An ingenious set of comparisons leads the author up to the ratio of the occurrence of each set of color-terms to the entire eleven hundred. "His perceptions of color are clearest and strongest in the middle of the spectrum; even in his sensuous imagination, he is temperate and reserved, avoiding the extremes of sensation, and dwelling by preference upon the mean terms, the *media via* of visual perception."

Prof. Price draws attention to the striking coincidence of scientific accuracy with prophetic genius in the phrase of Virgil, *Mille coloribus arcum* (*Ecl.*, v. 609), and the discovery of Aubert (*Rood*, p. 40), that in the solar spectrum the unaided eye may distinguish a thousand colors. The following terms are traced to their origin, and their fundamental idea fixed: ruber, rutilus, sanguineus, cruentus, sandix, minium, ferrugo, roseus, viridis, vitreus, hyalus, igneus, spadix, flavus, fulvus, croceus, luteus, aurum, cereus, pallidus, lividus, caeruleus, purpureus, puniceus, murex, ostrum, albus, candidus, niveus, argenteus, lacteus, marmoreus, decolor, canus, glaucus, ater, niger, fuscus, fumeus, pullus, piceus. — (*Amer. journ. phil.*, v. 1.) O. T. M. [1102

## *INTELLIGENCE FROM AMERICAN SCIENTIFIC STATIONS.*

### GOVERNMENT ORGANIZATIONS.

#### Smithsonian institution.

*Explorations in Louisiana.* — Capt. R. W. Shufeldt, medical corps U. S. A., has, since October last, assisted by grants from the Smithsonian institution, been exploring the country in the vicinity of the city of New Orleans, La. The collection that this officer has made has just been forwarded to the institution at Washington. It consists of some three thousand specimens of very interesting forms of the representative vertebrates and invertebrates of that region, besides the contents of the Indian shell-mound situated in the rear of Carrolton, — an antiquity suspected to exist by Foster, from reports he had heard when engaged in his explorations in that locality. Among the vertebrates, some very uncommon forms of bats have been forwarded, and six or seven specimens of the rare Bascanium anthicum, and one of the Aspidonectes asper, the soft-shelled turtle, so eagerly sought after by collectors. Of the fish, Dr. T. H. Bean, curator of the department of fishes at the Smithsonian institution, says, "Two of the determinations are uncertain. The examples of Lepomis 32410 and 32419 are so small that I cannot be sure what they are, the lower pharyngeals being little developed, and with incomplete dentition; 32412, 32414, and 32420 agree with the published descriptions of Zygonectes chrysoties Günth., but they may represent a species quite distinct from that. I will try to get fuller information about Günther's types through some one of my friends who will visit the British museum next summer. The species called Mollienesia latipinna would be regarded as M. lineolata by our friends, Jordan and Gilbert; but I think your series will prove that lineolata is not distinct from latipinna; and, as latipinna is the older name, we should use it.

"The lot of Elassoma zonatum (32423 = No. 108) is the largest and finest ever known in this museum, and there is no probability that any collector has secured a better series. The range of variation is greatly extended by them, and a new locality is found. O. P. Hay had the species from Mississippi; it is known, also, from Alabama, Texas, and South Illinois."

Dr. Shufeldt will work this material up for publication by the Smithsonian institution as soon as the opportunity offers.

### STATE INSTITUTIONS.

#### State university of Kansas, Lawrence.

*Weather report for May.* — This month had the largest rainfall, the greatest aggregate wind-velocity, and, with one exception (1882), the lowest mean temperature, recorded in any May of our sixteen years' observations. The light white frost of the 22d did no damage to vegetation, and the growing crops are in prime condition at the close of the month.

Mean temperature, 62.05°, which is 4.08° below the average May temperature. The highest temperature was 91°, on the 2d; the lowest was 39°, on the 22d; monthly range, 52°: mean temperature at 7 A.M., 56.19°; at 2 P.M., 71.13°; at 9 P.M., 60.45°.

Rainfall, 7.63 inches, which is 3.56 inches above the May average. There were five thunder-showers. Hail accompanied the rain of the 13th without damage at this station. On the 13th the rainfall was three and one-half inches, which daily register has been but twice exceeded in the past sixteen years. Of this amount, two inches fell in one hour and three-quarters, from 3.45 to 5.30 P.M. The entire rainfall for the five months of 1883 now completed has been 14.07 inches, which is 2.25 inches above the average for the same period in the past fifteen years.

