latter part of the season did considerable field work, and reports upon a number of injurious species. Perhaps the most interesting feature of his report is his work upon the enemies of the codling moth in California. He has reared four entirely new parasites of this species, two of which are primary and two secondary. The egg parasite seems to be a very important feature in the life of the codling moth on the Pacific coast, and we know from previous experience with egg-parasites of the same genus that they are capable of very rapid development, and are consequently very beneficial insects where they attack injurious species. Professor Bruner treats of the insects of the year, and enters upon the consideration of insects detrimental to the growth of young trees on tree claims in Nebraska and other portions of the West, an important subject which has not before received treatment.

-No. 12 of Blakiston's (Philadelphia) series of "Quiz-Compends" has just been published. These compends are based on popular text-books and the lectures of prominent professors, and are kept constantly revised, so that they represent the present state of the subjects upon which they treat. The one now before us, No. 12, "A Compend of Equine Anatomy and Physiology," by Professor William R. Ballou, supplies for students of veterinary anatomy and physiology a work which will answer their needs not only as a text-book, but also for work in the dissecting-room. In its preparation the standard work of Chauveau has been followed in the main, though the works of Strangeways, Gray, and Quain have also been consulted. The work is illustrated with twenty nine engravings, selected for the purpose from Chauveau's "Comparative Anatomy."

-Bulletin No. 24, from the Agricultural Experiment Station. Madison, Wis., is entitled "A New Method for the Estimation of Fat in Milk, Especially Adapted to Creameries and Cheese Factories." Dr. S. M. Babcock, chemist of the station, has devised a method for determining the amount of fat in milk, which appears to be simple, economical, and accurate. Briefly described the method is as follows. A carefully measured sample of milk is placed in a test bottle having a long narrow neck. Next, an equal volume of sulphuric acid is added, and the bottle is placed in a wheel, which is revolved horizontally from six hundred to eight hundred times per minute, for about six minutes. At the end of this time the fat of the milk set free by the acid has risen to the top of the liquid. Hot water is then poured into the bottle, partly filling the neck. Upon again whirling for a couple of minutes the fat will rise through the water into the neck, in a long column, where it is easily read off by graduations on the neck. By this method the fat in skim milk, buttermilk, whey, cream, and even cheese can be determined.

-Messrs. Ginn & Co. have published "The Nine Worlds," by Mary E. Litchfield, being stories from the Norse mythology. The stories are based upon the Eddas, but the authoress has also relied much upon the best German and other authorities. Unfortunately, she has, as she admits in her preface, drawn largely upon her own imagination, the first story in the book having no foundation except a few lines of poetry, which really do not support it at all. Hence, though she tells us much about the mythology of the Norsemen, her book cannot be relied upon as an authority. The leading character in most of the myths is Loki, the spirit of evil, while Odin, Thor, and various other gods and giants, are brought prominently forward. The slaying of Baldur, who represents the summer sun, and the carrying off of Iduna, the goddess of spring, are among the most interesting myths. Miss Litchfield gives in an introduction an account of the Norse cosmology, and in an appendix a glossary of the names and attributes of the various gods and other personages. The book will interest those who like tales of the marvellous, and will impart some general information about the Norse mythology.

-The "Summary of the Seventh Annual Report of the Bureau of Statistics of Labor of the State of New York" contains matter of interest to economists. It is devoted to an account of the various strikes, lock-outs, and boycotts that have occurred in the State during the past five years, with statistical tables showing the

Publications received at Editor's Office. July 21-Aug. 9.

AMERICAN Association for the Advancement of Science, Proceedings of, Thirty-eighth Meeting, August, 1889. Salem, Permanent Secretary. 496 p. 8°.

ANNUAL Report of the Chief Signal Officer of the Army to the Secretary of War, for the year 1889. Parts I and II. Washington, Government. 389 + 165 p. 8°.

ANNUAL Report of the Department of Mines of New South Wales, 1889. Sydney, Government. 253 p. f°.

South Wales, 1899. Sydney, Government. 258 p. fc.

Bunyan, John. Pilgrim's Progress. (Classics for Children.) Ed. by D. H. Montgomery. Boston, Ginn. 119 p. 12°. 35 cents.

