

from having been their hater, and writes this book that others may see the cat in all its possibilities as a useful, attractive, and affectionate domestic animal.

At the present time, when the power cats possess of finding their way home over supposed to be unknown roads is receiving some discussion, it is interesting to note that at a race of this kind held near Liege, Belgium, in 1860, the winner was a blind cat.

But it is not alone of cats as cats that our author tells us: he gives us also a glossary of terms of which the word "cat" forms a part. In fact, "Our Cats and all about Them" is a title well borne out by the contents, so far as such information as the ordinary reader is likely to seek is concerned.

A Treatise on Ordinary and Partial Differential Equations.
By WILLIAM WOOLSEY JOHNSON. New York, Wiley. 8°. \$3.50.

THIS treatise on differential equations is in continuation of the series of mathematical text-books, by the same author, of which have already appeared the differential and integral calculus. Professor Johnson is professor of mathematics at the United States Naval Academy at Annapolis, and it may be that some will trace in the book methods which are said to be characteristic of the United States Army and Navy mathematics; but it must be said that the plan pursued is likely to lead to a clearer understanding by the student. The object is to give a knowledge of the subject, so far as it is likely to have practical application; and in this it is safe to say that Professor Johnson has succeeded.

A Graduated Course of Natural Science, Experimental and Theoretical, for Schools and Colleges. Part I. By BENJAMIN LOEWY. London and New York, Macmillan. 12°. 60 cents.

THOSE who are trying to introduce sane methods of science-teaching into our schools, will find in Mr. Loewy's little book much that is suggestive and of value. Mr. Loewy was at one time the science master in the recently discontinued International College

just out of London, and has had twenty years of experience in teaching physics and chemistry to large classes, both in the lecture-room and in the laboratory. In this first part of his series he confines himself to the physical phenomena which arise on account of the mutual attraction of particles of matter, but he has limited himself to those interactions of matter that his experience shows him to be really intelligible to young beginners. This sketch of the author's purpose may be misleading, as the following summation of some of the chapter-heads will show: "Pressure in Liquids," "Filtration," "Cause of Winds," "Hard and Soft Water," "Action of Animals and Plants on Air," etc.

AMONG THE PUBLISHERS.

THE Longmans will publish shortly two volumes of American short stories, — "Gerald French's Friends," tales of California Irishmen, by George H. Jessop; and "A Family Tree and Other Stories," by Brander Matthews.

— The October number (No. 43) of the Riverside Literature Series (published quarterly during the school year 1889-90 at 15 cents a number, by Houghton, Mifflin, & Co., Boston) contains the "Story of Ulysses among the Phæacians," from William Cullen Bryant's "Translation of Homer's Odyssey." This selection, which has been described by one of our most famous Greek scholars as the finest and at the same time simplest bit of imaginative writing in all Greek literature, is a complete story in itself. It tells of Ulysses' discovery by Nausicaä, the daughter of King Alcinoüs, his reception by the king, the festivals given in his honor, his song of the Trojan Horse and the Fall of Troy, and his departure for his home in Ithaca, and gives a most excellent picture of the life, manners, and customs of the ancient Greeks. This number of the Riverside Literature Series will be found of especial value for use in schools. It is rarely possible to make a selection from a great poem like the "Odyssey" at once so complete in itself, so fascinating, and so instructive, as is this "Story of the Adventures of Ulysses among the Phæacians."

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Revised and entirely rewritten by

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Fellow, and Prælector in Chemistry, of Gonville and Caius College, Cambridge, and

H. FORSTER MORLEY, M.A., D.Sc.,

Fellow of University College, London, and Professor of Queen's College, London, Assisted by eminent contributors.

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— D. Appleton & Co. have ready "A Text-Book of Animal Physiology," with introductory chapters on general biology and a full treatment of reproduction, by Dr. Wesley Mills. They have nearly ready "Lessons on Hygiene," a revision of "How We Live," by James Johnnot and Eugene Bouton, prepared under the direction of Mrs. Mary H. Hunt, superintendent of the Educational Department of the Woman's Christian Temperance Union.

— Charles Scribner's Sons have ready the second volume of the "Cyclopædia of Music and Musicians," which contains, besides many text portraits of musicians and singers and facsimile scores and autographs, full-page etched portraits of Gounod, Handel, Haydn, Lasso, Liszt, Lully, Mendelssohn, Meyerbeer, Mozart, Paine, Palestrina, and Purcell; and a new book by Donald G. Mitchell (Ik Marvel) entitled "English Lands, Letters, and Kings, from Celt to Tudor."

