

for many years, and slightly to this day, I hesitate in naming Dearborn and Randolph Streets. Of course, any one living upon either of these streets would soon overcome such confusion through one name appearing oftener than the other in use.

The knowledge of this disposition has enabled me sometimes to recover the proper word by taking other words with the same "pivotal" letter, or sound, regardless of their sequence in spelling the word sought.

S. V. CLEVINGER.

Supt. Ill. East. Hospital for Insane.

Singing of Birds.

IN reply to a query by E. B. Titchener (*Science*, April 7) with regard to the expression of emotions in the singing of birds, I have a few notes. A song-sparrow, *Melospiza melodia*, with a broken leg past mending, was kept in our house in a cage about a year and a half, fed, bathed, otherwise cared for and occasionally allowed the freedom of a room. A happier, merrier fellow, I never saw. He sang early and late, nearly the year round, moped a few days and died. The taxidermist said he was much wasted in flesh, and had lived as long as he could. He was kept as comfortable as possible, and his song seemed purely an expression of happiness.

MARY B. MOODY.

Fair Haven Heights, New Haven, Conn., May 2.

Photographs of Botanists.

YOUR botanical subscribers and readers most likely will be interested in the collection of photographs of about 150 American botanists and a small number of foreign botanists, that Michigan State Agricultural College is displaying in the Departments of Liberal Arts at the Columbian Exposition.

I hope still others of the "fraternity" will be willing to add a cabinet-sized picture of themselves to a supplementary list, to gratify their friends.

W. J. BEAL.

Agricultural College P. O., Mich., May 3.

CALENDAR OF SOCIETIES.

New Mexico Society for the Advancement of Science, Las Cruces, N.M.

April 6.—F. C. Barker, The English Form of Government; C. H. Tyler Townsend, Life Zones of the Organ Mountains in Southern New Mexico.

Anthropological Society, Washington.

May 2.—Henry Gannett, Estimates of Wealth; Wm. T. Harris, The Great Benefit to the Public of the Estimates of Wealth; Anita Newcomb McGee, Transmission of Congenital Deformity; J. D. McGuire, The Evolution of Stone Working.

May 9.—J. N. B. Hewitt, Common Errors in Regard to Indian Language; H. E. Warner, Primitive Belief in a Future State: a Comparative Study; F. A. Seely, The Pivot Point in Modern History; Andrew Palaeologue at Barcelona; Thomas Wilson, Fourth Centenary of the Discovery of America, at Madrid, 1892.

Geological Society, Washington.

May 10.—Walter H. Weed, The Post-Laramie Beds of Montana; J. S. Diller, The Tertiary Revolution in the Topography of the Pacific Slope.

Philosophical Society, Washington.

May 18.—E. D. Preston, Remarks on the Method of Reducing the Waikiki Observations for Changes of Latitude—Results; F. H. Cushing, Ancient Pueblo Arches; Cleve-

land Abbe, The Formation of Rain; G. K. Gilbert, The Average Temperature of the Earth.

THE AMERICAN RACE.

By DANIEL G. BRINTON, M.D.

"The book is one of unusual interest and value."—*Inter Ocean*.

"Dr. Daniel G. Brinton writes as the acknowledged authority of the subject."—*Philadelphia Press*.

"The work will be of genuine value to all who wish to know the substance of what has been found out about the indigenous Americans."—*Nature*.

"A masterly discussion, and an example of the successful education of the powers of observation."—*Philadelphia Ledger*.

Price, postpaid, \$2.

FOSSIL RESINS.

This book is the result of an attempt to collect the scattered notices of fossil resins, exclusive of those on amber. The work is of interest also on account of descriptions given of the insects found embedded in these long-preserved exudations from early vegetation.

By CLARENCE LOWN and HENRY BOOTH.

12°. \$1.

N. D. C. HODGES,

874 Broadway, New York.

BOOK-REVIEWS.

Coal-Pits and Pitmen: A Short History of the Coal Trade and the Legislation Affecting It. By R. NELSON BOYD. London, Whittaker & Co., 1892. 256 p. 12°.

IN this volume, which is an enlarged edition of a paper published under the title of "Coal-Mine Inspection: Its History and Results," the author has gathered a great number of facts relative to the subject. In one chapter he gives an account of the condition of the colliery population during the last century, which is not a pleasing one. The harsh methods of treatment led to many strikes and great destruction of property. The men were at first practically slaves, but an act of Parliament passed in 1775 and another in 1799 did away with the system of bondage, although with little benefit to the men at first. Subsequent acts have mitigated the rigors of their condition and protected them from the rapacity of mine owners and overseers.

