

least will give an idea as to the scope of the work. The first lecture by M. A. Davaune is a charming historical discourse on the invention and application of Photography from Daguerre and Niepce to the present day.

Chronophotography, the study of moving bodies, is discussed by M. G. Demyen; Photography in Colors, by Prof. G. Lippmann, of the Faculty of Science of Paris; Astronomical Photography, by Prof. J. Jausen, Director of the Astronomical Observatory of Meudon; and Photographic Chemistry by M. C. Fabre. To enumerate rapidly the titles of other lectures we have: Medical Photography, Military Photography and Photocartography, Photogravure and Photochromography, the Photographic Objective, Photographic Processes, the Photography of Natural Phenomena, Iconometry and Metrophotography (sciences but little understood in this country but of the greatest importance), Microphotography, the Production of Panoramas, etc., etc.

The book is printed on heavy paper, and the typographic work is in excellent style. The illustrations in most cases are reproductions of photographs and while illustrating the text are in themselves works of art, adding a further charm to the volume.

NOTES AND NEWS.

THE impetus recently given to nature-study in the secondary schools has led to a demand for the more thorough preparation of teachers in the essentials of botany and zoölogy. Teachers cannot get special training in these branches during the college year, because it coincides with their teaching year. In the past their oppor-

tunities for getting it during summer have been limited, on account of the lack of summer schools. To meet this demand the New Hampshire College, coöperating with Superintendent Gowing, of the State Department of Public Instruction, will institute next July a summer school of biology, especially adapted to the needs of teachers in the secondary schools. The instruction in botany will be given by Principal Charles H. Clark, A.M., of Sanborn Seminary, Kingston, N. H.; and in zoölogy by Prof. Clarence M. Weed, D.Sc., of the college. Supplementary lectures will also be delivered by President Chas. S. Murkland, Ph.D., and Superintendent Fred Gowing, of Concord. The school will open Thursday, July 5, and continue until Saturday, Aug. 4. It will be held in the laboratories and class rooms of Thompson Hall, students being granted free use of the library, microscopes, aquaria, collections, and other facilities. The laboratory instruction will be supplemented by work in the field and class-room, and by informal discussions of such topics as are likely to prove useful for illustrative purposes in nature-study in the lower schools. The course of study will cover the line of work in botany and zoölogy recommended in the recent report of the Committee on Secondary School Studies, appointed by the National Educational Association for adoption by the secondary schools. In addition, there will be offered, to such teachers as may desire it, an opportunity of taking a special course in microscopical technique under Principal Clark, or in elementary entomology under Professor Weed. The situation of the college is peculiarly favorable to the study of natural history. Plants and animals inhabiting a great variety of land surface, as well as fresh, brackish, and salt water, are easily accessible.

BRENTANO'S, Publishers, Importers, Booksellers.

We make a specialty of technical works in all branches of science, and in all languages.

Subscriptions taken for all American and foreign scientific periodicals.

Our Paris and London branches enable us to import at shortest notice and at lowest prices, all the latest SCIENTIFIC SOCIETIES, MONOGRAPHS, JOURNALS, and REPORTS, etc. Catalogues and Reports solicited.

Books reviewed in SCIENCE can be ordered from us.

Send for a sample copy of LITERARY NEWS. A Monthly Index of the Periodical Literature of the World. \$1 per year.

Brentano's, Union Square, New York.
Chicago, Washington, London, Paris.



GERMANIA A monthly magazine for the study of the German language and literature, is highly recommended by college professors and the press as "the best effort yet made to assist the student of German, and to interest him in his pursuit." Its BEGINNERS' CORNER furnishes every year a complete and interesting course in German grammar. \$2 a year. Single copies 20 cents. P. O. Box 151, Manchester, N. H.

MINERALS. Largest, finest and most beautifully displayed stock in the U. S.

GEMS. Choice and rare stones of all kinds. Rubies, Sapphires, Emeralds, Tourmalines, etc.

Two medals at World's Columbian Exposition. Price lists free. Catalogue 15c., indexing all mineral species. GEO. L. ENGLISH & CO., Leading Mineralogists of the U. S., No. 64 East 12th Street, New York City.



Newspaper Clippings. 25,000 in Stock. What do you want? Let us know. We can supply you. The Clemens News Agency, Box 2329, San Francisco, Cal.

BUILDING BOOKS.

DRAWING INSTRUMENTS.

1893 Catalogue

of Books on Building, Painting, and Decorating, also Catalogue of Drawing Instruments and Materials, sent free on application to

Wm. T. Comstock, 23 Warren St., New York.

ESTERBROOK'S STEEL PENS.

OF SUPERIOR AND STANDARD QUALITY.

Leading Nos.: 048, 14, 130, 135, 239, 333

For Sale by all Stationers.

THE ESTERBROOK STEEL PEN CO.

