studied by him. The wild path of his quarterly tours led along the brink of Kilauea, and no man knew more of its condition than he. From the flanks of Mauna Loa came many important lava-flows; the latest, in 1881, after a course of more than thirty miles, came within a mile of his doorway; earthquakes rocked his house in Hilo; seaquake waves swept his shores; landslides destroyed his people and their cattle. In the midst of these phenomena he carefully observed and recorded; and his reports published in various scientific periodicals (especially in the American journal of science), as well as in the Missionary herald, contain most vivid and accurate accounts of Hawaiian volcanic action. Every explorer of these islands has been welcomed to his beautiful home, and greatly assisted; and all have parted from him as from a wise and good friend they hoped again to meet. Healthful all his life, he died of old age on the 1st of last December. His Adventures in Patagonia, published a few years since, and his Life in Hawaii, 1835–1881, contain the modest story of his life, at once wise, useful, philanthropic, and religious. A memorial meeting was to be held at Hilo, on his birthday, Feb. 1.

— The annual election of the Academy of natural sciences of Philadelphia was held on Dec. 26 last, and resulted as follows: President, Jos. Leidy, M.D.; Vice-Presidents, Thomas Meehan and Rev. Henry C. McCook; Recording Secretary and Librarian, Edw. J. Nolan, M.D.; Corresponding Secretary, George H. Horn, M.D.; Treasurer, William C. Henszey; Curators, Jos. Leidy, M.D., Charles F. Parker, Jacob Binder, and W. S. W. Ruschenberger, M.D.; Councillors to serve three years, Thomas A. Robinson, Edw. Potts, Isaac C. Martindale, Theo. D. Rand.

The annual reports of the officers and sections, which were read, indicated that the society, during the past year, has been in a condition of unusual prosperity.

— The Anthropological society of Washington held its annual election Jan. 16, with the following result: President, Col. Garrick Mallery, U.S.A.; Vice-presidents, Dr. Robert Fletcher, President J. C. Welling, Major J. W. Powell, and Professor Otis T. Mason; General Secretary, Dr. W. J. Hoffman; Corresponding Secretary, Col. F. A. Seely; Treasurer, Professor J. Howard Gore; Curator, Col. C. C. Royce; Council at large, Professor L. F. Ward, Mr. G. K. Gilbert, Dr. A. F. A. King, Professor E. A. Fay, Mr. H. W. Henshaw, and Mr. David Hutcheson. Major Powell retires from the presidency after four years service.

— At its general meeting, Jan. 6, the Brooklyn entomological society elected the Rev. G. D. Hulst, president; F. G. Schaupp, secretary; Charles Fuchs, treasurer; and J. B. Smith, curator.

— The young folks' course of four scientific lectures, given in Washington at the National museum, under the auspices of the biological and anthropological societies, was successfully brought to a conclusion on Jan. 6. The attendance throughout was good. It was the first course of the kind attempted in Washington for many years.

The second course of free Saturday lectures, inaugurated last year under the same auspices, was opened on the 13th inst. Twelve lectures will be given. The schedule for the first half of the course is as follows: —

Jan. 13, Capt. Clarence E. Dutton U. S. A., On rivers; Jan. 20, Professor Otis T. Mason, The races of men; Jan. 27, Mr. George Kennan, Mountains

and mountaineers of the Caucasus; Feb. 3, Dr. D. Webster Prentiss, Mesmerism in animals, with experiments; Feb. 10, Professor Theodore Gill, Mythical animals; Feb. 17, Dr. John S. Billings, U.S.A., Germs and epidemics.

— At the meeting of the Biological society of Washington, held Jan. 19, an address was given by the retiring president, Professor Theodore Gill, on the Principles of zoögeography.

— The Association of Ohio Colleges, during its meeting at Wooster, Dec. 27, formally adopted the resolutions of the American association for the advancement of science and the American philological association, concerning the degrees of S.D. and Ph.D. Henceforth the sixteen colleges comprising the association are in honor bound not to confer either degree, except upon examination.

— Diffuse but entertaining notes on the habits of Lepus sylvaticus are given by Rev. Samuel Lockwood in the December number of the American Naturalist.

RECENT BOOKS AND PAMPHLETS.

Ballard, R. The solution of the pyramid problem, or Pyramid discoveries; with a new theory as to their ancient use. N.Y. 1882. 8°.

Beal, W. J. The new botany: a lecture on the best method of teaching the science. *2d ed., revised.* Phila., *Marot.* 1882. 16 p. 8°.

