

world, reaching as low as 27.4 inches. The observations for four years, 1884 to 1887, have just reached this country. During the four years sixty-eight storms and twenty-four high-areas have crossed over or very near the summit. As far as studied, the results have shown very materially different conditions here from those at Mount Washington. This is due in part to the lowness of the mountain, and in part to the proximity of the ocean on the west or on the side from which the storms advance. A comparison between Mount Washington and Ben Nevis shows, if any thing, that temperature and moisture have little or nothing to do with the generation of storms. At Ben Nevis the most extraordinary depressions are accompanied by only the slightest change in temperature, while at Mount Washington most remarkable changes in temperature are accompanied by much smaller changes in pressure. These facts would seem to show the extreme need there is of confining ourselves to the certainties of our own studies and conditions, and also the absolute impossibility of making and comparing any except the very broadest generalizations regarding weather conditions in Europe and America. H. A. HAZEN.

Washington, D.C., May 8.

Flying-Machines.

THE communication from Mr. H. A. Hazen in the issue of *Science* for May 1, and his quotation from Le Conte, already

familiar, I presume, to many readers, suggests the following "deadly parallel:"—

(1) We cannot devise a method of utilizing fuel or a source of energy that shall equal the bird (land-animal, or fish).

(2) We can never build a machine which shall be as perfectly adapted to its purpose of self-transportation as the bird (the land-animal or the fish).

(3) There is a limit of weight, say fifty pounds, beyond which the bird cannot fly (one at which the animal cannot run, the fish live and swim).

Ergo, we can never build a flying-machine to carry a man [a railway train to excel the trotter at a mile in two minutes, the whale of a hundred feet length, swimming fifteen miles an hour].

Remembering what the first century of the operation of man's unimpeded inventive power has accomplished, with steam, with electricity, and with the infancy of his machinery, may it not be just as well to cease the attempt to define the impossible? T.

AMONG THE PUBLISHERS.

A QUESTION that has often been discussed is, whether it would be possible to produce rain at will by the use of explosives. It has been claimed by some that rain has followed cannonading, and to test the matter experimentally the latest Congress appropriated

Publications received at Editor's Office,
May 4-9.

FISKE, A. K. *Beyond the Bourn: Reports of a Traveller returned from "The Undiscovered Country."* New York, Fords, Howard, & Hurlbert. 223 p. 16°. \$1.

FLOWER, W. H., and LYDEKKER, R. *An Introduction to the Study of Mammals Living and Extinct.* London, Black. 763 p. 8°. (New York, Macmillan, \$6.)

HANS ANDERSEN'S Stories. Newly translated. In two parts. Part II. (Riverside Literature Series, No. 50.) Boston and New York, Houghton, Mifflin, & Co. 205 p. 16°. 15 cents.

HORSFORD, E. N. *The Defences of Norumbega: A Letter to Judge Daly.* Boston and New York, Houghton, Mifflin, & Co. 84 p. 1°. 8 cents.

MACFARLANE, A. *Principles of the Algebra of Logic.* Edinburgh, David Douglas, 1879. 155 p. 12°. (Boston, Ginn, \$1.35.)

WATSON, L. H. *Not to the Swift. A Tale of Two Continents.* New York, Welch, Fracker Company. 399 p. 12°. \$1.25.

WESTERN Bookseller and Newsdealer, The. Vol. I. No. 1. e. o. w. Chicago, Western Bookseller. 40 p. 8°. \$1 per year.

A SYSTEM OF EASY LETTERING.

By J. H. CROMWELL, Ph.B.

Twenty-six different forms of Alphabets. The space to be lettered is divided into squares, and with these as a guide the different letters are drawn and inked. Price, 50 cents, postpaid.

E. & F. N. SPON, 12 Cortlandt Street, New York.

OF WHAT USE IS THAT PLANT?

You can find the answer in
**SMITH'S "DICTIONARY OF
ECONOMIC PLANTS."**

Sent postpaid on receipt of \$2.80. Publisher's price, \$3.50.

SCIENCE BOOK AGENCY,
47 Lafayette Place, New York

POPULAR MANUAL OF VISIBLE SPEECH AND VOCAL PHYSIOLOGY.