Mean cloudiness, 47.63% of the sky, the month being 1.75% clearer than usual. Number of clear days (less than one-third cloudy), 11; entirely clear, 3; half-clear (from one to two thirds cloudy), 14; cloudy (more than two-thirds), 6; entirely cloudy, 3; mean cloudiness at 7 A.M., 46.77%; at 2 P.M., 56.45%; at 9 P.M., 39.68%.

Wind: N.W., 25 times; S.E., 20 times; S.W., 16 times; S., 14 times; N.E., 13 times; W., 3 times; N., twice. The entire distance travelled by the wind was 15,661 miles, which is 3,334 miles above the May average. This gives a mean daily velocity of 505 miles, and a mean hourly velocity of 21.04 miles. The highest velocity was 60 miles an hour, on the 13th.

Mean height of barometer, 29.010 inches; at 7 A.M., 29.017 inches; at 2 P.M., 28.989 inches; at 9 P.M., 29.029 inches; maximum 29.355 inches, on the 5th; minimum, 28.496 inches, on the 13th; range, 0.859 inch.

Relative humidity: mean for month, 64.5; at 7 A.M., 75.3; at 2 P.M., 45.9; at 9 P.M., 72.3; greatest, 100, on 13th; least, 14, on the 9th.

## *NOTES AND NEWS.*

The American association for the advancement of science will hold its thirty-second annual meeting at Minneapolis, Minn., Aug. 15 and following days. The president-elect is Prof. C. A. Young of Princeton, and the following is the list of the general officers of the meeting: section A (Mathematics and astronomy), vice-president, W. A. Rogers of Cambridge; secretary, W. W. Johnson of Annapo-

lis. **B** (Physics), vice-president, H. A. Rowland of Baltimore; secretary, C. K. Wead of Ann Arbor. **C** (Chemistry), vice-president, E. W. Morley of Cleveland; secretary, J. W. Langley of Ann Arbor. **D** (Mechanical science), vice-president, DeVolsen Wood of Hoboken; secretary, [to be chosen at meeting]. **E** (Geology and geography), vice-president, C. H. Hitchcock of Hanover; secretary, A. A. Julien of New York. **F** (Biology), vice-president, W. J. Beal of Lansing; secretary, S. A. Forbes of Normal. **G** (Histology and microscopy), vice-president, J. D. Cox of Cincinnati; secretary, C. Seiler of Philadelphia. **H** (Anthropology), vice-president, O. T. Mason of Washington; secretary, G. H. Perkins of Burlington. **I** (Economic science and statistics), vice-president, F. B. Hough of Lowville; secretary, J. Cummings of Evanston. The permanent secretary is F. W. Putnam of Cambridge; the general secretary (of the meeting), J. R. Eastman of Washington; assistant general secretary, Alfred Springer of Cincinnati; and the treasurer, William Lilly of Mauch Chunk.

The headquarters of the association will be at the State university; the hotel headquarters of the permanent secretary, the Nicollet House. Members expecting to attend the meeting are requested to notify the local secretary, Prof. N. H. Winchell, Minneapolis, as early as possible. Badges of membership will be distributed to all who register.

The following are the principal officers of the local committee. Chairman and treasurer, Hon. George A. Pillsbury; secretary, Prof. N. H. Winchell; and chairmen of the several sub-committees, as follows: invitations and reception, President W. W. Folwell; finance, J. C. Seeley, Esq.; transportation and excursions, Thomas Lowry, Esq.; entertainment, hotels, lodgings, and luncheons, Hon. A. C. Rand; rooms and places of meetings, Hon. Eugene M. Wilson; printing, David Blakely, Esq.

— The annual meeting of the Society for the promotion of agricultural science will be held in Minneapolis, Aug. 13 and 14, just previous to the meeting of the American association.