Hardy, A. S. Elements of the Differential and Integral Calculus. Boston, Ginn. 239 p. 8°. \$1.65.

International Marine Conference, 1889, Proceedings of. Vols. I, II, and III. Washington, Government. 814 + 680 + 502 p. 8°.

Miami Horticulturist. Vol. 1. No. 1. m. Bradford, Ohio, M. Cassel. 8 p. 4°. 25 cents per year.

Montgomery, D. H. Leading Facts of American History. Boston, Ginn. 412 p. 12°. \$1.10.

Muller, F. Max. Three Lectures on the Science of Language. Chicago, Open Court Publ. Co. 112 p. 8°. 75 cents.

THIRD EDITION.

THE FAULTS OF SPEECH

A. MELVILLE BELL,

Author of "Visible Speech," etc., etc.

The Faults of Speech is a Self-Corrector and Teacher's Manual, for the removal of all Impediments and Defects of Articulation.

60 Cents.

** Sent postpaid on receipt of price,

N. D. C. HODGES, 47 Lafayette Place, NEW YORK.

PRACTICAL ELECTRICAL NOTES AND DEFINITIONS.

For the use of engineering students and practical men by W. P. MAYCOCK, together with Rules and Regulations to be observed in Electrical Installation Work, with diagrams. 130 pages, 32mo, cloth, 60 cts. E. & F. N. SPON, 12 Cortlandt St., New York

HEAVEN AND HELL. 416 p., paper. DIVINE LOVE AND WISDOM. 383 p., paper. By EMANUEL SWEDENBORG. Mailed, prepaid, for 14 cents each (or 25 cents for both), by the American Swedenborg P. and P. Society, 20 Cooper Union, N.Y. City.

THE WINNIPEG COUNTRY:

ROUGHING IT WITH AN ECLIPSE PARTY.

A. ROCHESTER FELLOW.

(S. H. SCUDDER.)

With thirty-two Illustrations and a Map. 12°. \$1.50.

"The story is a piquant, good-humored, entertaining narrative of a canoe voyage. A neater, prettier book is seldom seen."—*Literary World*.
"This is a sprightly narrative of personal incident. The book will be a pleasant reminder to many of rough experiences on a frontier which is residue vooding." Restart of the properties of the pro

many of rough experiences of a frontier which is rapidly receding."—Boston Transcript.

"The picture of our desolate North-western territory twenty-five years ago, in contrast with its civilized aspect to-day, and the pleasant features of the writer's style, constitute the claims of his little book to present attention."—The Dial.

N. D. C. HODGES, PUBLISHER, 47 LAFAYETTE PLACE, NEW YORK.

BOOKS: How to get them. If there is any book or pamphlet that you want, write to the Science Book Agency, 47 Lafayette Place, New York.

D. APPLETON & CO.

Publish

Volume 67 of the International Scientific Series.

THE COLOURS OF ANIMALS:

THEIR MEANING AND USE.

ESPECIALLY CONSIDERED IN THE CASE OF INSECTS.

By EDWARD BAGNALL POULTON, F.R.S.

With Chromo-lithographic Frontispiece and 66 Figures in Text. 12mo, cloth. Price, \$1.75.

"Mr. Poulton is to be congratulated on having produced so readable and suggestive a volume on one of the most attractive departments of natural history, and on having by his own researches contributed so largely to the solution of some of the more interesting problems which it presents."—ALFRED R. WALLACE, in Nature.

DRAGON-FLIES vs. MOSQUITOES. CAN THE MOSQUITO BE EXTERMINATED?

THE LAMBORN PRIZE ESSAYS,

BY WORKING ENTOMOLOGISTS.

8vo, cloth. Illustrated. \$1.50.

This book embodies the results of a scientific study of the mosquito nuisance. For the first time scientists have undertaken a careful, practical investigation of this question, and their reports show how the mosquito pest may be mitigated.