For use in Colleges and Normal Schools. Price 50 cents
Sent free by post by

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

Old and Rare Books.

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

"The Week, one of the ablest papers on the continent."—*Descriptive America.*

THE WEEK,

A Canadian Journal of Politics, Literature, Science and Art.

PUBLISHED EVERY FRIDAY.

\$3.00 per Year, \$1.00 for Four Months.

THE WEEK has entered on its EIGHTH year of publication, greatly improved in every respect, rendering it more worthy the cordial support of every one interested in the maintenance of a first-class literary journal.

The independence in politics and criticism which has characterized THE WEEK ever since its first issue will be rigidly maintained; and unceasing efforts will be made to improve its literary character and increase its attractiveness as a journal for the cultured home. Many new and able writers are now, or have promised to become, contributors to its columns, and the constant aim of the Publisher will be to make THE WEEK fully equal to the best literary journals in Britain and the United States.

As heretofore, PROF. GOLDWIN SMITH will, from time to time, contribute articles. London, Paris, Washington and Montreal letters from accomplished correspondents will appear at regular intervals. Special Ottawa Letters will appear during the sessions of Parliament.

THE WEEK being the same size as "Harper's Weekly," is the largest paper of its class on the continent.

SEND FOR FREE SAMPLE COPY.

C. BLACKETT ROBINSON, Publisher,
5 Jordan St., Toronto, Canada.

THE AMERICAN GEOLOGIST FOR 1891 AND BIEN'S NEW ATLAS OF THE METROPOLITAN DISTRICT,

will be given to **New Subscribers** to the GEOLOGIST for \$25.00 (which is the regular price of the Atlas alone), if ordered through the GEOLOGIST.

For other premiums see the GEOLOGIST for Nov., Dec., and Jan. Address

THE GEOLOGICAL PUBLISHING COMPANY,
Minneapolis, Minn.

THE BOTANICAL GAZETTE.

A monthly illustrated journal of botany in all its departments.

25 cents a number, \$2.50 a year.

Address **PUBLISHERS BOTANICAL GAZETTE,**
Crawfordsville, Ind.

Publications of the University of Pennsylvania
SERIES IN

Philology, Literature and Archæology.

Vol. I. now ready.

1. Poetic and Verse Criticism of the Reign of Elizabeth. By Felix E. Schelling, A.M., Assistant Professor of English Literature. \$1.00.
2. A Fragment of the Babylonian "Dibbarra" Epic. By Morris Jastrow, Jr., Ph.D., Professor of Arabic. 60 cents.
3. a. *Ἰπὸς* with the Accusative. b. Note on a Pas, sage in the Antigone. By William A. Lamberton, A.M., Professor of the Greek Language and Literature. 50 cents.
4. The Gambling Games of the Chinese in America. Fán tán and Pák kóp piá. By Stewart Culin, Secretary of the Museum of Archæology and Palæontology. 40 cents.

In preparation.

The Terrace at Persepolis. By Morton W. Easton, Ph.D., Professor of Comparative Philology.
An Aztec Manuscript. By Daniel G. Brinton, M.D., Professor of American Archæology and Linguistics.

A Monograph on the Tempest. By Horace Howard Furness, Ph.D., LL.D.
Recent Archæological Explorations in New Jersey. By Charles C. Abbott, M.D., Curator of the American Collections.

Archæological Notes in Northern Morocco. By Talcott Williams, A.M., Secretary of the Museum of Egyptian Antiquities.

a. On the Aristotelian Dative. b. On a Passage in Aristotle's Rhetoric. By William A. Lamberton, A.M., Professor of the Greek Language and Literature.

A Hebrew Bowl Inscription. By Morris Jastrow, Jr., Ph.D., Professor of Arabic.
The Life and Writings of George Gascoigne. By Felix E. Schelling, A.M., Assistant Professor of English Literature.

The Papers of this Series, prepared by Professors and others connected with the University of Pennsylvania, will take the form of Monographs on the subjects of Philology, Literature, and Archæology, whereof about 200 or 250 pages will form a volume.

The price to subscribers to the Series will be \$1.50 per volume; to others than subscribers, \$2.00 per volume.

Each Monograph, however, is complete in itself, and will be sold separately.

It is the intention of the University to issue these Monographs from time to time as they shall be prepared.