— It is announced that Lieut. Schwatka, accompanied by Assistant Surgeon Wilson, C. A. Homan, U. S. engineer corps, and three private soldiers, left for Chilkat, Alaska, May 22, from Portland, Or., on the steamer Victoria. They are provisioned for a six-months' cruise, will employ Indians for packers, etc., and intend to ascend the Chilkat River to its head, make the passage to the head waters of the Lewis River, and descend the same to its junction with the Yukon, and descend the Yukon River to its mouth. It is said to be their intention to survey the course of these rivers; and there is no doubt that a properly qualified and equipped party would find abundance of useful work ready to their hands. The whole route has been travelled before, but not by persons in search of, and qualified to obtain, geographical information, except in very small part. The explorations of the Krause brothers on the Chilkat and vicinity have been alluded to before. The Yukon has been superficially examined by McMurray, Ketchum, Zagoskin, Dall, Whymper, Raymond, Nelson, and others, and a few points have been astronomically determined; but nothing like an exact map has been attempted, nor do the data for it exist. Astronomical and magnetic observations anywhere along its banks, and especially any data for a map of the Lewis River and its feeders (which are only known from the reports of prospectors and natives), would be of the highest interest.

— The treasurer of the American committee of the Balfour memorial acknowledges the following additional subscriptions: Prof. L. A. Wait, Cornell university, $5; Dr. M. J. Roberts, post-graduate medical school, New York, $5; Prof. E. A. Birge, University of Wisconsin, $10; Adam Bruce, Princeton college, $4; W. M. Rankin, Princeton college, $2; W. B. Scott, Princeton college, $10; Lyceum natural history, Williams college, $5; classes '83 and '85, Williams college, $10; S. F. Clarke, Williams college, $10; Warren E. Dennis, Newark, N.J., $4; Abraham Jacobi, New York, $10; T. M. Prudden, New York, $5; L. Waldstein, New York, $10; William H. Welch, New York, $10; Miss G. A. Lewis, Philadelphia, $1; Joseph Leidy, Philadelphia, $4; C. S. Minot, Harvard medical school, $5; E. Burgess, Boston society natural history, $5; J. B. Steere, University of Michigan, $4; A. Winchell, University of Michigan, $7; Students' literary department, University of Michigan, $5.70. Previously acknowledged, $518.25.

— Mr. A. H. Keane, whose recent appointment as lecturer in Hindustani, at University college, London, has been raised by the council to full professorship, 'in consideration of Mr. Keane's great eminence as a scholar,' has just issued a prospectus for a work entitled 'A classification of the races of mankind,' which will form two large octavo volumes of about six hundred pages each. He aims in it to provide the student of ethnology with a comprehensive treatise on the races of mankind, which shall correspond with the present state of anthropologic knowledge, and supersede all previous attempts of this sort, however well done. To use his own words, "In the general introduction such broad questions will be dealt with as the evolution of man, the antiquity and specific unity of the species, the present varieties of mankind, the physical and moral criteria of race, the fundamental human types, their evolution and dispersion, the peopling of the continents, the origin of articulate speech, the morphological orders and families of speech, the problem of specific linguistic diversity within the same ethnical group."

He will then deal with the great physical divisions of the human family, discussing each of its

main sections under three separate heads, — first, the physical and moral characteristics of the type; second, the main branches of each (under this head the classification will be carried out); third, an alphabetical index which will form a complete ethnologic gazetteer, collecting all known races, tribes, and languages under short descriptive titles, alphabetically arranged, and full of references to authorities. The Asiatic domain alone furnishes, according to Mr. Keane, some four thousand entries.

The work will be published only upon the condition of there being five hundred subscribers.

— The annual meeting of the American academy of arts and sciences was held in Boston, Tuesday, May 29. The following officers were elected for the ensuing year: president, Professor Joseph Lovering; vice-president, Dr. Oliver Wendell Holmes; corresponding secretary, Professor Josiah P. Cooke; recording secretary, Professor John Trowbridge; treasurer, H. P. Kidder; librarian, S. H. Scudder. Four new members were elected: Prof. J. W. Mallet of the University of Virginia, and Dr. Atticus G. Haygood of Oxford, Georgia, as associate fellows; George B. Dixwell of Boston as resident fellow; and Adolph Wurtz of Paris as foreign honorary member.