The history of the coal trade is treated of in considerable detail, and mention is made of early explosions and means of ascertaining the presence of fire-damp. The early machinery, of a very primitive character compared with modern appliances, is also described. The investigations of one of the various Parliamentary committees show the condition of the colliery operatives in 1833. In referring to this subject, Mr. Boyd states that, "The children were frequently beaten by the men for whom they worked; so much so, that 'they seldom slept with a whole skin.' Besides this, their backs were cut with knocking against the roof and sides of the roadway, and their feet and legs covered with sores and gatherings, owing to the water. The children, boys and girls, earned their wages by drawing the coals in tubs along the galleries by means of a belt and a chain passing between the legs. Many girls were thus employed, and after a time became crooked and deformed. From the nature of the work they soon became as rough and uncouth as the men and boys, fighting and swearing like them."

Considerable attention is given to colliery explosions, and the

Reading Matter Notices.

Ripans Tabules: for torpid liver.
Ripans Tabules banish pain.

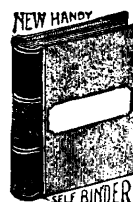
BACK NUMBERS and complete sets of leading Magazines. Rates low. AM. MAG. EXCHANGE, Schoharie, N. Y.

RESTORE YOUR EYESIGHT

Cataracts, scars or films can be absorbed and paralyzed nerves restored, without the knife or risk. Diseased eyes or lids can be cured by our home treatment. "We prove it." Hundreds convinced. Our illustrated pamphlet, "Home Treatment for Eyes," free. Don't miss it. Everybody wants it. "THE EYE," Glens Falls, N.Y.

A TEMPORARY BINDER

for *Science* is now ready, and will be mailed postpaid on receipt of 75 cents.



This binder is strong, durable and elegant, has gilt side-title, and allows the opening of the pages perfectly flat. Any number can be taken out or replaced without disturbing the others, and the papers are not mutilated for subsequent permanent binding. Filed in this binder, *Science* is always convenient for reference.

N. D. C. HODGES, 874 Broadway, N. Y.

long list of these is simply appalling. In spite of many improvements, their number even in recent years is not small, although, as a rule, they are not quite as disastrous as they formerly were. Over 5,500 lives have been lost from this cause in England alone between 1850 and 1889. We can commend the volume to all persons interested in the subject of coal and coal mining.

J. F. J.

The Student's Handbook of Physical Geology. By A. J. JUKES-BROWNE. Second edition, revised. London and New York, G. Bell. 1892. 666 p. 8°.

THE breadth of view expressed in the preparation of this excellent text-book makes it more worthy of notice in an American journal than most English books are. Its illustrations, both verbal and graphic, are of course largely British; but so many examples are taken from other parts of the world that its insular origin is not prominent. Its various chapters suggest many of the newer points of geological view; its style is simple and easy, inciting the student to further reading than the end of his lesson. As is the case with most text-books on geology, the treatment of the chapters on sedimentary deposits and on the origin of valleys shows clearly how much later an understanding was reached in the latter than in the former subject. Stratified rocks are described as if they were manifestly the product of aqueous deposition; but the origin of valleys by aqueous denudation is carefully argued out, with a series of proofs. Buried valleys are mentioned before drowned valleys, although the natural order of occurrence is the other way. From my own greater interest in physiographic geology than in the other chapters of the book, my attention is naturally directed towards that part of the subject, especially as the author recognizes it as a primary division of the science. While its treatment is greatly in advance of that which it commonly receives, it still leaves something to be desired before it shall be commensurate with its importance and with the treatment of other equally important but more attentively considered chapters. For example, it is implied that anticlines are

normally transformed into valleys, and synclines into mountains; while it is easily shown that this transformation is not dependent on the attitude but on the hardness of the beds involved in the folding and on their relation to base-level. Again, in the discussion of sub-aerial denudation and the origin of valleys, no reference is made to the completion of the task of valley-making in the base-levelling of the region; and plains of denudation are referred to only as a product of marine erosion.

The book may be warmly recommended for the reference shelves of school libraries, and until the variety of American text-books of geology is increased, it will doubtless share with Geikie's smaller "Geology" a place in our schools and colleges.

W. M. D.

ONE of the largest cases in the Century Company's room at the World's Fair is devoted to an exhibit of "how a dictionary is made." Beginning with a copy of the very earliest English dictionary, Bullokar's "English Expositor," printed in London in 1616, a half-dozen of the important dictionaries of the past are shown, up to Bailey's, Johnson's, and the Imperial, the latter of which was the basis of the Century Dictionary. The exhibit includes a copy of the edition of Bailey's which was the first to include cuts, or "engraved schemes," as they are called on the title-page. In order to picture the growth of the language, especially in scientific lines, each book is open at the words beginning with "micro," of which in the first dictionary there is but one word, "microcosmus," while in the Century there are eight pages of the compounds of "micro." These eight pages, from the first manuscript, through the various proofs (showing additions and corrections) up to the finished dictionary, form the exhibit, with the addition of plates, original pictures, engravings on wood, and the manuscript and proofs of the word "take." With the latter are the quotations and definitions, used and unused, handed in by readers. The entry under "take" occupies about twelve columns in the dictionary, but it will be seen that not more than half of the material gathered was finally used.