Beard, George M. Herbert Spencer on American nervousness: a scientific coincidence. N.Y., *Putnam.* 1883. 17 p. 8°.

Brunner von Wattenwyl, Carl. Prodromus der europäischen orthopteren. Leipzig, *Engelmann.* 1882. 32 + 466 p., 11 pl., map. 8°.

Cambridge — Peabody museum of American archæology and ethnology. Fifteenth annual report of the trustees [and curator]. Cambridge, *Trustees.* 1882. [106 p.] 8°. Forms vol. iii., No. 2, of the reports.

Comstock, J. H. Report on insects for the year 1881; with illustrations. Wash., *Government.* 1882. 22 p., [7] pl. 8°.

Dames, W., *and* **Kayser**, E., *editors.* Palæontologische abhandlungen. ier bd. heft. 1. Struckmann, C. Neue beiträge zur kenntniss des oberen Jura und der waeldenbildungen der umgegend von Hannover.) Berlin, 1882. 4 pl. 4°.

Decante, E. Tables du cadran solaire azimutal pour tous les points situés entre les cercles polaires. Variation automatique, détermination instantanée du relèvement vrai, controle de la route. 2 vol. Paris. 1882. 8°.

Fletcher, Robert. On prehistoric trephining and cranial amulets. Wash., *Government.* 1882. 32 p., 9 pl. 4°.

Frayer, Persifor. Mémoire sur la géologie de la partie sud-est de la Pennsylvanie. Thèse présentée à la faculté des sciences de Lille. Lille, *Imp. Six-Horemans.* 1882. 179 p., 4 pl. 4°.

Geikie, Archibald. Text-book of geology. N.Y. *Macmillan.* 1882. 11+971 p. *ill.* 8°.

Harris, Edward Doubleday. Memoir of Thaddeus William Harris, M.D. Cambridge, *Wilson.* 14 p., chart. 8°.

Hoffer, E. Die hummeln Steiermarks. Lebensgeschichte und beschreibung derselben. i. hälfte. Graz. 1882. 8°. Plates.

International exhibition of electricity, Paris, 1881. Report of the sub-commission [Barker *and others*] on incandescent lamps. N.Y., *Burgoyne pr.* 1882. 28 p. 8°.

Laflamme, *l'abbe* J. C. K. Le Canada d'autrefois; esquisse géologique. Conférence donnée à l'Institut canadien de Quebec, durant l'hiver de 1882. *n.p.* 23 p. 8°.

Loew, O., u. **Bokorny**, T. Die chemische kraftquelle im lebenden protoplasma; theoretisch begründet und experimentell nachgewiesen. München. 1882. 8°.

London — Royal geographical society. Supplementary papers. Vol. i. pt. 1. (Travels and researches in western China ; by E. C. Baber.) London. 1882. 8°.

Mass. — Commissioners on inland fisheries. Seventeenth annual report for 1882. Boston, *State.* 1883. 58 p. 8°.

Maxwell, James Clerk. Life, with selections from his correspondence and occasional writings, and a sketch of his contributions to science; by Lewis Campbell and W. Garnett. N.Y., *Macmillan.* 1882. 16+662 p., 3 portr. & pl. 8°.

Minchin, G. M. Uniplanar kinematics of solids and fluids, with applications to the distribution and flow of electricity. N.Y., *Macmillan.* 1882. 8+266 p. 12°.

Princeton — College of New Jersey. Preliminary report upon the Princeton scientific expedition of 1882; by W. B. Scott and W. F. Magie. Princeton, *Robinson, pr.* 1882. 8 p. 8°.

Riley, C. V. Report of the entomologist of the Department of agriculture for the year ending June, 1882. Wash., *Government.* 1882. 167 p., 20 pl. 8°.

Scientific and literary gossip. Vol. 1, nos. 1–3. Boston, *Cassino.* 1882–1883. 16 p.*m.* 8°.

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Searles, W. H. The railroad spiral: the theory of the compound transition curve reduced to practical formulæ and rules for application in field-work. N.Y., *Wiley.* 1883. 12°.

Southwick, A. P. Question-book of botany with notes, queries, etc. Syracuse, *Bardeen.* 1882. 40 p. 16°.

Spencer, Herbert. Herbert Spencer on the Americans and the Americans on Herbert Spencer: a full report of his interview and of the proceedings at the farewell banquet of Nov. 9, 1882. N.Y., *Appleton.* 1883. 96 p. 12°.

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Taylor, W. B. Physics and occult qualities. An address before the philosophical society of Washington, Dec. 2, 1882. Washington, *Judd and Detweiler, pr.* 1882. 50 p. 8°.

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