The list of members of the academy now includes one hundred and ninety-two resident fellows, ninety-two associate fellows, and seventy-two foreign honorary members. The loss by death this year has been as follows. Resident fellows: Augustus A. Hayes, Brookline; William B. Rogers, Chandler Robbins, and Nathaniel Thayer, Boston. Associate fellows: Charles Avery, Clinton, N.Y.; Henry Draper, New York; Isaac Ray, Philadelphia; George P. Marsh, Rome. Foreign honorary members: Joseph Liouville, Paris; Émile Plantamour, Geneva; Friedrich Kohler, Göttingen; T. L. W. Bischoff, Munich.

The academy voted unanimously to confer the Rumford gold medal upon Professor Henry A. Rowland of Baltimore for his researches in light and heat.

The following papers were presented by Mr. W. T. Brigham: 1. Recent volcanic phenomena on the Hawaiian Islands; 2. The flow of lava-streams as illustrated by the Hawaiian eruption of 1881. Professor Cooke presented the following contributions from the chemical laboratory of Harvard university by title: 1. On tumerol, by C. Loring Jackson and A. E. Menke; 2. On curcumin, by the same authors; 3. On the action of phosphorous trichloride of aniline, by the same authors; 4. On the action of sodic ethylate on benzaldehyde, by C. Loring Jackson and G. T. Hartshorn; 5. On the action of concentrated hydrobromic acid upon mucobromic acid and other related substances, by H. B. Hill; 6. On the action of alkaline hydrates upon mucobromic acid, by H. B. Hill and E. K. Sterns; 7. On phenoxychloracrylic acid, by M. Loeb; 8. On $\beta$-phenyltribrompropionic acid, by L. P. Kinnicutt and G. M. Palmer; 9. On the determination of nitrites with potassic permanganate, by L. P. Kinnicutt and J. U. Nef; 10. On the determination of sulphites with potassic permanganate, by L. P. Kinnicutt and R. Penrose; 11. On the vapor density of the chloride, bromide, and iodide of antimony, by C. P. Worcester; 12. On a method of correcting the weight of bodies of unknown volume for the buoyancy of the atmosphere, and its applications, by J. P. Cooke. Professor Asa Gray presented the following from the Botanic garden. Contributions to American botany: 1. List of plants from south-western Texas and northern Mexico, collected chiefly by Dr. E. Palmer in 1879–80 (II. Gamopetalae to Acotyledones) by Sereno Watson; 2. Descriptions of new species of plants, with revision of certain genera, by Sereno Watson. Professor Trowbridge presented the following papers from the physical laboratory of Harvard university: 1. Attraction of a shell bounded by confocal ellipsoidal surface, by F. N. Cole; 2. Weber's theory of magnetism, John Trowbridge and C. B. Penrose; 3. Electromotive force, John Trowbridge and E. K. Stevens; 4. Effect of magnetism on the conduction of heat, John Trowbridge and C. B. Penrose. A paper on the deduction of different star catalogues to a common system was presented by title by Prof. W. A. Rogers.

— At the semi-annual meeting of the American oriental society, held in the hall of the American academy, Boston, May 2, papers were read as follows: by T. O. Paine, on the Julian inscription of Gerash; by L. Dickerman, on the Site of the Pithom of Exodus i. 11; by B. S. Lyman, on the Japanese Nigori of composition; by J. W. Jenks, Some remarks on oriental genius; by W. D. Whitney, on the Jāiminīya Brāhmana; by J. Avery, on the Modes in relative clauses in the Rig-Veda; by M. Bloomfield, on Certain Vedic subjunctive forms; by D. G. Lyon, Discussion of the question whether or not there was a god El at the head of the Babylonian pantheon; by I. H. Hall, on the Bronze crab inscription on the New-York obelisk; by B. S. Lyman, on Certain Pekingese sounds; and by W. W. Rockhill, Translation of two Buddhist Sūtras. The society adjourned to meet in New Haven in October.

— M. Raoul Pictet has recently completed a small steam-vessel designed to illustrate the advantages possessed by a form of hull proposed by him to be adopted for very high speeds, and has made preliminary trials on the waters of Lake Geneva. His boat has a full, nearly square, midship section, with a flat floor and sharply turned bilges, vertical topsides, a sheer plan having a line of keel very nearly parabolic, the vertex of the curve at the bow, and the maximum ordinate at the rudder-post. The leading idea is to so form the vessel that the water shall be displaced vertically downward as far as possible, in order that the

upward reaction shall raise the craft, and thus diminish head-resistance at very high speeds.