— Harper & Brothers published on Oct. 11 a volume on the "Constitutional History of the United States," by George Ticknor Curtis. It is a revised edition of Mr. Curtis's earlier work, which, though published thirty years ago, remains to-day the established authority on the history of the formation and adoption of the Constitution. Many years ago Silas Wright, then United States senator from New York, requested George Bancroft to write a life of Martin Van Buren, and furnished a complete collection of papers and letters as materials for the work. From these and other sources Mr. Bancroft compiled a biography which Van Buren, when he saw the manuscript, pronounced to be authentic and true as a record of facts relating to himself. Party feeling ran high at the time, and Mr. Bancroft deemed it best to postpone the publication of the work until the character and career of Van Buren could be judged without prejudice. Nearly coincidentally with the author's eighty-ninth birthday, Messrs. Harper & Brothers published this biography, which is entitled "Martin Van Buren to the End of his Public Career." In his preface Mr. Bancroft says, "In my recent revision of the original manuscript, I have made no change that could affect Van Buren's approval of it as thoroughly correct."

— Messrs. John Wiley & Sons have just issued "A Chart Relative to the Composition, Digestibility, and Nutritive Value of Food," prepared by Professor Henry A. Mott, Ph.D., LL.D. The subjects of the chart are arranged under the following heads: "Relative Value of Foods;" "Digestibility of Foods;" "Most Easily Digested Substances;" "Daily Proportions of Carbon and Nitrogen in the Food of Different Ages per Pound Weight of the Body;" "Substances absorbed and discharged during Twenty-four Hours;" "Amount of Digestive Fluids secreted Daily, and the Proportion of their Chief Constituents;" "A Dinner that will digest within Two Hours;" "Uses of Food in the Body;" "Way in which Nutrients are used in the Body, and supply it with Strength;" "Nitrogen and Carbon required Daily to support Life;" "Alimentary Substances in a Dry State required Daily for the Support of an Ordinary Workingman of Average Height and Weight;" "Standards for Daily Diets;" "Standard for Ordinary Man doing Moderate Muscular Work;" "Warmth and Strength derived from Various Articles of Food and Drink;" "Composition of Various Meats;" "Composition of Meat Extracts;" "Composition of Fish and Shell-Fish;" "Composition of Vegetables;" "Composition of Farinaceous Foods;" "Composition of a Hen's Egg;" "Composition of Cocoa;" "Composition of Coffee;" "Composition of Tea;" "Composition of Various Kinds of Cheese;" "Analyses of Cheese;" "Analysis of Milk;" "Analysis of the Products of the Dairy;" "Analysis of Condensed Milk;" "Analysis of American Wines;" "Approximate Analysis of a Man;" "Fruits arranged in the Order of their Contents of Free Acid expressed as Hydrate of Malic Acid;" "Fruits arranged in the Order of their Contents of Sugar;" "Fruits arranged according to the Proportion between Acid, Sugar, Pectin, Gum, etc.;" "Working Power of the Human Body;" "Thermotic Power and Mechanical Energy of Ten Grains of the Material in its Normal Condition when completely burned in Oxygen and when oxidized into Carbonic Acid;" "Water and Urea in the Animal Body;" "Ingredients and Food-Materials;" "Quantity of Nitrogen and Carbon in 100 parts of Various Alimentary Articles." The price of the chart, mounted on rollers, is \$1.25.

— Ticknor & Co. have just published a limited edition of the late Carl Pfeiffer's work, "American Mansions and Cottages," containing one hundred folio plates in a portfolio. They have also just ready a one-volume edition of Charles Wickes's "Illustrations of Spires and Towers of the Mediæval Churches of England."

— Edward Atkinson has contributed an article on "The Art of Cooking," which will open the November *Popular Science Monthly*. In it he points out what enormous quantities of food and fuel are wasted in ordinary cooking, and describes the "cooker" and "oven" invented by him, which need but a wonderfully small quantity of oil or gas, and cannot spoil the food. Col. Garrick Mallery's address before the American Association for the Advancement of Science, on "Israelite and Indian," will be published in the same number. It shows the remarkable similarity between the mortuary customs and religious beliefs and practices of the two peoples, but Col. Mallery draws a conclusion from this parallel unfavorable to the suggested descent of the Indians from the "lost tribes." "The Decadence of Farming," as shown by the number of farms for sale and the prevalence of farm mortgages, will be explained by Mr. Joel Benton in this number (the writer maintaining that our modes of taxation bear more heavily on the farmers than on any other class); and there will be a copiously illustrated article on "Sensitive Flames and Sound-Shadows," by Professor W. LeConte Stevens, embodying some very curious instances in which sound has been found to behave like light.

