is so defective. The authorities quoted from or referred to are frequently mentioned, but there are innumerable cases where they are not. It thus becomes an impossibility to ascertain from the index whose work has been and whose has not been referred to.

The second title mentioned in our heading pertains to a paper of quite a different character from the foregoing. The first is a bulletin in itself, the second an excerpt from the annual report of the U. S. National Museum for 1893: the one treats of special features in the life of birds, the other discusses in general and particular the characters of a small group. In this monograph on humming birds the author, Mr. Robert Ridgway, gives an interesting account of these wonderful little creatures. Among the many subjects discussed, we find an account of the early history of the literature of the group; remarks on the geographical distribution of the species; mention of their habits, manner of flight, migrations, intelligence, nests and eggs, food, variations, etc.

The last 70 pages are devoted to descriptions of the species occurring in the United States, seventeen in all, of which illustrations are given of all but five. There are many figures, some of which are original and others copied from Gould’s “Monograph of the Trochilidae.”

The family is essentially one of the New World, not a single species being known outside of its bounds. Their diminutive size and brilliant coloration have made them favorites with ornithologists, and, as in the case of every other well-studied group, innumerable genera and species have been made. Dr. Copes refers to this fact, and notices that it was carried to such length that it finally reached “the far-fetched and scandalous extreme of some 350 genera for very few more than 400 known species.” In size the species vary from about 8 inches long to only 5 inches. Notwithstanding their smallness, they are capable of the most rapid flight, and some perform journeys of 2,000 miles in their semi-annual migrations.

On the west coast the hitherto attainable latitude is in Alaska, about 61°, by the rufous-bellied humming, which is found in winter in Mexico, more than 2,000 miles to the southward of its summer station. In the eastern United States the common ruby-throat ranges in summer as far north as 57°, and in winter is not known to occur north of southern Florida (latitude 28°).

It is the most southern limit is on the isthmus of Panama, only 8° north of the equator. Species are most numerous in mountainous countries where there is great diversity of soil and productions within small areas. The State of Ecuador has 100 species within its borders, more than one-half not occurring elsewhere.

Mr. Ridgway says regarding their geographical distribution: “Their centre of abundance is among the northern Andes, between the parallels of 10° north and south of the equator, from which region they gradually diminish in numbers both to the northwest and southward, but much more rapidly toward the extensive lowlands of the eastern portion of the continent. The northern limit of their abundance may be approximately given as the Tropic of Cancer, beyond which but few of the fifty Mexican species extend, while only eighteen of them have been detected across the boundary line in the equally mountainous portions of the south-western United States, including the semi-tropical Rio Grande Valley. Small as this number may appear, the south-western portion of the Union may be considered richly endowed compared with the vast valley of the Mississippi and the Atlantic water-shed, a region of unsurpassed fertility and luxuriant vegetation, yet which throughout its whole extent, even including the state of Florida, possesses only a single species of humming bird!”

The usefulness of this monograph would be greatly increased by the addition of a table of contents and an index. Neither of these is present in the excerpt, a thought they are probably provided for in the report from which it is taken. One must turn page after page to find remarks upon any special subject. Notwithstanding this, however, readers must be grateful to Mr. Ridgway for the work he has done.

September 23, 1892.]

SCIENCE.

LITERARY OUTFIT FREE.

Any one sending us $1.00 at once and mentioning “Science,” will receive a copy of "Historical Sketches and Events in the Colonization of America," by G. H. Hall. A square pro. book 166 pages, illustrated. This is a regular $2.00 book and a bargain at that price............2.00

200 Private Library Labels; they should be used by all who own books.

“The Library,” a 10-page book containing a brief list of most important American and miscellaneous books in every department of literature. Intended for those who are about forming a library. Hint about what to keep and how to buy them............0.50

1 year's subscription to the “Literary Light,” a monthly magazine of Mediæval and Modern Literature..................1.00

$4.00 actual value for $1.00. Sample copy of “Literary Light,” 10 cents (postal card won’t do).

