SCIENCE.

HARPER'S READERS.

									Pages.	Introduction Price.	List Price.
HARPER'S First Reader	-		-		-		-		144	20cts.	24cts.
HARPER'S Second Reader		-		-		-		-	208	30 ''	36 ''
HARPER'S Third Reader			-		-		-		316	40 ''	48 ''
HARPER'S Fourth Reader		-		-				-	420	50 "	60 ''
HARPER'S Fifth Reader	-		-		-		-		[In Preparation.]

Although published less than six months ago Harper's Readers have already been adopted and are now in satisfactory use in

MORE THAN FIVE HUNDRED CITIES AND TOWNS

including NEW YORK CITY, PHILADELPHIA, JERSEY CITY, N.J., FALL RIVER, MASS., ITHACA, N.Y., JACKSON, MICH., ELGIN, ILL., PATERSON, N.J., and many other places of importance. They have been adopted by the Board of Education of

THE STATE OF SOUTH CAROLINA

for use in the schools of that state, and have received the official sanction of officers and school boards in

HUNDREDS OF COUNTIES AND COUNTRY DISTRICTS.

in all parts of the Union. They have also been adopted for supplementary use in the schools of CHICAGO, ILL., MINNEAPOLÍS, MINN., DULUTH, MINN., PEORIA. ILL., and many others of the best schools in all parts of the country. They have not only been introduced into the schools of the places above referred to, but they have everywhere been received with favor and have been accorded, by teachers and others, the most enthusiastic commendation.

School committees and others whose duty it is to select text-books for schools should see these Readers before adopting others. Copies for examination will be sent on receipt of the introduction price.





"ENCYCLOPÆDIA BRITANNICA." Popular Reprint, \$2.50 per volume, 24 volumes, making the set complete, now ready for delivery. One-half the price of the Scribner & Stoddart editions, and less than one-third the price of the original English editions which we have reproduced in fac-simile texts, maps, plates and illustrations. same number of pages and same number of volumes. Call and examine sets and compare with the other editions, all of which are in our office. Circulars and sample pages mailed.

"THE LITERARY MARVEL OF THE AGE."

THE HENRY G. ALLEN COMPANY, PUBLISHERS, 739 and 741 Broadway, New York.

Unfinished Worlds:

A STORY IN ASTRONOMY. By S. H. PARKES, F.R.A.S., F.L.S. With 9 Illustrative Diagrams. Price \$1.50, cloth.

Price \$1.50, cloth.
"We have read this with profound interest. Mr. Parkes writes with a dignity and love of truth befitting so exalted a theme, with that glow of enthusiasm which a genuine student of the wonders of the heavens may be expected to feel."—Nonconformist.
"Mr. Parkes gives a deeply interesting account of the long series of experiments by Rev. Dr. Dallinger, which have a direct bearing on the late Mr. Darwin's theory of evolution, especially as it relates to the supposed transmutation of every elementary form of life into new and more advanced species."—N. B Daily Mail.
"No clearer or more readable book could be recommended. Excellent illustrative diagrams."—Glasgow Herald. mended. Herald.

JAMES POTT & CO., Publishers, Astor Place, New York.

Schools.

New JERSEY, PLAINFIELD. THE CHESTNUTS.—Parents with daughters to edi cate, or orphan girls with companion, may find comfortable home, with school instruction by applying Miss E. E. Kenyon.

CONNECTICUT, NEW HAVEN, MRS. CADY'S SCHOOL FOR YOUNG LADIES. Prepares for Smith and Wellesley, and admits to Vassar by Certificate. Circulars. Early application necessary.

VERMONT, BURLINGTON. VERMONT EPISCOPAL INSTITUTE. Boarding School for Boys. Prepares for College or Business. Military drill. Terms moderate. Fifty-seventh half-year opens September 3, 1888. Send for catalgue. H. H. ROSS, A.M., Principal.

	Publications received at Editor's Office, Feb. 25-March 2.
lu. I a	AMERICAN Institute of Electrical Engineers, Transactions of the. Vol. V. New York, The Institute. 435 p.
to	GANGULLET, E., and KUTTER, W. R. A General For- mula for the Uniform Flow of Water in Rivers and other Channels. Tr. by R. Hering and J. C. Traut- wine, Jr. New York, Wiley; London, E. & F. N.