Comparing the curve of resistance with that of boats of the usual form, it is found that it does not differ, in any great degree, at ordinary low speeds; but at sixteen kilometres and upward (about ten miles) the resistance is less, and at twenty-seven kilometres (sixteen and three-fourths miles) the resistance is but about one-half that of the common form of vessel. The Pictet boat was tested beside the fast yacht of Madame Rothschild, the Gitana, and was found to be slightly inferior at low speeds, but decidedly superior at the higher speeds.

The new vessel is of a little more than twenty-five tons' displacement. It would seem that the proposed form would be of less importance for large vessels, in which the resistance is in larger proportion frictional, and less in head-resistance, and that the advantages of the Pictet form are to be realized principally in small yachts and in torpedo vessels. The boat and its performance are described in *La Nature*, and reproduced in the *Sc. Amer. supplement*, May 19, 1883.

— At the meeting of the Biological society of Washington, May 25, the following papers were read: Dr. Thomas Taylor, on Actinomykosis, a new infectious disease of man and the lower animals, with exhibition of a portion of the diseased viscera of a dog, containing specimens of the fungus Actinomyces; Dr. D. E. Salmon, remarks on Actinomykosis; Prof. C.V. Riley, remarks on curious Psyllidae and certain gall-making species.

— Mr. Lester F. Ward has made a preliminary study of an interesting collection of fossil plants brought to the U. S. geological survey in 1882, by Dr. C. A. White, from the Laramie beds of the lower Yellowstone River. No less than thirty-four species are identified with those already described and figured, including many of those from Fort Union, described by Dr. Newberry, and a number from other localities in the west. A few, however, belong to species that have not heretofore been found within the territory of the United States (arctic or European). In addition to these, there was found a large number of forms which could not be identified, some of which are of peculiar interest. As Mr. Ward expects to visit these beds during the present season, and hopes to obtain more and better material, no descriptions of new species will be published until further study of these forms can be made.

— Ten years ago the magnificent private collections of Dr. Gustav Klemm, whom all anthropologists love to honor, were sold by his heirs to the city of Leipzig for the Museum für völkerkunde. If we mistake not, Dr. Klemm was the first to announce distinctly the oneness of all human art and industry as a unique subject of study, dividing human occupations, implements, processes, and productions into genera and species, and aiming to find in each class the cause of its origin, as well as the law of its evolution. Each year since the transfer, a report of the progress of the museum has been published, the tenth number of which has just come to hand. The affairs of the institution are managed by a board of trustees, who rely upon subscriptions mainly to pay the current expenses.

— The explorers whom the French geographic society has recently adjudged worthy of its gold medals are: Commandant Gallieni, for his expedition to the upper Niger and Segu two years ago; Commandant Derrien, leader of a topographic party in Senegal at the same date; M. Charles Huber, for travels in Arabia during the past three years; Lieut. F. Schwatka, for his arctic voyage to King William's Land; and M. Langlois, for maps of the department of Oran, Algeria.

— At the meeting of the Engineers' club of Philadelphia, May 5, Mr. T. M. Cleemann was enabled to show, through the courtesy of Mr. W. W. Evans of New York, a map and profile of the Southern Pacific railroad in California, where it crosses the dried-up bed of a lake, being below the surface of the Pacific Ocean for 58 miles, and attaining a depth below said surface of 266 feet. At this point it skirts a deposit of salt from six to twenty-four inches in thickness. He also showed a number of photographs of the Tehachapi Pass, on the same railroad, near San Fernando. In order to attain the summit with a sufficiently reduced grade, the line was 'developed,' advantage being taken of a conical hill to wind about it in the form of a helix, crossing itself, and continuing on its way with several meanderings. The St. Gothard railroad has several such helices, but they are cut in the solid rock. A similar location was made, about eighteen years ago, on the Southern Pennsylvania railroad, but it was not built. Another piece of interesting location was also exhibited; namely, the mountain division of the Western North Carolina railroad, which shows great skill in fitting a line to the country. Mr. George S. Strong described a new method of manufacture of corrugated boiler-tubes. Mr. E. F. Loiseau gave a sketch of the progress and condition of the manufacture of artificial fuels. Mr. R. H. Sanders described a derrick used for hoisting material from a slate quarry by means of cable and bucket; and Mr. T. M. Cleemann noted a similar method pursued in the construction of a viaduct in Peru, 252 feet high, when the pieces were conveyed by a traveller to the pier. Mr. C. G. Darrach continued his remarks with regard to the relative quality of water at the top and bottom of deep reservoirs, and discussed methods of meeting the difficulty encountered in the accumulation of impurities below the surface.

