

LETTERS TO THE EDITOR.

. Correspondents are requested to be as brief as possible. The writer's name is in all cases required as proof of good faith.

The editor will be glad to publish any queries consonant with the character of the journal.

On request, twenty copies of the number containing his communication will be furnished free to any correspondent.

The Rotatory Motion of Heated Air.

NOTICING that Professor Hazen questions, in *Science*, the rotatory theory of tornadoes, it occurs to me to publish an observation that I recently made, which may have some bearing on this subject. Not long ago, while watching the surface of a cup of hot tea, which contained some sugar, but no milk or cream, my attention was attracted to the phenomena presented on its surface. Close to the hot liquid, and covering it quite evenly, was a thin layer of condensed vapor. The air of the room was still, and I protected the film from my breath, as I watched it. I saw the film in constant motion. At one or two points at a time the vapor acquired two motions,—one in a whorl, and one progressive. In the former the motion was first visible at the exterior, in a circle a little more than half an inch in diameter. The broad part of each ray of the whorl appeared first, and afterward the parts near the focus were developed, and were rotated or twisted round the focus at a relatively rapid rate. As this took place, the whole whorl advanced across the surface of the liquid until the whorl disappeared, and the clear surface appeared without any film above it. Sometimes only one whorl was in sight, sometimes two appeared at once. This phenomenon was repeated until no more vapor was visible above the liquid.

As it appeared to me, there were here conditions favorable to observing the behavior of moisture-laden air over a super-heated level surface. Some condition which escaped notice must have determined the point at which a special motion was initiated; but the uniformity with which this developed into a centripetal rotatory and advancing movement was quite impressive. How far the conditions of the observation coincide with the conditions present in tornadoes, those who are competent to discuss meteorological questions may decide.

CHARLES W. DULLES.

Philadelphia, Sept. 20.

AMONG THE PUBLISHERS.

"THE Essentials of Medical Chemistry and Urinalysis," by Sam E. Woody, M.D., published by P. Blakiston, Son, & Co., has reached a third edition, which would indicate that the book, which is small, is filling its place.

—Another characteristic brochure by Professor Henry Drummond, under the title of "Perfected Life, the Greatest Need of the World," has just been issued uniform with the popular booklet "Love the Supreme Gift, or the Greatest Thing in the World." Both are published by Fleming H. Revell, New York and Chicago.

—We have received from Messrs. Dauchy & Co.'s Newspaper Advertisement Agency, 27 Park Place, New York, their "New Catalogue of American Periodicals," a volume of 624 pages. It contains a list of all newspapers, magazines, and other periodicals in the United States and Canada which insert advertisements, and is corrected up to Aug. 15 of this year.

—Messrs. Macmillan & Co. have just issued "The Parabola," being Part I. of "Geometrical Conics," by Rev. John J. Milne and R. F. Davis. Instead of following the usual plan, the authors have endeavored to make a continuous treatise as distinguished from a series of detached propositions. At the close of the book is a valuable collection of problems.

—Dr. Charles M. Andrews of Bryn Mawr College will publish in the October number of the *Annals of the American Academy of Political and Social Science* an interesting article on "Beginnings of the Connecticut Towns." The Constitution of 1639 has a wider than local interest, since it was the first written constitution, the prototype of Republican government on this continent. It is a question of no small importance, therefore, whether the Constitution was founded by the towns as such or by the people. This is the question discussed by Dr. Andrews. A painstaking study of

the facts leads him to the conclusion, in opposition to the late Alexander Johnston and many others, that Connecticut draughted its organic law on the theory "that the sovereignty of a State is in the people of that State."

—Another example of the rapid growth of chemical literature is shown in the appearance from the press of John Wiley & Sons of "Sugar Analysis," by Ferdinand G. Wiechmann, Ph.D. Dr. Wiechmann is instructor in chemical physics and chemical philosophy at the School of Mines, Columbia College, and is consulting chemist to the Havemeyers & Elder Sugar Refinery Company of Brooklyn. The work is intended as a handbook of instruction in schools of chemical technology, and for use in the refineries, sugar-houses, and experiment stations. Within the past few years many changes have been introduced in the methods of sugar analysis, and new methods have been devised, and, as is usual with such matters, the literature is scattered through numerous foreign journals. It has been Dr. Wiechmann's purpose to bring this new matter together into such shape as to make it available for those directly interested. The methods of analysis which he has selected from the vast wealth of material available have been chosen after long trial and practice under the supervision of the author. Instead of taking up for discussion, as is usual, the different products met with in sugar laboratories, such as raw sugars, refined sugars, liquors, molasses, etc., and describing for each in turn the determination of their constituents, the author has deemed it more expedient to discuss the methods of determining the individual constituents, as sucrose, invert sugar, water, ash, etc., independently of the products in which they may occur. He believes that by the adoption of this plan repetitions have been avoided. Examples have been inserted in the text to aid in the understanding of the principles discussed, and of the calculations. As is usual with such works, various references to original memoirs are given. The book is furnished with numerous tables, as is required in such a subject.