Address, Literary Light, 245 4th Ave., S., Minneapolis, Minn.

The weekly bulletin of newspaper and periodical literature.

Catalogues and Classifies Each Week

THE PRINCIPAL CONTENTS OF THE PERIODICAL PRESS.

That issue contains material necessary to inform the student in hand. It is sold at the window. Special attention is invited to the Bulletin’s INDEX OF TECHNICAL LITERATURE.

Send for a free sample copy and learn how

The Bulletin Supplies The Articles Catalogued.

Address THE WEEKLY BULLETIN, 6 Somerset Street, - - Boston, Mass.

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.

NEW ARCH LAMP CO.

BROADWAY, NEW YORK.

MINERALS. Cabinet Specimens, Collections, and material by the pound, for mineralogists, collectors, colleges, schools, and chemists.

Send for 100-page catalogue, paper bound, 15 cents; cloth bound, 15 cents; supplement, 3 cents. Geo. L. Esselstein & Co., Mineralogists, 138 & 140 Broadway, N. Y.

PHOTO ENGRAVING - 67 PARK PLACE, NEW YORK.

THE CHEAPEST BEST.

For INVENTORS. 40-page BOOK FREE. Address W. T. Fitzgerald, Attorney at Law, Washington, D.C.

LITERARY OUTFIT FREE.

Any one sending us $1.00 at once and mentioning “Science,” will receive a copy of "Historical Sketches and Events in the Colonization of America," by G. H. Hall. A square pro. book 166 pages, illustrated. This is a regular $2.00 book and a bargain at that price............2.00

200 Private Library Labels; they should be used by all who own books.

“The Library,” a 10-page book containing a brief list of most important American and miscellaneous books in every department of literature. Intended for those who are about forming a library. Hint about what to keep and how to buy them............0.50

1 year's subscription to the “Literary Light,” a monthly magazine of Mediæval and Modern Literature..................1.00

$4.00 actual value for $1.00. Sample copy of “Literary Light,” 10 cents (postal card won’t do).

Address, Literary Light, 245 4th Ave., S., Minneapolis, Minn.

The weekly bulletin of newspaper and periodical literature.

Catalogues and Classifies Each Week

THE PRINCIPAL CONTENTS OF THE PERIODICAL PRESS.

That issue contains material necessary to inform the student in hand. It is sold at the window. Special attention is invited to the Bulletin’s INDEX OF TECHNICAL LITERATURE.

Send for a free sample copy and learn how

The Bulletin Supplies The Articles Catalogued.

Address THE WEEKLY BULLETIN, 6 Somerset Street, - - Boston, Mass.

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.

NEW ARCH LAMP CO.

BROADWAY, NEW YORK.

MINERALS. Cabinet Specimens, Collections, and material by the pound, for mineralogists, collectors, colleges, schools, and chemists.

Send for 100-page catalogue, paper bound, 15 cents; cloth bound, 15 cents; supplement, 3 cents. Geo. L. Esselstein & Co., Mineralogists, 138 & 140 Broadway, N. Y.

PHOTO ENGRAVING - 67 PARK PLACE, NEW YORK.

THE CHEAPEST BEST.

For INVENTORS. 40-page BOOK FREE. Address W. T. Fitzgerald, Attorney at Law, Washington, D.C.

Dr. T. H. Andrews, Jefferson Medical College, Philadelphia, says of Horsford's Acid Phosphate.

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

It reaches various forms of Dyspepsia that no other medicine seems to touch, assisting the weakened stomach, and making the process of digestion natural and easy.

Descriptive pamphlet free on application to Rumford Chemical Works, Providence, R. I.

Beware of Substitutes and Imitations.

For sale by all Druggists.

SYNOPSIS

Dr. T. H. Andrews, Jefferson Medical College, Philadelphia, says of Horsford's Acid Phosphate.

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

It reaches various forms of Dyspepsia that no other medicine seems to touch, assisting the weakened stomach, and making the process of digestion natural and easy.