Each author assumes the responsibility of his own contribution.

N. D. C. HODGES,

47 Lafayette Place, New York, N. Y.

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.

two thousand dollars. Many of the arguments in favor of the scheme can be found in "War and Weather," a book published by the author, Edward Powers, Delavan, Wis. Of the contents, we may mention "Evidence that Artillery Firing sets in operation certain Motions and Forces that cause Condensation of Aqueous Vapor, thus bringing Rain," "Objections and Criticisms Answered," and "Estimate of the Cost of producing a Rain-Storm."

— Macmillan & Co. have published a cheap edition, limited to ten thousand copies, of Mr. Bryce's great work on "The American Commonwealth." This author's edition is complete in every respect. The public is warned against the purchase of unauthorized reprints of this work which are incomplete and omit the American copyright matter, which forms a part of the book absolutely essential to its value and interest.

— *Our Language* "is designed to be a help for those who wish to increase their knowledge of the English language. It will serve as a channel for conveying information contributed by lead-

ing scholars in this field to those eager to receive it, and as a medium of communication through which students of English may obtain one another's aid in deciding questions of etymology, the use of words, spelling, pronunciation, etc.," which is as clear as the statement found in the first number that "Charley Chu, a New York laundryman, has this line of Celestial English on his hand-bilz: 'If eni article not being proper done up, then we will do them over free by returning them.'"

— From Macmillan & Co. we have received "Elementary Lessons in Heat, Light, and Sound," by D. E. Jones, professor of physics in the University College of Wales. The lessons are intended to serve the purpose of introducing beginners to the study of experimental physics, and besides providing a certain amount of useful information, they also give an idea of the methods by which this information can be most directly obtained. For this reason the course has been made experimental, and such brief instructions are given as are required for making or using the necessary apparatus and carrying out the experiments.

Dyspepsia

Horsford's Acid Phosphate.

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

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

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

"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.



PRIZE ESSAYS OF THE AMERICAN PUBLIC HEALTH ASSOCIATION.

Practical Sanitary and Economic Cooking Adapted to Persons of Moderate and Small Means. By MRS. MARY HINMAN ABEL. 12mo, 182 pp. Cloth, 40 cents.

No. 1. Healthy Homes and Foods for the Working-Class. By Professor C. Vaughan, M.D. Ann Arbor, Mich. 8vo, 62 pp. Paper, 10 cents.

No. 2. The Sanitary Conditions and Necessities of School-Houses and School-Life. By D. F. Lincoln, M.D., Boston, Mass. 8vo, 38 pp. 5 cents.

No. 3. Disinfection and Individual Prophylaxis against Infectious Diseases. By George M. Sternberg, M.D., Major and Surgeon U.S.A. 8vo, 40 pp. Paper, 5 cents.

No. 4. The Preventable Causes of Disease, Injury, and Death in American Manufactories and Workshops, and the Best Means and Appliances for Preventing and Avoiding Them. By George H. Ireland, Springfield, Mass. 8vo, 20 pp. Paper, 5 cents.

The four essays (Nos. 1, 2, 3, 4) in one volume of nearly two hundred large octavo pages, thoroughly indexed. Cloth, 50 cents.

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

SCIENCE CLUBBING RATES.

10% DISCOUNT.

We will allow the above discount to any subscriber to *Science* who will send us an order for periodicals exceeding \$10, counting each at its full price.

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

ROSE POLYTECHNIC INSTITUTE.

TERRE HAUTE, INDIANA.—A SCHOOL OF ENGINEERING. Well endowed, well equipped departments of Civil, Mechanical and Electrical Engineering, Chemistry, Drawing. Extensive Shops and Laboratories. Expenses low. For catalogue address H. T. Eddy, Pres.

Speech Reading and Articulation Teaching.

By A. MELVILLE BELL.

Price, 25 Cents.

Practical Instructions in the Art of Reading Speech from the Mouth; and in the Art of Teaching Articulation to the Deaf.

[This Work—written at the suggestion of Miss Sarah Fuller, Principal of the Horace Mann School for the Deaf, Boston, Mass.—is, so far as known, the first treatise published on "Speech Reading."]

From Principals of Institutions for the Deaf.