—The twentieth anniversary of *The Century* is celebrated by the publication of the next (November) number. *The Century* series of separate illustrated papers on the movement to California in 1849 and the events which preceded it, begins in the November number with a narrative, by Gen. John Bidwell, of the experiences of the first emigrant train to California. There is no part of the world, of equal civilization, of which so little has been divulged as of Thibet. A well-qualified American traveller, Mr. W. Woodville Rockhill, has recently returned from a journey through this the unknown heart of Asia, and will give in a series of illustrated papers the results of his travels and observations. For seven hundred miles of Mr. Rockhill's journey he passed through a country where no white man had ever set foot. Among the articles promised are some on "The Personal Traits of Lincoln," "Adventures of War Prisoners," "Minister Dallas at the Court of the Czar Nicholas," "Indian Fights and Fighters," "American and English Frigates in the War of 1812," "The Faith Doctor" (by Edward Eggleston), "Mmes. De Staël, Roland, and Récamiér," "Pictures by American Artists," "American Newspapers," "Municipal Government in Europe and America," and "Present Day Papers." This last unique series of well-considered utterances by prominent writers, on the great questions of the day, will be continued during the coming year. The group has recently added to its own number, and now consists of the following: Charles W. Shields, Hugh Miller Thompson, Henry C. Potter, Charles A. Briggs, Theodore T. Munger, Washington Gladden, William Chauncey Langdon, Francis G. Peabody, Samuel W. Dike, William F. Slocum, jun., Seth Low, Edward J. Phelps, Richard T. Ely, William J. Sloane, and Charles Dudley Warner. The above list gives only a part of the contents of the new year, special announcements of features in preparation being reserved. Mr. George Kennan, who was interrupted in the preparation of his concluding papers, will, it is expected, before long give further chapters of the story of his travels in Siberia and Russia; Mrs. Van Rensselaer will publish her final papers on English cathedrals; and Mr. La Farge will give his views of art in general, and especially of modern and Western art methods, from the point of view of an Oriental residence.

—Messrs. Macmillan & Co. will publish early next month, in their Adventure Series, "The Buccaneers and Marooners of America" (edited and illustrated by Howard Pyle), being an account of the famous adventures and daring deeds of certain notorious freebooters of the Spanish Main. Mr. Gladstone's new book, entitled "Landmarks of Homeric Study," will be issued immediately by the same firm. The author says in a recent letter, "Please to bear in mind that this little work was planned for America. The form of it seemed to me more suited for an American public."

—Among the new books of C. W. Bardeen, Syracuse, N.Y., is "Home Exercise for Health and Cure." This is a translation of a German work by D. G. R. Schreber, M.D., which is said to have sold in Germany to the extent of 140,000 copies. The purpose of the book is to furnish a cheap, easily understood, and practicable system of physical exercise.

—Those interested in chemical analysis will find much to interest them in "Electro-Chemical Analysis," by Edgar F. Smith, just published by P. Blakiston, Son, & Co. The author is professor of analytical chemistry at the University of Pennsylvania. These electro-chemical methods of quantitative analysis are in the main

new, and are constantly being used to a greater and greater extent. Professor Smith has done a service in giving chemists this book, which is rendered the more valuable by a profuse but not obtrusive amount of reference to the literature.

—Those having classes in solid geometry should send to Macmillan & Co. for a copy of Hayward's "Elements of Solid Geometry." The author, who is a fellow of the Royal Society, and is senior mathematical master in Harrow, has produced a compact text-book which departs from the Euclid so beloved in England, and is likely to find many users on this side.

—The forthcoming visit of the Count of Paris to this country will no doubt excite great public interest, and *The Illustrated American* has endeavored to cater to this by a lengthy article, profusely illustrated with portraits and scenes with particular reference to the distinguished visitor's career in our civil war. Those who do not know *The Illustrated American* should buy copies for a few weeks, and they are sure to find matters of interest. The recent series of illustrations of French artists and writers at their work were of special value.