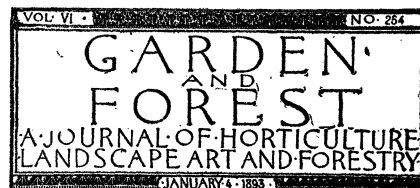
Works: Camden, N. J. 26 John St., New York.

LIGHT, HEAT AND POWER.
THE INDEPENDENT GAS JOURNAL OF AMERICA.

PUBLISHED MONTHLY AT PHILADELPHIA.

Subscription, \$3.00 per year.

"For the enlightened owner of gardens and woodlands this journal is invaluable."—*New York Tribune*.



A beautifully illustrated journal of Horticulture, Landscape Art and Forestry, filled every week with fresh, entertaining, practical and accurate information for all who love nature or take an interest in flowers, shrubs and trees. Its writers are the foremost American and European authorities, and the editorial and leading articles constitute the best literature of the time on all subjects within the scope of the paper.

"The foremost journal of its class."—*Boston Herald*.

"A delightful weekly companion."—*Harper's Weekly*.

PUBLISHED WEEKLY. \$4 A YEAR.

Specimen copy free on application.

Garden & Forest Pub. Co.,

Tribune Building, NEW YORK.

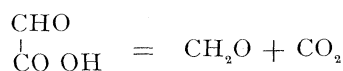
1869. THE 1893.
Manufacturer and Builder.

Published Monthly. A handsomely illustrated mechanical journal, edited by DR. WILLIAM H. WAHL. Every number consists of 48 large quarto pages and cover, filled with useful information on all subjects of a practical nature. Specimen copy free. For sale by all newsdealers. Agents wanted everywhere. Address

HENRI CERARD,
P. O. Box 1001. 83 Nassau St., N. Y.

Board and room can be obtained in Durham at an average cost of \$4.00 per week. A fee of \$15 for the course will cover other expenses, except perhaps a small outlay for books. The number of students will be limited to fifty, to be enrolled in the order of application.

—At the end of the article on "The Synthetical Powers of Micro-Organisms, I.," in *Science*, Jan. 19, 1894, the equation should read:



—The archaeological researches in the southern part of the republic of Costa Rica, which are now conducted by Enrique Pittier, director of the Physico-geographic Institute at San José, in behalf of the government, have been fruitful in results. His explorations in the Terraba and Boruca portions of the Pacific slope were continued during several seasons and disclosed the fact that the Terraba Indians are not individuals of a homogeneous race, but a medley of several Costa Rican tribes gathered up and settled on the tracts which they now inhabit, during the course of the eighteenth century, by Franciscan missionaries. Among this assemblage of tribes the Terbis or Tervis, who formerly had their home on the northern coast, were prominent, and hence the whole colony of tribal remnants were comprehensively called Terbis or Terrabas. The dialect of the Terrabas was adopted by the rest of the colony Indians. In fact it does not differ greatly from the language of the Bribris and other tribes still extant on the Atlantic side of the Costa Rican cordillera. Another people cognate to the Terraba are the Boruca or Brunka, now living three

leagues south of the above. On their trading expeditions they sometimes visit San José, the capital, and from their homes they reach it in eleven days. They are not communicative concerning their own vernacular, and H. Pittier experienced considerable difficulty in getting collections of Boruca terms and phraseology. In appearance they differ from the Terrabas and are of purer and more homogeneous extraction, as may be readily guessed from what was said previously about the formation of the Terraba settlements.

—The executive committee of the Association of Official Agricultural Chemists has decided to call the annual meeting of the Association for August 23, 24 and 25, 1894. The meetings will be held in the lecture room of the National Museum at Washington, beginning at ten o'clock on Thursday, August 23. The reporters for the meeting are as follows: Phosphoric acid, B. W. Kilgore, Raleigh, N. C.; Nitrogen, J. M. Bartlett, Orono, Me.; Potash, H. J. Wheeler, Kingston, R. I.; Soils and ash, A. M. Peter, Lexington, Ky.; Dairy products, E. H. Farrington, Champaign, Ill.; Fodds and feeding stuffs, H. J. Patterson, College Park, Md.; Fermented liquors, Geo. F. Colby, Berkeley, Cal.; Sugar, G. L. Spencer, Washington, D. C. The coöperation of European chemists has been invited in the analytical work, and several acceptances of the invitation have been received. It is urged upon all members who have communications to make to the Association to bring them properly prepared and ready for printing. Much delay has arisen heretofore in securing the manuscript promptly from the reporters and others presenting papers. The speedy publication of the proceedings will be greatly facilitated by bringing everything properly prepared.

A Tonic

For Brain-Workers, the Weak and Debilitated.

HORSFORD'S ACID PHOSPHATE

is without exception, the Best Remedy for relieving Mental and Nervous Exhaustion; and where the system has become debilitated by disease, it acts as a general tonic and vitalizer, affording sustenance to both brain and body.

Dr. E. Cornell Esten, Philadelphia, Pa., says: "I have met with the greatest and most satisfactory results in dyspepsia and general derangement of the cerebral and nervous systems, causing debility and exhaustion."