Descriptive pamphlet free on application to Rumford Chemical Works, Providence, R. I.

Beware of Substitutes and Imitations.

For sale by all Druggists.
TO THOSE INTERESTED IN SCIENCE.

[Science (weekly) established in 1883, N. D. C. HODGES, 874 Broadway, New York City.]

Titles of Some Articles Published in Science since
Jan. 1, 1883.


Agriculture, Experimental, Status of. Anamnesis, King, the tomb of. Anatomy, The Teaching of, to Advanced Medical Students.


Astronomical Notes.

Bacteria, some Cases of. Bird in the No. II. Birds breeding at Hanover, N. H. Botanical Laboratory, A. Botany, A Few Characteristics of the Asian.

Brachypodum and Cereopodum.

Canada, Royal Society of.


Ergonomic Throwing Sticks.

Expedition to the Two Iquiquan Composite Stones. Ex-situ.


Flax, The Distribution of.

Fossil, Notice of. New Calendar.

Four-fold Space, Possibility of a Realization of. Games, Artificial, Description of.


Hampton, Mound Structure of the. Hofmann, August Wilhelm von.

Hypnosis among the Lower Animals. Hypnotism, Training.

Indian occupation of New York.

Infant's Morphine, A Use of.

Insects, Latest Details Concerning the Germs of. Insects in Popular Dread in New Mexico.

Inventions for Foreign Countries, How to Protect. Inventions and Manufacturers' Association.

Iowa Academy of Sciences.

Jargon, The Book.

Jasudia, Notes on Local.

Keller, Holos.

Klamath Nation, Linguistics.

Laboratory Training, Aims of.

Lewis H. Cerrill, Work on the Glacial Phenomena.

Lightning, New Work on the Production of.

Lion Breeding.

Lyon's Curious Apparatus for the Production of. Mistletoe, Growth and Chemical Composition of.

Mycology, A Note on. The Syllable Word in Medicine, Preparations for the Study of. Mineral Deposits of the.

Museums, The Support of.

Paleontology, Tertiary Study of.

Passed Office Building, The.

Phyton Heterocrophi Leaf, Notes on the Fertility of.

Peach, A House in.

Pocket Gopher, Attempted Extermination of Polaroleavus, Direct Reflecting.

Psychology, Laboratory at Toronto. Psychological Laboratory. Psychologic Laboratory, The Need of.

Perylia, The Peace-

Rice-Making.

Roast-Culture in Japan, Mexico and the United States.


Storage of Sugar, The Great Plains.


Pitkin, A New Monkey.


Wine, The Sophisticated French.

Zoology in the Public Libraries of Washington, D. C.

Some of the Contributors to Science since Jan. 1, 1883.


Allen, Harrison, Agricultural College, Ames, Iowa.

Anneand, Albert B., New York City.

Bayley, J. H., Cornell University, Ithaca, N. Y.


Barrow, Charles H., Madison, Wis.


Bissett, A. H., Milling, Kansas City, Mo.


Boothby, Henry, M. D., Springfield, Mass.

Brigham, D. F., Philomath, Ia.

Call, E. E., Willows, Des Moines, Ia.

Chapman, H., Lewiston, N. Y.


Cook, J. H., Madison, Wisconsin.

Cowen, John M., Indiana University.

Cremin, C. E., Agricultural College, Ames, Iowa.


Deetz, W. W., Wake Forest, W. C.

Dimmock, George, Canoe Lake, N. B.


Dyce, E., T., New York, N. Y.

Eddy, W. W., Boston, Massachusetts.

Eldredge, George, Canoe Lake, N. B.

Elish, Edwin D., Chicago, Ill.

Ely, George B., Boston, Massachusetts.

Epstein, Horatio, Clinton, Ontario, Canada.

Farrar, Percival, Clark University, Worcester, Mass.

Hale, Albert, Agriculture College, Ames, Iowa.

Hale, E. W., Baltimore, Md.


Hayes, E. A., Washington, D. C.

Hicks, L. M., Madison, Wis.