—Among the fall announcements of Messrs. Macmillan & Co. we note the following as of interest to our readers: "Wild Beasts

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.

READY SEPT. 20.

RACES AND PEOPLES.

By DANIEL G. BRINTON, M.D.

This book is a review of the whole domain of ethnography, with particular attention to the white or European race, the Aryan peoples, their origin and distribution. The latest opinions of the leading European scholars have been consulted, but the work is largely the result of independent research, and does not follow any especial school of ethnographers.

Price, postpaid, \$1.50.

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

TO BE READY OCT. 18.

HOUSEHOLD HYGIENE.

By MARY TAYLOR BISSELL, M.D., NEW YORK.
12°. 75 cents.

"This little volume has been compiled with the hope that the housekeeper of to-day may find in its pages a few definite and simple suggestions regarding sanitary house-building and house-keeping which will aid her to maintain in her own domain that high degree of intelligent hygiene in whose enforcement lies the physical promise of family life" (author's preface).

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

CAN THE MOSQUITO BE EXTERMINATED?

THE LAMBORN PRIZE ESSAYS.

DRAGON-FLIES VS. MOSQUITOES.

8vo, cloth. Illustrated. \$1.50.

D. APPLETON & CO., 1, 3 & 5 Bond St., N. Y.

Physical Geography.

In addition to the series of Political Geographies published by the American Book Company, their list includes the following standard and popular text-books on Physical Geography:

APPLETONS' PHYSICAL GEOGRAPHY.

Large 4to

\$1 60

Prepared by a corps of scientific experts with richly-illustrated engravings, diagrams, and maps in color, and including a separate chapter on the geological history and the physical features of the United States.

CORNELL'S PHYSICAL GEOGRAPHY.

Large 4to

\$1 12

Revised edition, with such alterations and additions as were found necessary to bring the work in all respects up to date.

ECLECTIC PHYSICAL GEOGRAPHY.

12mo

\$1 00

By RUSSELL HINMAN. A new work in a new and convenient form. All irrelevant matter is omitted and the pages devoted exclusively to Physical Geography clearly treated in the light of recent investigations. The numerous charts, cuts, and diagrams are drawn with accuracy, fully illustrating the text.

GUYOT'S PHYSICAL GEOGRAPHY.

Large 4to

\$1.60

By ARNOLD GUYOT. Revised, with new plates and newly-engraved maps. A standard work by one of the ablest of modern geographers. All parts of the subject are presented in their true relations and in their proper subordination.

MONTIETH'S NEW PHYSICAL GEOGRAPHY.

4to

\$1 00

A new and comprehensive work, embracing the results of recent research in this field, including Physiography, Hydrography, Meteorology, Terrestrial Magnetism, and Vulcanology. The topical arrangement of subjects adapts the work for use in grammar grades as well as for high and normal schools.

Any of the above books will be mailed, postpaid, on receipt of price. Full price-list of books on all subjects for all grades will be sent on application.

AMERICAN BOOK COMPANY,
NEW YORK -: CINCINNATI -: CHICAGO

"SHOULD MAKE PART OF THE COURSE OF STUDY OF EVERY AMERICAN STUDENT."—James D. Dana.
NEW EDITION OF AN "EPOCH-MAKING BOOK."

EARTH AND MAN.

Lectures on Comparative Physical Geography in its Relation to the History of Mankind.
By ARNOLD GUYOT. New Edition. 12mo. Maps and Charts. \$1.75.

Few works have met with such distinguished approval and such universal favor as Dr. Guyot's "Earth and Man." This popularity it has retained for so many years as to necessitate renewal of the plates, thus giving opportunity for revision and the addition of new maps and appendices, bringing in the most recent scientific data. It is believed that the present revised edition of this famous work will arouse new interest among its many readers, while it will extend its field of usefulness still more largely.

"One of the most useful and suggestive works ever published."—The Nation.

