account for the character of the contents of the pits, and the great number of the pits would indicate a long-continued occupation of the village.

Houghton Farm, Mountainville, N.Y.

*Soil-temperatures.* — During the past year observations upon soil-temperature were carried on by means of mercurial thermometers of special form, adjusted to slow action. It was sought, however, to overcome the inconveniences of their use, since they require to be drawn at each reading. Recourse was therefore had to an electrical thermometer, which is now in use, supplementary to, and in extension of, the mercurial thermometers, which will continue to be employed. The thermo-apparatus is really one of Becquerel's electrical thermometers, though some slight modifications have been introduced in the method of balancing the current. The apparatus, as now in use, may be described as follows: —

Couples are formed by soldering copper wires to the iron line-wire at such intervals as are required. These are then enclosed in an hermetically-sealed tube, filled with perfectly dry sand, free from iron, and brought to a common level above ground, where they are firmly connected with binding-screws. The cap carrying the binding-screws is of wood, three inches greater in diameter than the tube, and painted white to prevent any possibility of radiation from the latter. The tube is then planted in the soil, wherever needed, at the required depth, and such connection made with the office as may be desired. A duplicate set of couples, exactly like those in the tube, is provided in case a test is necessary. The wires are of the same size all the way through, and are No. 8 copper, insulated, and No. 8 telegraph wire. In the office a second couple of the copper and iron wires is carried down into a well of wood, having a diameter of one inch and a quarter inside, with walls of two inches thickness. This is provided with a stop-cock and overflow attachment. From a convenient support, immediately above the mouth of the well, depend a thermometer, the bulb of which is brought to the same level with the couple, and two glass tubes, which supply hot and cold water from reservoirs placed upon a shelf at convenient distance. A switch-board is introduced into the line of copper wire, while a very sensitive galvanometer is introduced into the line of iron wire. A deflection of the galvanometer-needle to the right or left is neutralized by balancing the current with the hot or cold water, as the case may require, and readings taken when the needle comes to zero. I believe this is the first attempt in this country to apply this apparatus to so extended use.

So far as observations have gone, the advantages which this instrument possesses over mercurial thermometers seem to be: 1. Greater accuracy; 2. Expedition; 3. Greater durability; 4. Personal comfort, and absence of those annoyances inseparably connected with an instrument which must be drawn from the ground in all kinds of weather, and at all times of day and night.

## *NOTES AND NEWS.*

Since the leading article of this issue was ready for the press, the circular issued by the council of the British association to its members has come to hand; and from this it would appear that the meeting in Montreal is regarded as substantially determined on, and that the time fixed for it will probably be the last week of August, or the first week of September, 1884.

— The director of the Illinois state laboratory of natural history, Dr. S. A. Forbes, to whose office that of the state entomologist was recently attached, has made a special report to the state board of education, in which he states that the field-work of the botanical and zoölogical survey of Illinois is substantially done, and recommends the immediate preparation and publication of systematic reports on the natural history of the state, having special reference to economic ends. He estimates four volumes as necessary to cover the zoölogy (exclusive of injurious insects) and cryptogamic botany. No additional appropriations appear to be asked for, but rather the diversion of the ordinary funds from field-work to publication. The board of education, which controls the laboratory in Illinois, was so appreciative of the excellent work which Dr. Forbes has been doing as to vote him $500 more than he asked. We wish Dr. Forbes success in his new departure, and shall anticipate volumes of unusual interest.

— Professor Weyenberg of Cordoba, who has written upon many branches of zoölogy since he has been in the Argentine Republic, is now engaged, also, in publishing a manual of histology in Spanish, under the title 'Principios histologicos.'

— Mr. Dörfluger, of the Milwaukee natural history society, has recently made a minute examination of the methods of installation and details of administration in the National museum, with a view of introducing the best features into the new museum to be established by the city of Milwaukee, upon the basis of the collections of the society. Mr. Dörfluger will visit the natural history museums in the larger eastern cities before returning to the west.