"Admirable in its conciseness, clearness and freedom from technicality."

"The simplicity and perfection of this little book."

"Full of exact and helpful observations."

"A very interesting and valuable work."

"The rules are clearly given and will be of great utility."

"Every articulation teacher should study it."

"A model of clearness and simplicity, without having any of the puzzling symbols that trouble the common mind."

The exercises given in speech-reading from the lips are especially interesting, and of great importance for the student of phonetics."

— *Modern Language Notes.*

. The above work may be obtained, by order, through any bookseller, or post-free on receipt of price, from

N. D. C. HODGES,

47 Lafayette Place, New York.

AMERICAN HERO-MYTHS.

A Study in the Native Religions of the Western Continent.

By D. G. BRINTON, M.D. 8°. \$1.75.

THE CRADLE OF THE SEMITES.

By D. G. BRINTON, M.D., and MORRIS JASTROW, JR. Ph.D. 8°. 30 cents.

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



DO YOU INTEND TO BUILD?

The "Atlas of Sensible Low Cost Houses," 2 vols. (sent postpaid on receipt of \$2), will aid you, no matter what style of house you may intend to build; as will "Colonial Houses for Modern Homes" (sent postpaid on receipt of \$2).

N. D. C. HODGES,

47 Lafayette Place, New York.

A NEW MONTHLY THE INTERNATIONAL JOURNAL OF MICROSCOPY AND NATURAL SCIENCE.

THE JOURNAL OF THE
POSTAL MICROSCOPICAL AND WESLEY
NATURALISTS' SOCIETIES.

Edited by ALFRED ALLEN and Rev.
WILLIAM SPIERS.

CONTENTS OF APRIL NUMBER:

Notes on the Anatomy of the *Cicindela-Sex-guttata*.
Infusoria, Protozoa, etc.—Practical Methods of Preparation.
Birds' Nests and Plants on Telegraph Lines. Aspect of the Heavens—April, 1891.
A Protest against Indiscriminate Collecting. Color Photography.
Mason's Improved Oxy-hydrogen Lantern and Table Microscope.
Science Jottings.
Cotton in the Holy Land.
Cuba breaking in Two.
Grafting Human Skin.
Limit of Magnification for Photo-Micrography.
Death of Dr. Brady, F.R.S.
Condenser for the Microscope.
Dormant Buds in Woody Dicotyledons.
Examination of Infusoria.
Examination of Drinking Water.
The Annihilation of Smoke.
Boiler-Cleaning.
Cure for Lock-Jaw.
Collectors' Notes for April.
Correspondence.
Parasite in *Vaucheria*.
Local Societies.
Reviews.

\$1.75 Per Year.

To Science subscribers, \$1.00 for one year.
" " " 50 cents for six mos.

PSYCHE.

A Journal of Entomology, published monthly by the Cambridge Entomological Club. \$2.00 per year, \$5.00 per volume of three years. Volume VI. began in January, 1891. Back volumes for sale at \$5.00 each. Volume I. sold only in complete sets.

READY SOON.

THE LABRADOR COAST.

A Journal of two Summer Cruises to that region; with notes on its early discovery, on the Eskimo, on its physical geography, geology and natural history, together with a bibliography of charts, works and articles relating to the civil and natural history of the Labrador Peninsula.

By ALPHEUS SPRING PACKARD, M.D., Ph.D.
8°, about 400 pp., \$3.50.

FOSSIL RESINS.

By CLARENCE LOWN and HENRY BOOTH.

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.

NEW BOOKS.

JUST PUBLISHED.

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.

BY THE SAME AUTHOR.

RACES AND PEOPLES.

"The book is good, thoroughly good, and will long remain the best accessible elementary ethnography in our language."—*The Christian Union*.
"We strongly recommend Dr. Brinton's 'Races and Peoples' to both beginners and scholars. We are not aware of any other recent work on the science of which it treats in the English language."—*Asiatic Quarterly*.
"His book is an excellent one, and we can heartily recommend it as an introductory manual of ethnology."—*The Monist*.
"A useful and really interesting work, which deserves to be widely read and studied both in Europe and America."—*Brighton (Eng.) Herald*.
"This volume is most stimulating. It is written with great clearness, so that anybody can understand, and while in some ways, perforce, superficial, grasps very well the complete field of humanity."—*The New York Times*.
"Dr. Brinton invests his scientific illustrations and measurements with an indescribable charm of narration, so that 'Races and Peoples,' a record of discovered facts, is in reality a strong stimulant to the imagination."—*Philadelphia Public Ledger*.
"The work is indispensable to the student who requires an intelligent guide to a course of ethnographic reading."—*Philadelphia Times*.