CHARLES SCRIBNER'S SONS, Publishers, 743-745 Broadway, N. Y.

and their Ways," by Sir Samuel White Baker, author of "Albert Nyanza," etc.; "Physical and Political School Atlas," consisting of 80 maps and complete index, by J. G. Bartholomew; Behaghel's "The German Language," translated and adapted for the use of English schools by Emil Trechmann; "An Elementary Geography of India, Burma, and Ceylon," by H. F. Blanford, late meteorological reporter to the Government of India; "A Manual of Public Health," by A. Wynter Blyth, author of "A Dictionary of Hygiene and Public Health;" "Croonian Lectures, On the Connexion between Chemical Constitution and Physiological Action, being an Introduction to Modern Therapeutics," by T. Lauder Brunton, author of "A Text-Book of Pharmacology, Therapeutics," etc.; "The Oxford Movement," by R. W. Church, dean of St. Paul's; "Elementary Manual of Applied Mechanics," by Professor J. H. Cotterill and J. H. Slade; "Handbook of Field and General Ornithology," a manual of the structure and classification of birds, with instructions for collecting and preserving specimens, by Professor Elliott Coues; "Maps and Map Drawing," by William A. Elderton; "Elements of Physics for Public Schools," by C. Fessenden, High School, Napanee, Ontario, Canada; "A Text-Book of Physiology," by Michael Foster; "Class Book of Geology," by Archibald Geikie; "A Short Manual of Philology for Classical Students," by P. Giles; "The Geometry of Position," by Robert H. Graham, author of "Graphic and Analytical Statics;" "Electricity and Magnetism," by A. Guillemin, translated and edited by Professor Silvanus Thompson; "Text-Book of Pathology," by D. J. Hamilton; "The Elements of Solid Geometry," by R. Baldwin Hayward; "Mixed Metals and Metallic Alloys," by Arthur H. Hiorns, author of "Practical Metallurgy and Assaying," "Elementary Metallurgy," "Iron and Steel Manufacture," etc.; "Sound, Light, and Heat: An Elementary Text-Book," by D. E. Jones, author of "Examples in Physics," etc.; "The Book of the 45 Mornings," by Rudyard Kipling, author's edition; "Text-Book of Comparative Anatomy," by Dr. Arnold Lang, professor of zoölogy

in the University of Zurich, translated by Henry M. Bernard and Matilda Bernard; "Euclid for Beginners," being an introduction to the existing text-books, by the Rev. J. B. Lock; Lock and Scott's American edition of the "Arithmetic for Schools;" "From Charing Cross to St. Paul's," by Justin McCarthy; "The Greek World under Roman Sway," forming a sequel to "Greek Life and Thought," and "A History of Greek Literature," by Rev. J. P. Mahaffy; "Manual of Logarithms," by G. F. Matthews; "History of Chemistry," by Professor Ernst von Meyer, translated by Dr. George McGowan; "Story of the Greek Tragedians," by Dr. Munk, translated by A. W. Verrall; "Outlines of General Chemistry," by Professor Ostwald, translated by Dr. James Walker; "Lessons in Elementary Biology," by T. Jeffery Parker; "Chronological Outlines of English Literature," by F. Ryland; "The Fossil Insects of North America," by Dr. Samuel H. Scudder; "Dr. Schliemann's Excavations at Troy, Tiryns, Mycenæ, Orchomenos, Ithaca, presented in the Light of Recent Knowledge," by Dr. Carl Shuchhardt, translated by Miss Eugenie Sellers; "The Myology of the Raven (*Corvus corax Sinuatus*): A Guide to the Study of the Muscular System in Birds," by R. W. Shufeldt; "Elements of Politics," by Henry Sidgwick; "A Geography of Europe," by James Sime; "A Hand-Book of Phoenetics," by Miss Soames; "Practical Physics," Vol. III. "Optics, Heat, and Sound," by Balfour Stewart and W. W. H. Gee; "The Royal House of Stuart, illustrated by a Series of Forty Plates in Colors, drawn from the Relics of the Stuarts," by William Gibb, with an introduction and notes by John Skelton; "Analysis of English History," based on Green's "Short History of the English People," by C. W. A. Tait; "The Histories," edited with introduction and commentary, by the Rev. W. A. Spooner, M.A.; and "A System of Sight-Singing from the Established Musical Notation," based on the principle of tonic relation, and illustrated by extracts from the works of the great masters, by Sedley Taylor, author of "Sound and Music," etc.

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.

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.

FREE.

OUR 100 PP. CATALOGUE OF MINERALS.

Illustrated with 57 cuts, and containing (a) Scientific Papers and Notes, 41 pp.; (b) A Classified List of All Mineral Species, giving chemical composition and crystallographic form, 31 pp.; (c) An Alphabetical Index of some 3,000 mineralogical names. Paper-bound copies free to those mentioning this journal; handsome cloth-bound copies, 25 cents, postpaid. GEO. L. ENGLISH & CO., Dealers in Minerals, 1512 Chestnut street, Philadelphia; 739 & 741 Broadway, 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.

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 treatment 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 absurdity 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.

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.