D. APPLETON & CO., Publishers,

1, 3, & 5 BOND STREET, NEW YORK.

causes and results of the strikes and the costs to both parties. In giving the number of strikes, each establishment is reckoned separately, so that if a general strike occurred affecting a hundred establishments it counts in the report as a hundred strikes. On this basis it appears that during the five years from 1885 to 1889 the number of strikes in the State was 9,384, of which 5,866 were successful and 3,468 unsuccessful, while 50 were pending at the time of making up the report. The loss to the laborers is set down at over \$8,000,000, and the gain in wages for five years at upwards of \$18,000,000. Commissioner Peck thinks that there is no likelihood of a discontinuance of strikes, and believes that on

the whole they are beneficial to the laborers. He shows, however, that there is a strong disposition on the part of most labor organizations to exhaust all peaceful means of settling difficulties before striking, and quotes largely to this effect from their rules and regulations. The feeling of many employers about labor disputes is well expressed in a remark by one of their number which is quoted in the report: "When they have us down they give it to us; and when we have them down we give it to them" (p. 51). The commissioner believes, however, that "large-souled employers have no hard feelings against employees who protect themselves in an open and honorable manner."

Horsford's Acid Phosphate.

In dyspepsia the stomach fails to assimilate the food. The Phosphate assists weakened stomach, making the process of digestion natural and

Dr. R. S. McComb, Philadelphia, says: "Used it in nervous dyspepsia, with suc-

Dr. W. S. LEONARD, Hinsdale, N. H.,

"The best remedy for dyspepsia that has ever come under my notice.

Dr. T. H. ANDREWS, Jefferson Medical College, Philadelphia, says:

"A wonderful remedy which gave me most gratifying results in the worst forms of dyspepsia.

Descriptive pamphlet free.

Rumford Chemical Works, Providence, R. I.

Beware of Substitutes and Imitations.

CAUTION .- Be sure the word "Horsford's" is printed on the label. All others are spurious. Never sold in bulk.



DO YOU INTEND TO BUILD?

We offer an Atlas of Sensible Low Cost Houses, a portfolio 11x14 inches, containing handsome illustrations, floor plans, and full descriptions of this popular design, and fifty-four others, ranging in cost from \$800 to \$7,200. This specimen design is for a cottage with seven rooms, and costing \$1,100. It combines beauty and comfort, has two large porches, and is a popular and practical working design, having been built several times for its estimated cost.

No matter what style of a house you may intend to build, it will pay you to have this book.

We will send this Atlas, postpaid, on receipt of price, \$1.—N. D. C. Hodges, 47 Lafayette Place, New York.

"The Sherman 'King' Vaporizer successfully solves the difficult problem of disinfection." Scientific American.

By its use, **Pure Air** is secured in every Home, Schoolhouse, Church, or other public building, at a trifling cost.

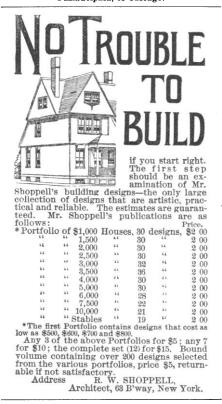


ALL IMPURE AND OFFENSIVE ODORS ABSOLUTELY REMOVED.

Each Vaporizer sold charged for use. No care except to replenish once in two months at expense of 4 to 8 cents, according to size Three sizes, \$3.50, \$5, \$8. Illustrated Pamphlet free to all.

SHERMAN "KING" VAPORIZER COMPANY,

Chicopee Falls, Mass.; Boston, New York, Philadelphia, or Chicago.



Readers of Science

Corresponding or visiting with Advertisers, will confer a great favor by mentioning this paper.

A New Method of Treating Disease.

HOSPITAL REMEDIES.

What are they? There is a new departure in the treatment of disease. It consists in the collection of the specifics used by noted specialists of Europe and America, and bringing them within the reach of all. For instance, the treat-ment pursued by special physicians who treat indigestion, stomach and liver troubles only, was obtained and prepared. The treatment of other physicians celebrated for curing catarrh was procured, and so on till these incomparable cures now include disease of the lungs, kidneys, female weakness, rheumatism and nervous debility.