Hilliard, J. E., Cambridge, Mass.

Houston, J. E., Philadelphia, Pa.

Howard, J. L., Lewistown, N. Y.

Hubbard, Gardiner G., Washington, D. C.

Hupper, J. D., Ypsilant, D. C.

Humphries, J. P., Miriam, Turks Island.


Ivalo, G., Sydney, Tasmania.


Johnston, J. A., New York, N. Y.

Johns, R. McC., New York, N. Y.


Koehler, D. S., State University, Columbus, Ohio.

Lauer, H. A., Boston, Massachusetts.


Pierson, F. R., New York, N. Y.

Pressey, H. F., New York, N. Y.


Ritchey, C. M., Washington, D. C.

Ritchey, C. M., Washington, D. C.


Roberts, W. D., Milledgeville, Georgia.

Roberts, W. D., Milledgeville, Georgia.

Roberts, W. D., Milledgeville, Georgia.

Roberts, W. D., Milledgeville, Georgia.

Roberts, W. D., Milledgeville, Georgia.

Roberts, W. D., Milledgeville, Georgia.

Roberts, W. D., Milledgeville, Georgia.

Roberts, W. D., Milledgeville, Georgia.

Roberts, W. D., Milledgeville, Georgia.

Roberts, W. D., Milledgeville, Georgia.

Roberts, W. D., Milledgeville, Georgia.

Roberts, W. D., Milledgeville, Georgia.

Roberts, W. D., Milledgeville, Georgia.

Roberts, W. D., Milledgeville, Georgia.

Roberts, W. D., Milledgeville, Georgia.

Roberts, W. D., Milledgeville, Georgia.

Roberts, W. D., Milledgeville, Georgia.

Roberts, W. D., Milledgeville, Georgia.

Roberts, W. D., Milledgeville, Georgia.

Roberts, W. D., Milledgeville, Georgia.

Roberts, W. D., Milledgeville, Georgia.

Roberts, W. D., Milledgeville, Georgia.

Roberts, W. D., Milledgeville, Georgia.

Roberts, W. D., Milledgeville, Georgia.

Roberts, W. D., Milledgeville, Georgia.

Roberts, W. D., Milledgeville, Georgia.

Roberts, W. D., Milledgeville, Georgia.

Roberts, W. D., Milledgeville, Georgia.

Roberts, W. D., Milledgeville, Georgia.

Roberts, W. D., Milledgeville, Georgia.

Roberts, W. D., Milledgeville, Georgia.

Roberts, W. D., Milledgeville, Georgia.

Roberts, W. D., Milledgeville, Georgia.

Roberts, W. D., Milledgeville, Georgia.

Roberts, W. D., Milledgeville, Georgia.

Roberts, W. D., Milledgeville, Georgia.

Roberts, W. D., Milledgeville, Georgia.

Roberts, W. D., Milledgeville, Georgia.

Roberts, W. D., Milledgeville, Georgia.

Roberts, W. D., Milledgeville, Georgia.

Roberts, W. D., Milledgeville, Georgia.

Roberts, W. D., Milledgeville, Georgia.

Roberts, W. D., Milledgeville, Georgia.

Roberts, W. D., Milledgeville, Georgia.

Roberts, W. D., Milledgeville, Georgia.

Roberts, W. D., Milledgeville, Georgia.

Roberts, W. D., Milledgeville, Georgia.

Roberts, W. D., Milledgeville, Georgia.

Roberts, W. D., Milledgeville, Georgia.

Roberts, W. D., Milledgeville, Georgia.

Roberts, W. D., Milledgeville, Georgia.

Roberts, W. D., Milledgeville, Georgia.

Roberts, W. D., Milledgeville, Georgia.

Roberts, W. D., Milledgeville, Georgia.

Roberts, W. D., Milledgeville, Georgia.

Roberts, W. D., Milledgeville, Georgia.

Roberts, W. D., Milledgeville, Georgia.

Roberts, W. D., Milledgeville, Georgia.

Robe...