- wine, Jr. New York, Wiley; London, E. & F. N. Spon. 240 p. 8°. \$4.
 LAMARTINE, A. de. Jeanne d'Arc. Ed. by Albert Barrère. Boston, Heath. 188 p. 16°.
 LAURIE, S. S. Occasional Addresses on Educational Subjects. Cambridge, Eng., University Pr. 215 p. 12°. (New York, Macmillan, \$1.25.)
 MERIMAN, M. A Treatise on Hydraulics. New York, Wiley. 28: p. 8°. \$2: cm.

 Wiley. 38t p. 8°. \$3.50.
 THOMSON, W. Popular Lectures and Addresses. (Na. ture Series.) Vol. I. Constitution of Matter. London and New York, Macmillan. 460 p. 12°. \$2.

SCIENCE.

GUARANTY INVESTMENT COMPANY

CAPITAL \$250,000.

Hon. ALBERT H. HORTON (Chief Justice, Kansas Supreme Court), Topeka, Kan., Pres't.

7º Guaranteed Farm Mortgages 7º

The Company calls the special attention of Investors to the following points :

I. All loans guaranteed and interest payable semi-annually at the Importers' & Traders' National Bank, New York.

II. Unusual fulness of information, not only about the security itself, but about the general development of the section where the farm is located.

III. An examination each year of the general business of the Company and the Mortgages themselves by a COM-MITTEE OF INVESTORS sent for the purpose.

IV. Many hundred Mortgages taken and NOT A SINGLE FORECLOSURE.

V. Exhibitions in New York at frequent intervals, of Kansas and Nebraska Farm Products. The Exhibition at the American Institute in the fall of 1888, received the *HIGHEST AWARD* of superiority.

VI. Monthly Bulletins giving full information about all Mortgages offered for sale.

Address for Monthly Bulletin and Investors' Committee Report for 1888,

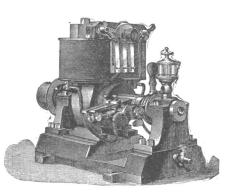
HENRY A. RILEY, General Eastern Manager, 191 Broadway, N.Y.



SCIENCE.

C. & C. ELECTRIC MOTOR COMPAN

Electric Motors FOR Arc and ncandescent Circuits, Most Economical Motor on the Market. **Regulation Perfect.** Motors Designed for all Power Purposes.



OFFICE and MANUFACTORY: 402 and 404 Greenwich Street, New York City.

New England Office, 19 Pearl St., Boston.

Philadelphia Office, 301 Arch St.

Western Office, 139-141 Adams Street Chicago.

Southern Office, 25 Carondelet Street, New Orleans,

Scientific Apparatus.



Wedding Orders, Souvenirs, Invitations, Orders of Dance, etc., etc., done in the latest and most elaborate styles, at reasonable prices. All Favors promptly attended to.

PACES. THREE 16 PACES.

Hundred Thousand new subscribers for The Family Journal and Ladies' Companion wanted. It is the most interesting and instructive paper ever issued Subscribers will receive during the coming twelve

MONTHS

novels written by American Authors, complete in each three numbers. The story of popular works of faction will be retold by a novel reader, the most in-teresting and unique feature ever introduced in any publication, giving the substance of popular and standard books by famous writers in a space easily read by the busiest people. We have engaged

FOR

this work a widely known and popular writer. Com-ments on Current Events, Fashions, New and Origi-nal Ideas and Designs for Ladies' Fancy Work and Household Decoration, Letters from Correspondents and their Answers. The colleges and seminaries of the United States will be treated one each month in an illustrated article, showing the particular ad-vantage of each, cost of attendance, etc. Invaluable to parents having some or daughters whom they de-sire should receive the advantages of a higher edu-cation than the ordinary school affords. Articles on Painting and Drawing, giving home instruction by a well-known artist. A trial subscription of this ele-gant paper will be sent to any address, three months, for

TEN CENTS.

Liberal pay for literary work adapted to our col-umns, and for new and original drawings, designs and ideas on any subject which we can use. Premium List the most complete in the world. We offer inducements to club raisers and agents ap-proached by no other publishing house. The cele-brated Gilbert Cut Waist Linings, which we send post paid to any one sending us two yearly sub-scribers at 50 cents each is alone worth 75 cents. We sent to any address, postpaid one year, 50 cents; six months, 25 cents, and a three months' trial subscription for only 10 cents.

TRY IT! TRY IT! TRY IT! and you will become a permanent reader. Address: John L. Douglass, Publisher, 322 Broadway, N. Y.