This new method of "one remedy for one disease" must appeal to the common sense of all sufferers, many of whom have experienced the ill effects, and thoroughly realize the ab-surdity of the claims of Patent Medicines which are guaranteed to cure every ill out of a single bottle, and the use of which, as statistics prove, has ruined more stomachs than alcohol. A circular describing these new remedies is sent free on receipt of stamp to pay postage by Hospital Remedy Company, Toronto, Canada, sole proprietors.

GEMS AND PRECIOUS STONES OF NORTH AMERICA:

A popular description of their occurrence, value, history, archæology, and of the collections in which they exist; also a chapter on pearls, and on remarkable foreign gems owned in the United States. By George Frederick Kunz. Illustrated with eight colored plates and numerous engravings. Price, \$10.

Mr. Kunz, who is well known as an authority upon the subject of gem stones, and who is the expert for Tiffany & Co., possesses peculiar facilities for the preparation of a work of this kind.

Sent postpaid on receipt of price.

N. D. C. HODGES, 47 Lafayette Pl., N. Y.

ANY OF

Prof. A. MELVILLE BELL'S WORKS.

Elocution — Visible Speech — Principles of Speech—Faults of Speech—Phonetics—Line Writing - World - English, etc.,

SUPPLIED BY

N. D. C. HODGES,

47 Lafayette Place, N. Y.

BOOKS: How to Exchange them for others. Send a postal to the SCIENCE exchange column (insertion free), stating briefly what you want to exchange. SCIENCE, 47 Lafayette Place, New York.

- A very admirable scheme for schools, colleges and others to get text books is the one recently started by W. B. Harison of 6 Clinton Place, New York City. Mr. Harison, during the past ten or twelve years, while a member of a wholesale school-book house, has made a study of the best means of meeting the demands of institutions using a variety of text books; and his system, the result of experience, insures accuracy, promptness and economy. Being thoroughly acquainted with the good points of the many educational publications, Mr Harison is able to purchase intelligently and advise on the many questions arising from time to time; and as his system is based upon a commission it is his interest to act for his customers to their best advantage. Schools and colleges which purchase their own supplies will find it to their interest to write to him.

CATARRH.

Catarrhal Deafness-Hay Fever,

A NEW HOME TREATMENT

Sufferers are not generally aware that these diseases are contagious, or that they are due to the presence of living parasites in the lining membrane of the nose and eustachian tubes. Microscopic research, however, has proved this to be a fact, and the result of this discovery is that a simple remedy has been formulated whereby catarrh, catarrhal deafness and hay fever are permanently cured in from one to three simple applications made at home by the patient once in two weeks.

N.B.—This treatment is not a snuff or an

ointment; both have been discarded by reputable physicians as injurious. A pamphlet explaining this new treatment is sent free on receipt of stamp to pay postage, by A. H. Dixon & Son, 337 and 339 West King Street. Toronto, Canada.—Christian Advocate.

Sufferers from Catarrhal troubles should carefully read the above.

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

are not mutilated for subsequent permanent binding. Filed in this binder, Science is always convenient for reference.

Temporary binders of the same description but without side title, to fit any paper or periodical of ordinary size, wil be mailed postpaid on receipt of price as given below. In ordering, be sure to give the name of paper or periodical and style of binder.

8 to 12 inches long, cloth, \$0.50; leather, \$0.60.
12 " 14 " " 60 " 75.
14 " 17 " 1 " " 75 " 1 .
17 " 19 " " " 1.00 " 1.25.

N. D. C. HODGES, 47 Lafayette Place, New York.

Old and Rare Books.

Back numbers Atlantic, Century, Harper, and Scribner, 10 cents per copy, other magazines equally low. Send for a catalogue.

A. S. CLARK,

Bookseller,

34 Park Row, New York City.

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

N. D. C. HODGES, 47 Lafayette Pl., New York, Announces as Just Published

Fact and Theory Papers

THE SUPPRESSION OF CONSUMPTION.

By Godfrey W. Hambleton, M.D. 12°. 40c.

By Godfrey W. Hambleton, M.D. 12°. 40c.

"The inestimable importance of the subject, the eminence of the author and the novelty of his work all combine to render the little treatise worthy of special consideration. . . . We heartily commend Dr. Hambleton's booklet and wish there were more such works."—Editorial, Boston Daily Advertiser.