— C. F. Holder contributes to the June number of Lippincott's magazine an excellent article on Animals extinct within human memory. The greater portion

of the paper relates to birds, — the great auk, the dodo, and the giant birds of New Zealand ; but the mammoth and Steller's manatee are specially mentioned among mammals.

— The Royal geographical society has lately awarded medals to Sir J. D. Hooker for his services in scientific and botanical geography, extending over many years, and based on voyages to the Antarctic and Australian seas, to India and the Himalaya, and travels in Morocco and the United States ; and to E. C. Baber, of the British legation at Peking, for his reports and maps of journeys into the interior of China. Money-grants were voted to Abbé Petitot for his researches to the north of Great Slave Lake, to W. D. Cowan for his surveys in central Madagascar, and to F. C. Selous for his journeys in the Zambesi basin.

— At a meeting of the Society of arts, Massachusetts institute of technology, May 24, Professor Elihu Thomson exhibited in operation, and explained, the Thomson-Houston system of electric lighting of the American electric company of New Britain, Conn.

— When noticing, in a former number of SCIENCE, the curious worm-like articulated impressions from the Potsdam sandstone, the writer of the notice was not aware that the name 'Rusichnites' had been previously proposed by Mr. Whiteaves for the similar markings from the Gaspé sandstone referred to in the note.

— In the weekly summary, ¶ **614**, for 'tortricid moth,' read 'tineid moth.'

## *RECENT BOOKS AND PAMPHLETS.*

**Adamson**, Ch. M. Another book of scraps, principally relating to natural history. Newcastle-on-Tyne, 1883. illustr. 4°.

**Aschieri**, F. Geometria projettiva e descrittiva. Milan, 1882. 354 p. 12°.

**Beddome**, R. H. Handbook to the ferns of British India, Ceylon, and the Malay Peninsula. London, *Thacker*, 1883. 500 p., 300 illustr. 8°.

**Bove**, G. Patagonia, Terre del Fuoco, Mari Australi. Rapporto della spedizione da lui capitanata al Comitato centrale per le esplorazioné antartiche. Part i. Genoa, *R. Istituto*, 1883. 150 p. 8°.

**Brown**, J. C. The forests of England, and the management of them in by-gone times. Edinburgh, 1883. 268 p. 8°.

**Busley**, C. Die schiffsmaschine, ihre construction, wirkungsweise u. bedienung. Abtheil. i. Kiel, 1883. 240 p. 8°.

**Chalon**, J. Les premiers âges de la terre et de l'homme fossile. Bruxelles, 1883. 105 p., illustr. 12°.

**Clerk**, Ch. Études de géologie militaire. Les Alpes françaises. Paris, 1883. illustr. 8°.

**Comisión** del mapa geológico. — Breve idea de la constitución geológica de España, presentada en la exposición de mineria, celebrata en Madrid en 1883. Madrid, *Tello*, 1883. 20 p. 8°.

**Crié**, L. Essai sur la flore primordiale. Paris, 1883. 80 p., illustr. 8°.

**Devic**, L. M. Le pays des Zendjs, ou la côte orientale d'Afrique au moyen âge (géographie, moeurs, productions, animaux légendaires), d'après les écrivains arabes. Paris, *Hachette*, 1883. 280 p. 8°.

**Eckardt**, T. Physics in pictures: the principal natural phenomena and appliances described and illustrated. Translated by A. H. Keane. London, 1883. illustr. f°.

**Fick**, A. Philosophischer versuch über die wahrscheinlichkeiten. Würzburg, 1883. 8°.

**Fischer**, E. L. Ueber das princip der organisation u. die pflanzenseele. Mainz, 1883. 153 p. 8°.

**Garrod**, A. E. The nebulae: a fragment of astronomical history. London, *Parker*, 1883. 44 p. 8°.

**Gaudry**, A. Les enchaînements du monde animal dans les temps géologiques fossiles primaires. Paris, *Savy*, 1883. 323 p., 285 illustr. 8°.