— Major-Gen. Pitt-Rivers, of the English army, has spent the most of his leisure in collecting the most valuable anthropological museum in the world, from one point of view. Discarding areas, races, and epochs, his aim has been to collect from all parts of the world the products and implements of human industry in such numbers and variety as to illustrate the evolution of art. Having offered this splendid collection to the university of Oxford on condition that they would erect a building adequate to contain and to display it properly, Gen. Pitt-Rivers has the satisfaction of knowing that the university authorities will comply with his request. The delegates of the museum have elected Dr. E. B. Tylor to be keeper of the collection.

— Under the title "Mittheilungen über die arbeiten der moor-versuchs-station in Bremen in den jahren 1877–1882 (von Dr. M. Fleischer)," the last number of the Landwirthschaftliche jahrbücher (xii., no. 192) contains an account of the founding of this station, which is devoted to the investigation of questions connected with the reclamation and cultivation

of the extensive moors of north-western Germany, and a summary of its work up to the present time. This is followed by five papers, in which some of its investigations are recounted in detail. The subjects of these papers are: a geographical description of the moors of north-western Germany and the Netherlands (by Lalfeld), the Kehdinger moor (by Virchow), the behavior of insoluble phosphates in moor-soils (by Fleischer), the influence of certain salts on the action of peat upon phosphates (by Kissling), materials for manuring and improving moors (by Fleischer). This is the first detailed account of the work of the station which has appeared.

— The *Franklin democrat* of Brookville, Ind., prints, March 1, an account of the work of the Brookville society of natural history for the year ending February, 1883, by the secretary, Amos W. Butler. The active members increased in that period from fifteen to twenty-six.

— The building of the ice-palace at Montreal this winter has recalled to notice (*Symon's monthly meteorological journal*, February) an account, by Prof. G. W. Kraft, of that built at St. Petersburg in 1740. The most remarkable part of Professor Kraft's statement is, that an ice-cannon was made, and that a bullet fired from it, with a charge of a quarter of a pound of powder, penetrated a plank two inches thick at a distance of fifty paces.

— An excellent *résumé* of the present condition of our knowledge of fossil insects, extending over more than thirty pages, is given by Charles Maurice in the Annales of the *Société géologique du Nord.*, vol. ix.

— The *Amateur naturalist* is the title of a miniature paper of four pages, published monthly at Germantown, Philadelphia, entirely by boys. Its fifth and sixth numbers contain a brief abstract of a lecture on the cobblestone, given by Dr. H. Carvill Lewis before the Leidy association on Dec. 6.

— Mr. J. H. Barth of Leipzig will issue an "*Internationale zeitschrift für allgemeine sprachwissenschaft*" in semi-annual parts, under the editorial care of F. Techmer. The staff includes such names as Lucien Adam, C. von der Gabelentz, A. S. Gatschet, R. Lepsius, F. A. March, Frederick Müller, Max Müller, G. Oppert, F. Pott, Leon de Rosny, A. H. Sayce, H. Steinthal, Jules Vinson, and William Dwight Whitney. The review is to be organ of no school, but will aim to foster real progress in every line of linguistic research. The subject will be presented in three aspects, — the anthropological, the psychological, and the historical. Under the first the whole range of ancillary sciences will be brought under contribution; such as the physiology and pathology of the vocal organs and the ear; the optical phenomena of writing, mimicry, gestures, and writing for the blind; and the relationship existing between speech and its transcription. Upon the psychological side will fall all questions of the relation of articulation, vocal sounds, roots, words, and syntax, to the science of mind. Finally, the history of philology will include both the phylogenetic development of language as a whole, and the ontological development of speech in each individual from infancy to maturity. If the weight of great names and a great undertaking will insure success, no doubt the Zeitschrift will become a permanent part of our linguistic literature.