"The monograph is interesting in style, scholarly, and well worth of careful consideration. It is devoid of technical expressions, and can be easily read and digested."—Pharmaceutical Era.

"It is full of facts and wisdom."—Philadelphia Saturday Evening Post.

"The book contains much of importance to the medical fraternity, as well as the general populace."—Burlington Hawkeye.

"We commend the book to physicians and laymen."—Herold (German), Milwaukee.

THE SOCIETY AND THE "FAD.

By Appleton Morgan, Esq. 12°. 20 cents.

By APPLETON MORGAN, Esq. 12°. 20 cents. "Mr. Morgan founds a sensible and interesting address upon a text furnished by a sentence from a young ladies' magazine; namely, 'Browning and Ibsen are the only really dramatic authors of their century."—New York Sun.

"In the little book before us the treatment of the subject is dispassionate and logical. The comparison drawn throughout this monograph is between Shakspeare and Browning, the subject-matter being largely based on the Browning and Shakspearian societies and how they came to exist. A pleasant half-hour or more may be spent over the book, and some useful information derived from it."—Englewood Times.

"To say nothing of the dissection of Browning, the virid side lights the contract."

"To say nothing of the dissection of Browning, the vivid side-lights thrown upon Shakspeare's life and work make the reading of this volume at once a pleasure and a source of instruction."—Chicago Evening Journal.

PROTOPLASM AND LIFE.

By C. F. Cox. 12°. 75 cents.

The author of this book was for some years president of the New York Microscopical Society, and in this volume he sets forth his views on the spontaneous generation theory and its relation to the general theory of evolution, and on protoplasm and the cell doctrine.

Ready at an early date.

THE CHEROKEES IN PRE-COLUMBIAN TIMES

By Cyrus Thomas. 12°. \$1.

By Cyrus Thomas. 12°. \$1.

Dr. Thomas in this work will reverse the usual method of dealing with prehistoric subjects; that is to say, he will commence with the earliest recorded history of the tribe as a basis, and trace the chain back step by step by the light of the mounds, traditions, and other evidence, as far as possible. He has already presented to the public some reasons for believing the Cherokees were mound-builders, but additional evidence bearing on the subject has been obtained. A more careful study of the Delaware tradition respecting the Tallegwi satisfies him that we have in the Bark Record (Walam Olum) itself proof that they were Cherokees. He thinks the mounds enable us to trace back their line of migration even beyond their residence in Ohio to the western bank of the Mississippi. The object is therefore threefold: 1. An illustration of the reverse method of dealing with prehistoric subjects; 2. Incidental proof that some of the Indians were mound-builders; 3. A study of a single tribe in the light of the mound testimony. This work will be an important contribution to the literature of the Columbian discovery which will doubtless appear during the coming two years.

THE TORNADO.

By H. A. HAZEN. 12°. \$1.

By H. A. HAZEN. 12°. \$1.

Professor Hazen is one of the prominent meteorologists connected with the United States Signal Office. In this work he reviews our present information as to tornadoes, severely criticising some of the opinions held in regard to them up to this time. No one has given a more careful study to these destructive storms than has Professor Hazen, and his book will prove a decided contribution to the world's knowledge. In this book will be found a careful discussion of the important question of Tornado Insurance now attracting so much attention. Hundreds of dollars may be saved by people who are thinking of such insurance by following the principles here made plain.

BOOKS: How to get them. If there is any book or pamphlet that you want, write to the Science Book Agency, 47 Lafayette Place, New York.

Wants.

Any person seeking a position for which he is qualified by his scientific attainments, or any person seeking some one to fill a position of this character, be it that of a teacher of science, chemist, draughtsman, or what not, may have the 'Want' inserted under this head freed or Cost. if he satisfies the publisher of the suitable character of his application. Any person seeking information on any scientific question, the address of any scientific many to any way use this column for a purpose consonant with the nature of the paper, is cordially invited to do so.

TO PRINCIPALS OR COMMITTEES.—Professor of Classics and Sciences, experienced in advertising and building up schools, now employed, desires change. WILLIAM, Roslyn, L. I.