— Casey's "Treatise on Spherical Trigonometry," published by Longmans, Green, & Co., London and New York, is intended as a sequel to the author's "Treatise on Plane Trigonometry." The book contains much that is new; the author, as is customary now, having culled rich material from the latest mathematical papers. There is a large number of examples furnished, which are believed to cover the ground completely. Professor Casey is professor of higher mathematics and mathematical physics at the Catholic University of Ireland.

— The Forest and Stream Publishing Company announce for publication "Pawnee Hero Stories and Folk-Tales," by George Bird Grinnell. The book is said to present a faithful delineation of the Indian's character and his daily life.

— Mr. George Curzon, M.P., who made a detailed examination of the Transcaspian country last fall, has written an account of his travels; and his "Russia in Central Asia in 1889" and the "Anglo-Persian Question" will be published soon by Longmans, Green, & Co., both in London and New York. It will contain maps from the latest investigations, some forty illustrations, and a bibliography.

— S. C. Griggs & Co., Chicago, have just issued a translation from the Danish, by Professor Julius C. Olson of the University of Wisconsin, of Peter Lauridsen's work entitled "Vitus Bering, the Discoverer of Bering Strait." They will publish soon a new edition, from new plates, of Dr. J. R. Boise's "First Lessons in Greek," revised, with the advice and approval of the author, by Professor G. Pettengill of Ann Arbor High School.

— Messrs. Ginn & Co. announce for publication "Russell's Chromatic Chart," by E. P. Russell, director of Conservatory of Music, and teacher of music in the State Normal School, Oneonta, N.Y. This chart is designed to teach music-students the habit of thinking the tone as well as reading it, so that the mind may perceive the tone before the voice executes it. It is of great help in teaching the intervals by quick transitions from one key to another. It is of the greatest value in the study and execution of the chromatic scale. The teacher will observe that the chart will, if carefully and intelligently used, help the articulation and enunciation to a remarkable degree. It is believed that the chart is a practical help, of which every wide-awake and progressive teacher will desire to make constant use. The size of the chart is 42 inches by 55 inches. They have also just published the "Common School Song Reader," by W. S. Tilden, teacher of music in the State Normal School, Framingham, Mass., and will issue during the autumn and winter of 1889, "Open, Sesame!" edited by Mrs. B. W. Bellamy and Mrs. M. W. Goodwin, — a collection of prose and verse, comprising more than a thousand selections, carefully edited, and arranged for com-

mitting to memory. It is in no sense an elocutionist's manual, the editors having made the first test of each selection, "Is it worth learning?" and the second, "Is it adapted to recitation?" The book is representative of English literature, and also comprises many translations from foreign sources. Its various departments contain many of the familiar classics, and also many extracts from late literature never before included in such a collection. It is arranged in three volumes, each complete in itself, and specially adapted to the age for which it is intended. Volume I. is designed for children from four to ten years old; Volume II., for those from ten to fourteen; and Volume III., for the oldest students. The purpose of the book is to train the memory, to educate the literary taste, and to supply the student with the long-needed standard collection of poetry and prose for recitation.

—"The Batrachia of North America," by E. D. Cope, issued as Bulletin No. 34 of the National Museum, embraces the results of a study of the characters of the species, with their variations, which has been rendered effective by the full collection contained in the National Museum, and which this work thus illustrates. Besides this descriptive part, there are presented the results of a thorough study of the osteology of the class, based on the material contained in various museums of the United States and Europe. These results are expressed largely in systematic form, in the belief that descriptive zoölogy will never be complete until the structure is exhausted in furnishing definitions. Wherever practicable, reference is made to the relations between the extinct and living forms.

LETTERS TO THE EDITOR.

The Telephone for the Prediction of Thunder-Storms.