GRUNOW, 621 Sixth Avenue, New York Established 1852. MAKER OF Microscope Stands, Oil Immersion Objectives and Abbe Con-

densers for Bacterial and Histological work, of Objectives, Camera Lucida and other accessory apparatus.



IMPROVED OIL LIGHT MAGIC LANTERNS.

Also Lime and Electric Light Apparatus, and mechanical, plain, and fine colored views. J. B. COLT & CO., Manufacturers,

NO. 16 BEEKMAN STREET, NEW YORK.

MAGIC Stereopticons and the Best Views for Public, Church, Home, and Scientific Exhibitions. Best appa-tatus, new views. Largest stock. Reduced prices. 24 Years' Practical Experience. Illus. Catalogue Free.

GEO. H. PIERCE, 136 S. Eleventh St., Philadelphia, Pa

ELECTRICAL TESTING BUREAU.

Johns Hopkins University, Baltimore, Md.

Resistance Coils and Boxes Compared. Am meters and Volt meters calibrated. Condensers standardized.

Primary and Secondary Batteries Tested. Efficiency of Dynamos and Motors Determined.

- Insulation of Cables and Wires Tested. Etc., Etc.
- Circulars describing Methods Used, Prices, Etc., sent on Application.
 - Address as above.





W. H. WALMSLEY & CO.

SUCCESSORS TO

R. & J. BECK,

1016 Chestnut Street Phila

E. & H. T. ANTHONY & CO. 591 Broadway, N.Y. Manufacturers and Importers of PHOTOGRAPHIC INSTRUMENTS,

Apparatus and Supplies of every description. Sole proprietors of the Patent Detective, Fairy, Nov-el, and Bicycle Cameras, and the Celebrated Stanley Dry Plates. Send for Catalogue or call and examine. More than 40 years established in this line of business.

WHITALL'S PLANISPHERES OR DI-RECTORY OF THE STARRY HEAVENS name and locate all Stars, Constellations, and Planets visible at any given minute of time. Should be used by every one. Ask your sta-tioner, or address WM. T. COOPER, Manager, 307 Race St., Philadelphia, Pa.

SCHOOLS AND COLLEGES will have a positive advantage by ordering their furniture apparatus and supplies from C. PARDO & CO., 31 East 17th St., New York.

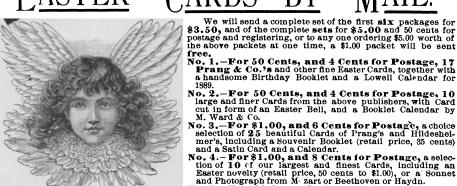
EMPLOYERS. TΟ

Having purchased the fixtures, good will, &c., of the NEW YORK EMPLOYMENT BUREAU at No. 681 BROADWAY. In this city, we request the pat-ronage of the public in the future. We desire to fill a long-felt want for an employment bureau, where only the best grade of male help is dealt in, and it is our aim to send ONLY such help as is or-dered in every instance, and our patrons can rely on us to send strictly first-class help, the references of whom we personally investigate before sending to any one. We simply request a trial, and are con-vinced that we will give satisfaction in every case. We have on hand help in every branch, which we can send upon receipt of telegram or letter, AND FOR WHICH WE MAKE NO CHARGE TO AN EM-PLOYER.

NEW YORK EMPLOYMENT BUREAU,







ESTERBROOK'S

OF SUPERIOR AND STANDARD QUALITY.

STEEL PENS.

versary, which will he selected with care for different tastes and ages as specified.
 TO TEACHERS ONLY
 50 Marcus Ward's, Prang's, and other beautiful Cards, no two alike, for \$1.00 and 8 cents for Postage. Better assortment, \$2.00 and 10 cents for Postage. A very choice selection, no two alike, \$3.00 and 20 cents for Postage and Registering. And for 50 cents, and 4 cents for Postage, 25 Cards, no two alike, and a Calendar for 1859.
 PAPER BY THE POUND. We are manufacturers of the Beacon Hill Linen Paper wealth Linen (a good medium priced linen paper), U. S. Treasury Bond (a tough paper, and very fashionable). Selling directly from mills to the consumer ve are able always to give lowest possible prices. Sample sheets of paper and envelopes, with prices and number of sheets to a pound, sent on receipt of 15 cents, and special prices to those taking orders for these papers with our card packets.

H. H. CARTER & CO., NO. 3 BEACON ST., BOSTON, MASS.

ii