— At a recent meeting of the Philadelphia academy of natural sciences, Prof. H. C. Lewis showed a supposed stone implement recently dug up in that city. It is described as an oblong rectangle in shape, sixteen and a half inches long, nearly four inches wide, and in thickness varying from a half-inch at the edge to one and a half inches at the centre. It is ground to a smooth cutting-edge at the two extremities. It is rectangular in section, the sides forming right angles with the faces. The sides are parallel with each other; but the faces are undulating surfaces, on one of which is a prominent longitudinal ridge an inch and a half in width. Each end of the implement appears to have been smoothly ground to form a square, even cutting-edge, an equal amount of grinding having been done on either side. The implement is as unusual in shape as it is in size. It is double the length of ordinary celts, and was possibly a lapstone of some kind. The implement, if such it should prove, would be the first that has been found in the Philadelphia gravel, and would be of great interest in its bearing upon the antiquity of man on the Delaware.

— Dr. D. W. Prentiss has been invited to deliver a course of lectures in connection with the department of materia medica of the National museum. The course will consist of eight lectures, and will be illustrated by specimens and other material from the collections.

— At a meeting of the Society of arts of the Massachusetts institute of technology, April 12, Mr. A. F. Hill presented a paper on the Crystallization of iron and steel, illustrated by specimens and photographs.

— At the meeting of the Biological society of Washington, April 13, the following communications were made: Prof. L. F. Ward, Hybrid oaks of the District of Columbia; Mr. B. F. Johnson, Observations on the climbing of snakes; Prof. C. V. Riley, Remarks on the bag-worm (Thyridopteryx ephemeraeformis); Mr. F. W. True, The tape-worm and other parasites in the eggs of the domestic fowl; Dr. Thomas Taylor, Living parasitic mites in the lungs, cavities, and tissue of domestic fowl; Mr. N. P. Scudder, The muskrat (Fiber zibethicus) in captivity.

— Prof. A. Hall, on taking the chair of the mathematical section of the Washington philosophical society, April 11, read a short address on the practical value of the higher mathematics. Mr. C. H. Kum-

mell gave an investigation of "Alignment curves on any surface, with special application to the ellipsoid."

— Mr. A. W. Cramer reports the capture of two specimens of Catocala unijuga Walk., last autumn, in mid-ocean off the coast of Newfoundland, on board a steamer bound for Europe.

— Prof. G. F. Wright, in the *Cleveland leader* of April 9, gives an account of his successful search for the continuation of the great terminal moraine across the Ohio River in Kentucky. The marks of glaciation disappeared suddenly, "almost exactly upon the line between Campbell and Pendleton counties."

— Prof. H. Carvill Lewis has reprinted his lecture before the Franklin institute on The great ice age in Pennsylvania, with a shaded map indicating the southern limit of the glaciated area from the Atlantic to the eastern border of Ohio.

— At the recent yearly meeting of the Brookville (Ind.) society of natural history, the following officers were elected: Rev. D. R. Moore, president; D. W. McKee, vice-president; Amos W. Butler, secretary; Edgar R. Quick, corresponding secretary.

— G. Pouchet of the Museum of natural history of Paris is soon to visit the Azores on a scientific excursion. The municipal council of Paris has voted eight thousand francs towards his expenses.

— P. Sacconi has established his station at Harrar, Somali-land, and has despatched two caravans to the coast. The town is a miserable place, and hyenas prowl about its streets at night. Sacconi plans to go on to the unvisited district of the Ogadin Somali.

— Consul O'Neill has received a grant from the Royal geographical society to aid his explorations from Mozambique toward the snowy mountains, reported on his last expedition. He will go up the Shire River, and return overland north-eastward to the coast.

— The Bengal administration report for 1881–82 states that the Calcutta zoölogical gardens are in a very flourishing condition. Two new buildings have been constructed through the generosity of Messrs. Ezra and Gubhoy, citizens of Calcutta. The number of visitors for the year was 120,749, being an average of 331 daily. The gardens are open upon Sunday.

— M. Fau intends soon to set out from Wargla, Algeria, for the Tuareg country, Hausa, and Timbuctu, following the line of Flatters's disastrous expedition.