Price, postpaid, \$1.75.

THE MODERN MALADY; or, Sufferers from 'Nerves.'

An introduction to public consideration, from a non-medical point of view, of a condition of ill-health which is increasingly prevalent in all ranks of society. In the first part of this work the author dwells on the errors in our mode of treating Neurasthenia, consequent on the wide ignorance of the subject which still prevails; in the second part, attention is drawn to the principal causes of the malady. The allegory forming the Introduction to Part I. gives a brief history of nervous exhaustion and the modes of treatment which have at various times been thought suitable to this most painful and trying disease.

By CYRIL BENNETT.

12°, 184 pp., \$1.50.

THE WINNIPEG COUNTRY;

OR,

ROUGHING IT WITH AN ECLIPSE PARTY.

BY

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 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*.

Fact and Theory Papers

I. THE SUPPRESSION OF CONSUMPTION. 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 worthy of careful consideration. It is devoid of technical expressions, and can be easily read and digested."—*Pharmaceutical Era*.

II. THE SOCIETY AND THE 'FAD.'

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*.

III. PROTOPLASM AND LIFE. By C. F. COX. 12°. 75 cents.

"To be commended to those who are not specialists."—*Christian Union*.

"Physicians will enjoy their reading, and find in them much food for thought."—*St. Louis Medical and Surgical Journal*.

"Mr. Cox reviews the history of his subject with knowledge and skill."—*Open Court*.

"It is of extreme interest."—*Medical Age*.

"Worthy of a careful perusal."—*Indiana Medical Journal*.

"An interesting and popular account of the tendencies of modern biological thought."—*Popular Science News*.

"All interested in biological questions will find the book fascinating."—*Pharmaceutical Era*.

"The author displays a very comprehensive grasp of his subject."—*Public Opinion*.

"Deserves the attention of students of natural science."—*Critic*.

IV. THE CHEROKEES IN PRE-COLUMBIAN TIMES. By CYRUS THOMAS. 12°. \$1.

Dr. Thomas 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.

"A valuable contribution to the question, 'Who were the mound-builders?'"—*New York Times*.

"Professor Cyrus Thomas undertakes to trace back the evidences of a single Indian tribe into the prehistoric or mound-building age."—*N. Y. Sun*.

"An interesting paper."—*Christian Union*.

V. THE TORNADO. By H. A. HAZEN. 12°. \$1.

"The little book is extremely interesting."—*Boston Transcript*.

"A book which will find many readers. The chapter on 'Tornado Insurance' is of interest to all property-holders in the tornado States."—*Boston Herald*.

"The Tornado' is a popular treatise on an important province of meteorology, in which science, the author, Professor Hazen of the United States Signal Service, may be regarded as an expert."—*Philadelphia Ledger*.

VI. TIME-RELATIONS OF MENTAL PHENOMENA. By JOSEPH JASTROW. 12°. 50c.

"All students of psychology will find the book full of interesting facts. Professor Jastrow's good qualities as a thinker and as a writer are too well and too widely known to require comment."—*Public Opinion*.

"A useful work for psychologists—as well as the general reader—by setting forth in brief and easily intelligible form the present state of knowledge in regard to the time required for the performance of mental acts."—*The Critic*.

VII. HOUSEHOLD HYGIENE. By MARY TAYLOR BISSELL. 12°. 75 cents.

"A sensible brochure."—*Brooklyn Eagle*.

"Practical and sensible."—*Public Opinion*.

"The advice and excellent information which it contains are tersely and intelligently expressed."—*Boston Medical and Surgical Journal*.

"Practical and simply written."—*Springfield Republican*.

"The best monograph on home hygiene."—*St. Louis Globe-Democrat*.

In Preparation.

VIII. THE FIRST YEAR OF CHILDHOOD. By J. MARK BALDWIN.

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