IN 1886 the writer had an experimental telephone line on the Yale campus which proved to be of some value in the prediction of

one phase of the weather. As is well known, the approach of an electrical storm produces sounds in the telephone something like the "sound of a distant rocket, or the quenching of a drop of melted metal in water."

One afternoon shortly after the erection of my line, on a seemingly perfectly clear day, I heard the sounds in the telephone. Although at the time there was no sign of an approaching storm, two hours later the clear weather had vanished, and a severe storm swept over the city.

On another occasion, when an excursion had been planned, as the weather was cloudy and rather doubtful, the telephone was consulted, but gave no evidence of electrical disturbance; and the afternoon passed "fair weather."

In several like instances I made use of the instrument with very satisfactory results. Since then I have had no opportunity for continuing my observations, but I think that similar use of the telephone might be of value to individuals or to local communities.

HARVEY B. BASHORE.

West Fairview, Penn., Oct. 14.

Map of Niagara Falls.

ON the 88th sheet of the new "Stieler's Hand Atlas," No. 6 of the United States, is a small map of Niagara Falls, which contains a curious misprint. The course of the river is well shown, colored red on the Canadian and green on the United States side. The horseshoe fall is represented, but the American fall is obliterated. The coloration for the bank extends all round Goat Island; which, however, instead of being an island, is a peninsula. In other words, there is no American fall represented on the map except in name.

JOSEPH F. JAMES.

Washington, D.C., Oct. 10.

INDUSTRIAL NOTES.

The Automatic Type-Writer.

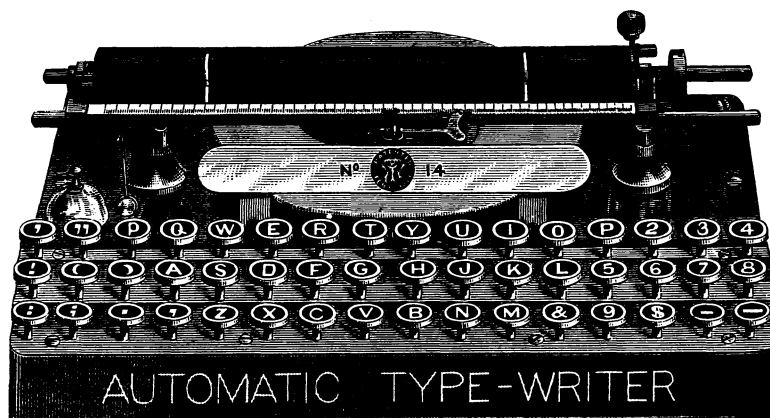
ALL are familiar with the ordinary styles of type-writer on the market, and some have asked if there could not be made a type-writer which should cost less and be more portable by being smaller in size and weight. Several attempts have been made to meet this want, and this week we have an opportunity of describing the "Automatic," which it is claimed serves the purpose well.

Thus, *I* occupies less space than *H*, and *H* less again than *M*.

There are other interesting features to the machine, but we have said enough to show that those interested should examine the merits of the "Automatic."

The Offrell Dynamo.

ALTHOUGH the construction of dynamos and motors has reached such a state of perfection, as regards efficiency and workmanship,



In size the "Automatic" is $11\frac{1}{2}$ inches long, $8\frac{1}{2}$ wide, and 4 high. Its weight is 10 pounds, and with its case, only $12\frac{1}{2}$.

The key-board of 48 keys has been designed with a view to furnishing all the characters in common use. The type and type-bars are so arranged that the type is inked by spring contact with an ink-pad against which it rests when in repose, and the type-bars are so guided in their motion as to give very accurate alignment. No ribbon intervenes between the type and paper, the impression being thus the clearer. It is claimed for the "Automatic," that, as the paper-carriage is light, as the space through which the type must move is small, and as its return motion is accelerated by a spring, the speed of writing is much increased.

By an ingenious device the spacing is made to suit the letter.

that any improvement in this direction is not likely to be made, yet many of the electric machines in the market to day are far from being samples of either of the above qualities; and, to be sure, if we consider them from the point of simplicity and economical construction, there is a big margin for improvement.

Setting out with the object in view of designing a dynamo, that, with minimum expenditure of material, should give maximum output, and at the same time the cost of its manufacture be a minimum, Mr. Olof Offrell, electrical engineer, has designed and built such a dynamo.

To gain this purpose, only the very best material is used; also advantage is taken of the latest development in dynamo-building. The field-magnet cores are of the very best wrought iron, the pole-