— According to recent calculations by A. J. Skene, surveyor-general of Victoria, the area of Australia, as closely as it can now be determined, is 2,944,019 □ miles. This is nearly 30,000 less than the previous official estimates. The population according to the census of 1881 was 2,144,550, — an increase of 36.92 % in ten years.

— The name of Buckland revives the days of childhood and geology, as a chiming bell in a foreign land recalls to the traveller memories of home. The U. S. bureau of ethnology has received from Miss A. W. Buckland a bound volume containing her collected essays upon various subjects relating to the natural history of man, embracing: The first metallurgists (1875); The origin and development of man (1875); Early phases of civilization (1876); Primitive agriculture (1877); Stimulants among savages and among the ancients (1879); Mythological birds (1879); Cornish and prehistoric Irish monuments (1879); Rhabdomancy and belomancy (1879); Surgery and superstition in neolithic times (1881); Our anthropological museum (1877). Other essays are bound in the volume, but they are not purely anthropological.

— Dr. Koner's list of publications of all kinds referring to geography for the year ending November, 1882, fills one hundred and forty-four pages in the recent number of the *Zeitschr. f. erdkunde* of Berlin. Of these, the United States require only five; while Africa has eighteen, Asia twenty, and Europe thirty-five.

— At a recent meeting of the Northumberland and Durham medical society, several forms of electric-light apparatus, devised by Mr. J. B. Payne for the illumination of internal cavities, were shown. A Swan lamp not larger than a bean is used. A battery of two or three Grove cells is sufficient to render the carbon filament incandescent.

— Prof. H. W. Wiley, former occupant of the chair of chemistry in Purdue university, Lafayette, Ind., has just been appointed (April 9) to the position of chief chemist of the U. S. department of agriculture. Professor Wiley is a native of Indiana, and a graduate of Harvard. His standing as a chemist is high among scientific men; and his paper on the relation of science to the industries and arts, read last January at one of the conventions held in the department building, attracted much deserved attention. Mr. Collier, whom he supersedes, was also an excellent chemist; and his abrupt dismissal by the commissioner of agriculture, after five years of service, and without justifiable reason as far as we can learn, merits the severest condemnation.

— The second biennial report of the director of the North-Carolina agricultural experiment station contains an outline of the work performed at the station during 1881 and 1882, a plan and description of the new apartments recently occupied by it in the building of the department of agriculture at Raleigh, a statement of some changes in the law establishing the station, and some account of the growth and present extent of the fertilizer-trade in the state.

The station has also published, in the form of bulletins, some analyses and investigations of horn, leather, and wool-waste, and the fertilizers containing them; of finely-ground phosphates, or 'floats;' and of kainite; as well as a list of analyses and valuations of all fertilizers examined up to March 1, 1883.

The finely-ground phosphates are the product of the Duc mill, working chiefly on South Carolina phos-

phates. The size of their particles was measured microscopically; and they were also treated with neutral ammonium-citrate solution, in the manner customary in fertilizer analyses. From fifteen to twenty-five per cent of the total phosphoric acid proved to be soluble in this reagent, but no very marked increase of solubility was observed as the result of very fine grinding.

The bulletin on kainite consists chiefly of a summary of German and American experience in its use, going to show, that, with even moderate caution, it may be used with as much safety and advantage as the refined potash salts now so largely employed.

— The last of the Washington free scientific lectures was delivered by Dr. Robert Fletcher on March 31. The weather being unusually bad, the audience was small. As a whole, the lectures have been remarkably well attended; and the interest displayed will doubtless encourage the societies to undertake another course next year. It is a prevailing opinion, that groups of three or four lectures upon the same subject, delivered in the evening, would meet the needs of the people better than the schedules hitherto provided.

— A new magnetic and meteorological observatory is soon to be established at Hong Kong: and Dr. W. Doberck goes from Col. Cooper's observatory, Markru, Ireland, as its director.