**Gisevius**, P. Beiträge z. methode d. bestimmung d. spec. gewichts v. mineralien u. d. mechan. trennung von mineralgemengen. Bonn, 1883. 81 p. 8°.

**Goodwin** (bishop of Carlisle). Walks in the regions of science and faith. London, *Murray*, 1883. 304 p. 8°.

**Guillemin**, A. Le monde physique. Paris, *Hachette*, 1883. 3 vols. 32+874; 4+670; 1011 p., illustr. 8°.

**Haussknecht**, O. Lehrbuch der chemie u. chemischen technologie. Hamburg, 1883. 484 p., illustr. 8°.

**Hirsch**. Rapport sur les machines et les appareils de la mécanique générale à l'Exposition universelle internationale de 1878 à Paris. Paris, 1883. 609 p. 8°.

**Hollefreund**, K. Die gesetze der lichtbewegung in doppelt brechenden medien nach der Lommel'schen reibungstheorie. Halle, 1883. 4°.

**Houba**, M. J. H. Over de strooming van vloeistoffen door buizen. Nijmegen, 1883. 104 p. 8°.

**Hoyer**, A. G. E. Planten-album. Ter bevordering van de kennis der algemeen in Nederland groeiende planten. Tiel, 1883. 95 p. 4°.

**Kolbe**, H. Kurzes lehrbuch der organischen chemie. Braunschweig, 1883. 509–864 p. illustr. 8°.

**Lanier**, L. Choix de lectures de géographie, accompagnées de résumés, d'analyses et de notes explicatives. Paris, *Belin*, 1883. 8+656 p. 12°.

**Le Paige**, M. C. Essai de géométrie supérieure du 3e ordre. Bruxelles, 1883. 132 p. 8°.

**Lindner**, M. Die elektricität im dienste v. gewerbe u. industrie. Leipzig, 1883. 4°.

**Maurer**, M. Statique graphique. Paris, 1883. illustr. 8°.

**Melde**, F. Akustik. Fundamentalerscheinungen u. gesetze einfach tönender körper. Leipzig, 1883. 364 p. illustr. 8°.

**Naville**, E. La physique moderne. Paris, 1883. 8°.

**Nysom**, H. Hydrografisk kart over det sydlige Norge udarbeidet ved kanalkontoret. Christiania, 1882. 8°.

**Ormerod**, E. A. Report of observations of injurious insects during the year 1882; with methods of prevention and remedy, and special report on wireworm. London, *Simpkin*, 1883. 98 p. 8°.

**Pattison**, S. R., and **Friedrich**, Dr. The age and origin of man geologically considered. London, *Religious tract society*, 1883. 53 p. 12°.

**Paulucci**, M. Note malacologiche sulla fauna terrestre e fluviale dell'Isola di Sardegna. Siena, 1882. 247 p. 8°.

**Pellet**, H., and **Seugier**, G. La fabrication du sucre. T.i.: Historique; les principes sucrés; saccharimétrie chimique et physique; analyse des sols; les terres à betteraves. Paris, *Pellet*, 1883. 390 p., illustr. 8°.

**Rieth**. Volumetrische analyse. Hamburg, 1883. 8°.

**Saarbrucker** steinkohlen-district. Flötzkarte. Mit profilkarte. Aubeldruck, *Saarbrücken*, 1883. f°.

**Salterain**, Pedro. Breve reseña de la minería de la isla de Cuba. Habana, *La Publicidad*, 1883. 24 p. 8°.

**Schaedler**, C. Die technologie der fette u. oele des thier- und pflanzenreichs. Berlin, 1883. illustr. 8°.

**Schwartze**, Th. Telephon, mikrophon u. radiophon. Wien, 1883. illustr. 240 p. 8°.

**Sicard**, G. Histoire naturelle des champignons comestibles et vénéneux. Préface par A. Chatin. Paris, 1883. illustr. 8°.

**Songaylo**, E. Traité de géométrie descriptive. Paris, 1882. 6+440 p., illustr. 4°.

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