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. J. C. Wilson, Philadelphia, Pa., says: "I have used it as a general tonic, and in particular in the debility and dyspepsia of overworked men, with satisfactory results."

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.]

I have 500 microscopic slides to exchange in lots to suit. Want Kodak, first-class field-glass or scientific books. A. C. Gruhlke, Waterloo, Ind.

Texas Plants. I will collect sets of plants represented in this region of Texas, either for sale or for exchange for literature, for anyone who will send me an order in time to fill it. Plants to be ready complete in November. C. F. Maxwell, Box 174, Dublin, Texas.

For sale or exchange—A Telescope (36 diameters, copper barrel)—for \$20 cash or scientific books of that value. A. N. Somers, La Porte, Ind.

For sale—A complete set of the Reports of the Second Geological Survey of Pa., 1874-1893, including the Grand Atlas. Publisher's price over \$115. Will sell for \$50. Address F. D. Chester, Newark, Del.

The undersigned has skins of Pennsylvania and New Jersey birds, as well as other natural history specimens: which he wishes to exchange for marine, fresh water, and earthworms of the South and West. Correspondence with collectors desired. J. Percy Moore, School of Biology, University of Pennsylvania, Philadelphia.

For sale or exchange.—I have a Caligraph typewriter (No. 2) in perfect order and nearly new. It is in a heavy leather, plush-lined office case, the whole costing me about \$100. I desire to obtain for it, either by sale or exchange, a new No. 5 "Kodak" camera, with six double feather-weight plate-holders and the latest pattern of their tripod. The lens and pneumatic time-shutter must also be the same as those now sold with the last No. 5 Kodak. The price of what I desire in exchange is \$78. Address, for particulars, P. O. Box 314, Takoma, District of Columbia.

For sale.—An Abbe binocular eye-piece for the microscope. Alfred C. Stokes, 527 Monmouth St., Trenton, N. J.

For sale or exchange.—One good long range Remington B. L. rifle, 44 calibre, also land and fresh water, and marine shells. Want shells, Safety, camera or printing press. A. H. Boles, Hudson, Mich.

For sale—A Zentmayer new model U. S. Army Hospital monocular stand. Price \$110, will sell for \$75. Address H. C. Wells, No. 151 Broadway, New York.

Wants.

WANTED, as principal of a flourishing technical school, a gentleman of education and experience who will be capable of supervising both mechanical and common school instruction. Special familiarity with some technical branch desirable. Address, giving age, qualifications, etc., J. B. Bloomington, Fifty-ninth street and Third avenue, N. Y.

WANTED.—A young man as assistant in our microscopical department. Queen & Co., Philadelphia.

THE undersigned desires specimens of North American Gallinae in the flesh for the study of their pterylosis. These species are especially desired: *Colinus ridgwayi*, *cyrtornyx montezumae*, *deudragapus franklini*, *lagopus velchi*, *tympanuchus cupido* and *pediculus phasianellus*. Any persons having alcoholic specimens which they are willing to loan or who can obtain specimens of any of the above are requested to communicate with Hubert Lyman Clark, 382 Fifth Avenue, Pittsburgh, Pa.

A COMPETENT TEACHER of botany in college or university is open to engagement. Address L., Box 86, Rochester, Mich.

CAN any one inform me as to the age to which cats have lived? I have one twenty years old. Edward D. Webb, 132 W. Eighty-first St., New York.

WANTED—Second-hand. Foster's Physiology, Balfour's Comparative Embryology, Claus & Sedgwick's Zoology, Flower's Osteology of Mammalia, Vine's Physiology of Plants. Please state editions and prices asked and address Richard Lees Brampton, Ontario, Canada

A GRADUATE ENGINEER will give instruction evenings in geometry, trigonometry and surveying, mechanics, physics, mechanical drawing and general engineering construction. Five years' experience in field and editorial work on engineering journal. References furnished. C. S. H., 102 Tribune Building, New York.

THE ARCHAEOLOGIST.

An Illustrated Monthly Magazine devoted exclusively to American Archaeology and Anthropology. Subscription price, one dollar a year. Sample copies free.

The Archaeologist, Waterloo, Ind.