— Among the good works performed by the Musée Guimet appears the *Revue de l'histoire des religions*, published under the direction of M. Maurice Vernes, aided by distinguished collaborators in various countries. The journal has reached its sixth volume, and shows no signs of decay. The last number received contains papers on the following subjects: Islamism as a universal religion, by A. Kuenen; Aeneas before the time of Virgil, by J. A. Hild; The religions of non-civilized peoples, by A. Reville; The legend of Alexander among the Mussulmans, by M. Decourdemanche; and A course of instruction in the history of religion, by Paul Bert.

— Henry Y. L. Brown of Sydney, Cape Breton, has been appointed director of the geological survey of South Australia. Mr. Brown has a long acquaintance with the geology of Australia, having already been government geologist of western Australia, and assistant on the geological survey of Victoria and New South Wales. Besides, he was assistant of Mr. Selwyn in the geological survey of Canada during the years 1874–75.

— We regret to learn the death of George W. Stow, director of the geological survey of the Orange Free State, South Africa. Mr. Stow died at the end of last year, at a coal-mine near Heilbron, where he had discovered an important coal-basin. Heilbron is near Smithfield, Orange River. No one has done so much towards elucidating the geology of southern Africa as Mr. Stow. His 'Geological notes upon Griqualand West,' and his 'Coal and iron in South Africa' are both standard works.

— The third German geographers' congress, assembled at Frankfurt-a.-M. from March 29 to April 8, listened to addresses by Wissmann, on his journey across Africa; Ratzel, on polar exploration; Buchner, on the ethnography of south-western Africa; Pechuël-Lösche, on the lower course of the Kongo; Günther, on the latest studies of the earth's form; Toula, on the geological exploration of the Balkan peninsula; and Penck, on the influence of climate on the form of the earth's surface; besides several others, chiefly devoted to methods of geographic instruction. In connection with the meeting, there was a geographic exhibition, of which the catalogue contains 1,100 numbers, and fills 92 pages. Different styles of mapping were very fully illustrated; and there was a good representation of atlases, globes, wall-charts, and geographic works.

— Dr. B. A. Gould of Cordoba, Argentine Republic, now on a visit to this country, exhibited to the Royal astronomical society, March 9, a number of photographs of star-clusters in the southern heavens. There were, beside these clusters, four stars suspected to have an appreciable annual parallax. Dr. Gould stated that the observations for his zone-catalogue (105,000 in number) were completed in 1875; but the subsequent reductions had given a great deal of trouble, as his staff was limited, and he had been obliged to enlist into the service everybody he could find who had had sufficient education to be of use. "I have had bakers, shoemakers, printers, carpenters, bricklayers, and school-masters, sailors and engine-drivers. Of course, the degree of accuracy was sometimes questionable, and I have been obliged to do every thing in duplicate." Dr. Gould hopes that in a year's time the zone-catalogue, in two volumes, with 74,600 stars, will be published. The zones extend only from the tropic to within ten degrees of the south pole. Dr. Gould is also engaged upon a general catalogue of about 34,000 stars, their positions being determined with the highest degree of accuracy. This catalogue includes every part of the southern hemisphere; and the work is so far advanced that eighteen months more will suffice to complete it.

— An examination of the Waterville meteorite of 1826 shows, according to Dr. M. E. Wadsworth, that it is a slag that had long lain partly buried in sandy soil, and could not have been, as claimed, a freshly detached meteorite.

— The philosophical society of Washington, at its meeting held April 21, was addressed by Capt. William H. Dall, on Glaciation in Alaska, and by Professor Franklin B. Hough, on the Cultivation of the Eucalyptus on the Roman campagna.

— We are glad to announce that the United States is at last represented in the international zoölogical station at Naples. Thanks to the liberality and

wisdom of President Carter and the board of trustees, Williams College has secured from Dr. Anton Döhrn the right to a table in the Naples station. It is intended to make this in reality an American table; it being open to any original worker from the United States who has received his appointment from the authorities of Williams College. The only agreement necessary in connection with an appointment is, that the appointee, on his return to America, deliver a brief course of lectures at Williams, by which the college may gain some of the advantages which have been afforded the appointee at Naples. The name of each naturalist who lectures at the college will appear in the catalogue as lecturer on the staff of instruction.