Descriptive pamphlet free.

Rumford Chemical Works,

Providence, R.I.

Beware of Substitutes and Imitations.

EXCHANGES.

[Free of charge to all, if of satisfactory character. Address, N. D. C. Hodges, 874 Broadway, New York.]

FOR SALE OR EXCHANGE.—An Agricultural Library. The following, and other works, in good condition, will be sold or exchanged for a good typewriter or Peale's edition of the "Encyclopædia Britannica," etc.: Marshall's "Counties of England," a classic series of 14 volumes, *Farmer's Magazine*, 18 volumes, containing steel plates, descriptions and biographies of famous representatives of British live stock and breeders, Stephen's "Book of the Farm," 6 volumes, Transactions of Highland and Agricultural Society of Scotland, 1884-93, latest edition, Sheldon's "Dairy Farming," Curtis on "Live Stock," Wallace (Professor, Edinburgh) on "Farm Live Stock," Youatt's "Complete Grazier," by Scott Bruma, Sanders on "The Horse," Lowe's "Practical Farming," Holt Beever's "Shorthorn Tribes," etc. Address, R. C. Auld, 22 Bishop Court, Chicago, Ill.

FOR SALE OR EXCHANGE.—Safe, nearly new, 1,150 pounds. Will sell cheap, or exchange for a Safety Bicycle, Gasoline Engine, Music Instruments, or anything that may suit. Safe has been used but little and is as good as when bought. Address, A. Lagerstrom, St. Peter, Minn.

LIVING near the famous "Serpent Mound," Adams County, Ohio. I have had opportunity to make a collection of pre-historic relics. I wish to exchange with one interested in archaeology. Write to W. C. Owen, Elmville, Highland County, Ohio.

TO EXCHANGE.—Herbarium specimens. Address, H. P. Chandler, Beaver Dam, Wisc.

KARYOKINETIC FIGURES IN MAMMALIAN TISSUES.—Since the publication of my Preliminary Notice in *Science* for Dec. 1, 1893, many parties have written me asking for permanent preparations showing mitosis. To these parties I have sent slides, and I now offer to all who desire them slides showing mitotic figures in nuclei of embryo kitten. A good immersion objective is necessary to make out the figures satisfactorily. Send 60 cents in stamps. If the slide is not satisfactory, return it, and I will return the money. I do not care to exchange slides. Frank S. Aby, State University, Iowa City, Iowa.

FOR SALE.—A small collection of bird skins, consisting of 135 specimens of New England species, most of which are in good condition and all have full data. Nearly all were collected in the Connecticut valley in Massachusetts. Price, \$10. Address, H. L. Clark, 3922 Fifth Avenue, Pittsburgh, Penna.

WANTS.

GEOLOGIST.—A University Graduate, with experience, desires a Professorship or Assistant Professorship in Geology, Mineralogy, or Metallurgy. Address, "Ph.D.," *Science*, 874 Broadway, New York.

WANTED.—A position in teaching chemistry by a Graduate of an American Polytechnic Institution and of University Göttingen, Germany. Five years' experience in teaching Chemistry. Address, Walter J. Keith, 757 Cary Street, Brockton, Mass.

WANTED.—A young man to canvass for advertisements for *Science*. The usual commission of thirty per cent will be paid. Apply in person at *Science* Office, 874 Broadway, New York.

DOUBLE honor graduate in Science and Philosophy. Desires position in science, of the nature of a lecturer. Address, E. A. Beckett, Trinity College, Hartford, Conn.

WANTED.—Theory of the Earth, by Hutton. Principles of Geology, by Lyell. Manual of Geology, by Phillips. Lehrbuch der Geologie und Petrofacenkunde, by Carl Vogt. Etudes sur le Métamorphisme, by Daubrée.

WE are engaged in a study of the geographical distribution and osteology of our North American Box Turtles or *Terrapene (Cistudo)*. Specimens from Georgia, Tennessee, Alabama and the Dakotas are especially desired. Material from other localities would be welcomed. Would gladly pay expressage and return specimens if desirable. Specimens should be enclosed in a small box with but little paper (without alcohol) and addressed, W. E. Taylor, Walker Museum, University of Chicago, Chicago, Ill.

WANTED.—Addresses of persons interested in archaeology. Copies of the new archaeological journal in exchange for lists of collections. A collection of 10,000 valuable objects, the results of my nine years' exploration in the Mississippi Valley, for sale. Price, \$7,650. Warren K. Moorehead, Waterloo, Indiana.

WANTED.—(1) Data of Cases of Contagious Mental Disorders; (2) "Anatomy of Suicide," by Forbes Winslow; "English Suicide Fields," Radcliffe. State date and price of (2) and (3). Address, James Wood, M.D., 162 St. John's Place, Brooklyn, N. Y.

WANTED.—Extracts made from departmental libraries or archives, and from the Congressional Library at the National Capital; languages translated by an experienced linguist. Address, "Translator," 2220 Fifteenth Street, N.W., Washington, D. C.