WANTED.—A graduate from the Advanced Course of the Framingham State Normal School desires an assistant's position in a high school. An appointment in New England preferred. Address G., Lock Box 4, Framingham, Mass.

H YBRIDS.—A. M. Suchetet, 10 Rue Alain, Rouen, France, desires to correspond with those possessing hybrids, either living specimens or stuffed, of mammals, birds or other animals.

WANTED.—A Mining Engineer of standing and experience. One having had practical experience in Coal Mining and the manufacture of Coke preferred. Address A., care "SCIENCE."

CHEMIST.—A Harvard Graduate and Specialist in Chemistry desires a position with some manufacturing industry, or with a practical chemist. He would make an engagement to take charge of a laboratory and lecture on Chemistry. He has had large experience in the laboratory and school-room, and can give the best of references. Address J., Harvard College, Cambridge, Mass.

WANTED.—A Lady Teacher, at present teaching in England, with 12 years of very successful experience in primary work desires a similar position in America. An appointment in the State of Ohio, or the City of New York, preferred. Excellent references, etc. Address in July or August, L. DUNCAN, Poste Restante, Stainland, Halifax, England.

WANTED.—The latest and most reliable authorities on the Occurrence, Analysis, and Practical Uses of Native Hydro-Carbons, such as Bitumen, Asphaltum, Mineral Wax, etc. Address Dr. J. E. TALMAGE, Box 1,047, Salt Lake City, Utah.

ALMACE, BOX 1,027, Sait Lake City, Utan.

A ZOOLOGIST, acquainted with the United States, graduate (Ph.D. Freiburg, B.Sc. of an English university) of many years' standing; late Fellow of an English college; late assistant to a German university, professor of Comp. Anatomy; many years a student at two German universities; pupil of Huxley. Kölliker, Semper. Wiedersheim and Weismann; author of many well-known memoirs on Comp. Anatomy and Embryology; thoroughly conversant with all branches of the subject; fond of teaching, with good testimonials, seeks a Professorship. Address "MORPHOLOGIST," Office of SCIENCE. Other information and a few testimonials can be seen at the Office of SCIENCE.

Exchanges.

[Free of charge to all, if of satisfactory character. Address N. D. C. Hodges, 47 Lafayette Place, New

I wish to exchange Riley's Missouri Reports, either singly or full set, for Proceedings Entomological Society, Philadelphia, vols. 2 to 6 inclusive. Will also exchange Casey's Revision of the Stenini of N. A. and Horn's Revision of the Tenebrionidae. F. M. Webster, La Fayette, Ind.

I wish to exchange a fresh and complete set of Weiss and Spier's "Necropolis of Ancon" for other books, either new or second-hand, if the latter are in good condition. What have you to offer? Address Warren Watson, Kansas City, Mo.

1,000 botanical specimens representing 250 genera in exchange for those not in my collection. Send list of duplicates, and receive a similar one to choose from. Address E. E. Bogue, Orwell, Ashta Co., Ohio.

For exchange—14 volumes (1882-1880) American Jour-

For exchange—14 volumes (1883-1889) American Journal of Science, 10 volumes (1880-1889) American Naturalist, 21 volumes (1879-1890) English Mechanic, all in good condition for binding; also, Morris Typewiter. Wants first-class microscope, camera, chemical or physical apparatus. Address, with full particulars, E. R. Chadbourn, Lewiston, Maine.

Meteorites.—Mr. George F. Kunz, 11 to 15 Union Square, New York, or Hoboken, N. J., will buy or give in exchange for whole or parts of meteorites. Whole ones, undescribed ones, and entire falls especially desited.

Wanted—To furnish roots of *Dodecatheon Meadia*, Sarracenia purpurea, and other wild flowers, native of Southern Wisconsin, in quantities. D. E. Willard, Curator of Museum, Albion Academy, Albion, Wis.

I have a number of duplicates of microscopic slides, mostly botanical, which I would like to exchange for others not now in my collection. Send list of what you have to exchange and get my list. S. R. Thompson, New Wilmington, Pa.