Dr. Edmund B. Wilson, Fellow by courtesy of the Johns Hopkins University, is the first and present appointee to the position.

— Mr. Common of Ealing, Eng., presented to the Royal astronomical society, at its meeting March 9, a Woodburytype enlargement of a photograph of the nebula of Orion, taken Jan. 30, 1883, with his great three-foot reflector, the exposure being thirty-seven minutes long. He considered that it showed a marked advance on previous photographs. Some of the finer details were lost in the enlargement, yet this showed several features not rendered in any drawing. Mr. Common called attention to several differences between the photographs and the drawings of Lord Rosse.

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## *RECENT BOOKS AND PAMPHLETS.*

*Continuations and brief papers extracted from serial literature without repagination are not included in this list. Exceptions are made for annual reports of American institutions, newly established periodicals, and memoirs of considerable extent.*

**Babut du Mares.** Le sewage, son utilisation et son épuration. Bruxelles, *Office de Publicité*, 1883. 260 p., 1 pl. 8°.

**Balfour,** F. M. Traité d'embryologie et d'organogénie comparées. Traduit par H. A. Robin. T. I.: Histoire de l'oeuf; embryologie des invertébrés. Paris, *Baillière*, 1883. 23+567 p., illustr. 8°.

**Barratt,** A. Physical metempiric. London, *Williams*, 1883. 8°.

**Bertillon,** A. Ethnographie moderne. Paris, *Masson*, 1883. 8+312 p., illustr. 8°.

**Burnham,** S. M. History and uses of limestones and marbles; with 48 chromo-lithograph illustrations of antique and modern marbles. Boston, *S. E. Cassino & Co.*, 1883. 410 p. 8°.

**Clark,** John S. Industrial education a necessary part of public education. (A paper read before the American institute of instruction, Saratoga, July 13, 1882.) Boston, *The Prang educational company*, 1883. 47 p. 8°.

**Czyszkowski,** S. Exploration géologique et industrielle des régions ferrifères de l'île d'Elbe. Alais, *imp. Martin*, 1882. 87 p. 8°.

**Delboeuf,** J. Questions de philosophie et de science. Éléments de psychophysique générale spéciale. Liége, *Desoer*, 1883. 256 p. 12°.

**Detmer,** W. Lehrbuch der pflanzen-physiologie. Breslau, 1883. 400 p. 8°.

**Dewar,** D. Weather forecasts, air and tidal currents, and dates of storms for 1883. London, 1883. 8°.

**Engelmann,** Th. W. The physiology of protoplasmic motion. Translated by Charles S. Dolley. Rochester, *Davis & Leyden*, n.d. 40 p. 8°.

**Ennis,** Jacob. Two great works to be done on our sidereal system. Washington, *Judd & Detweiler*, 1883. 12 p. 8°.

**Gestro,** R. Manuale del preparatore ed imbalsamatore. Milano, 1883. 118 p. 16°.

**Hauck,** W. Ph. Die galvanischen batterien mit besonderer rücksicht auf ihre construction u. ihre mannigfaltigen anwendungen in der praxis. Wien, 1883. 256 p., illustr. 8°.

**Heidorn,** D. Karte der im mittleren Europa mit blossen augen sichtbaren sterne, auf das mittl. aequ. 1870 berechnet. Göttingen, 1883. f°.

**Hutton,** F. W. Catalogue of the New Zealand Diptera, Orthoptera, Hymenoptera; w. descriptions of the species. New Zealand, *Wellington*, 1881. 132 p. 8°.

**Kroman,** K. Vor naturerkjendelse. Bidrag til en mathematikens og fysikens theori. Kjoebenhavn, 1883. 516 p. 8°.

**Leconte,** J. L., and **Horn,** G. H. Classification of the Coleoptera of North America. Washington, *Smithsonian institution*, 1883. (Smithsonian misc. coll.) 38+567 p. 8°.

**Ledger,** E. The Sun; its planets and their satellites. New York, 1883. 12°.

**Lefebvre,** B. Les passages de Venus sur le disque solaire. Étude historique suivie d'un appendice sur les observations du 6 decembre, 1882, et du récit des expéditions belges. Louvain, *Peeters*, 1883. 70 p. 8°.

**Lelontre,** G. Recherches expérimentales et analytiques sur les machines à vapeur. Détermination de l'eau entraînée par une méthode thermométrique. Nancy, *Berger-Levrault*, 1883. 63 p. 8°.

**Malapert,** E. Notes sur le magnétisme et sur la compensation des compos. Nancy, *Berger-Levrault*, 1883. 70 p. 8°.

**Mawley,** E. The weather of 1882 as observed in the neighborhood of London, and compared in all respects with that of an average year. London, *Stanford*, 1883. 75 p. 8°.

**Morgan,** C. L. Water: its teachings in chemistry, physics and physiography. London, *Stanford*, 1883. 12°.

**Perre de Roo, La,** V. Monographie des pigeons domestiques. Paris, 1833. 394 p., illustr. 8°.

**Perrier,** E. Éléments de zoologie pour la classe de cinquième. Paris, *Hachette*, 1883. 12+497 p., illustr. 12°.

**Peters,** C. H. F. Celestial charts made at the Litchfield observatory of Hamilton college. Nos. 1-20. Clinton, 1883. Imp. f°.

**Renault,** B. Cours de botanique fossile fait au Muséum d'histoire naturelle. 3 ann. Paris, *Masson*, 1883. 322 p., 36 pl. 8°.

**Reuter,** O. M. Finlands och den Skandinaviska halföns Hemiptera Heteroptera. Stockholm, 1882. 8°.

**Scheube,** B. Die Ainos. Yokohama, 1883. 32 p., illustr. f°.

**Schwackhöfer,** F. Technologie der wärme u. des wassers mit besonderer berücksichtigung des dampfkesselbetriebes. Wien, 1883. Illustr. 8°.

**Sedgwick,** W. Light the dominant force of the universe: showing by means of experiments, what light is, what electricity is, and what life is; also, how to reconcile religion and science. London, 1883. 298 p. 8°.

**Sicard,** H. Éléments de zoologie. Paris, *Baillière*, 1883. 16+842 p., illustr. 8°.

**Stoddard,** John T. An outline of qualitative analysis for beginners. Northampton, *Gazette printing-office*, 1883. 4+54 p. 16°.

**Thomas,** Albert. Manuel de l'alcoométrie. Tables et formules pour servir au calcul des mélanges d'eaux-de-vie à tous les degrés. Lille, *Michelet*, 1882. 8°.

**United States** coast and geodetic survey. A treatise on projections by Thomas Craig. Washington, *Government*, 1882. 14+247 p. 4°.

**United States** — Department of agriculture. Division of entomology. Bulletin. Nos. 1, 2. Washington, *Government*, 1883. 62, 36 p. 8°.

**Urbanitzky,** A. v. Das elektrische licht und die hierzu angewendeten lampen, kohlen u. beleuchtungskörper. Wien, 1883. 240 p., illustr. 8°.

**Vámbéry,** H. Der ursprung der Magyaren. Eine ethnologische studie. Leipzig, 1882. 599 p. 8°.

**Woodward,** C. M. Manual education a feature in public education. (A paper read before The national teachers' association, Saratoga, July 13, 1882.) Boston, *The Prang educational company*, 1883. 19 p. 8°.

**Zaborowski,** S. Nouvelles et curiosités scientifiques. Paris, *Marpon et Flammarion*, 1883. 525 p. 18°.

**Zopf,** W. Die spaltpilze. Breslau, 1883. 144 p., illustr. 8°.