

gives most of the vowel letters their Italian sound, and proposes to introduce at first five new letters, to be followed by six more at a later time. But the chief peculiarity of his system is the "strengthening" of the vowels to denote their long sound. This is done in printing by the use of full-face type, thus, "uphold," and in writing by a heavier shading of the letter. This, as it seems to us, will be an insurmountable obstacle to the adoption of the system; for who will take the trouble, in rapid writing, to shade now and then a letter more heavily than the rest? Moreover, we gravely doubt if any system can be brought into use that contains new letters; and, if new letters are to be introduced, there are other systems that have quite as good a claim to be adopted as Mr. Knoflach's.

On the Relative Advantage of Tubs with Bottoms and Tubs without. Printed for the author. New York, for sale at 20 Cooper Union. 12°.

THIS anonymous work consists of two parts, the first being in the main a polemic against the views now held by many of the Swedenborgian clergy, and the second a statement of the author's own views. He maintains that the professed followers of Swedenborg misunderstand or misinterpret the doctrines of their master, and in particular he condemns their pantheism, which he thinks Swedenborg would have regarded with aversion. In this polemic against pantheism he makes some good points. He affirms also that the doctrines he criticises have no rational basis, they are tubs without bottoms; while the real doctrines of Swedenborg, as the author of this book understands them, have a basis that is all-sufficient. He then proceeds to state some of these doctrines in a simple and popular way, the leading one being a mystical interpretation of the doctrine of the Trinity. Every thing that exists, he tells us, consists of three elements, — substance, form, and force; and of these elements he says, that, though "essentially different, they yet shall have a common name, 'person,' for each is a person." He then goes on to maintain that in the Divine Being substance is the Father, form the Son, and force the Holy Spirit. Such, according to our author, is the true doctrine of the Trinity, and the highest principle of religion. We greatly fear, however, that this tub also has no bottom, for we can see no rational basis for such mysticism. The author expresses himself well, and with greater simplicity than most writers on such topics, and his work will doubtless have an interest for Swedenborgian readers; but to other men it is not likely to be of much use.

The Way out of Agnosticism. By FRANCIS ELLINGWOOD ABBOT. Boston, Little, Brown, & Co. 12°. \$1.

THIS book consists of a series of papers based on lectures delivered at Harvard College, and originally published in the *New Ideal* newspaper. They are in the main a briefer and simpler statement of the views expressed in the author's "Scientific Theism." The introduction is a lively attack on the agnostics for maintaining a purely negative attitude, and refusing to make any attempt toward a positive theory of the universe. Mr. Abbot justly holds that mankind can not and will not remain without such a theory, and declares that the liberalism of the present day, on account of its negative character, is "infinitely inferior to the Christian mythology which it has displaced." Yet he maintains that liberalism alone can furnish the true constructive theory of the universe which is now so greatly needed, and his own aim is to present the outlines of such a theory.

As his theory has already been given to the public in his earlier and larger work, we need not devote much space to an analysis of it. His leading doctrines are these: 1. "The universal results of the special sciences, including the method common to them all, are the only possible data of philosophy or universal science." 2. "The universe is known as at once infinite machine, infinite organism, and infinite person, — as mechanical in its apparent form and action, organic in its essential constitution, and personal in its innermost being." This theory, in its identification of the deity with the universe, is pantheistic, but in affirming the personality of the deity, it is opposed to pantheism. Another of Mr. Abbot's essential doc-

trines is his realism, which he maintains in opposition to the phenomenalism or idealism of the prevailing modern philosophies. The book is written in a vigorous style; and, whether one agrees with its doctrines or not, it is interesting to read.

AMONG THE PUBLISHERS.

W. A. LINN's article on "Co-operative Home-Winning," through building associations, will appear in the May *Scribner*.

— Henry Holt & Co. will publish soon "Introduction to Systematic Botany," by Charles E. Bessey, professor in the University of Nebraska, and author of Bessey's "Botanies" in the American Science Series.

— The last issue of *Garden and Forest* presents a complete list of the works treating of landscape-gardening which have been published in English, French, German, and Italian since 1625, the date of Lord Bacon's famous essay. It includes not only all books and pamphlets, but all articles and reviews on the subject, and covers nearly five closely printed pages. To make room for this list, which is a work of permanent value, the paper has been enlarged, and contains, besides an illustration of Clermont on the Hudson, with a description by Charles Eliot, its usual amount of matter in the various fields of horticulture and forestry.

— Frederick W. Whitridge, the well-known New York lawyer, who contributes an article to the April *Scribner* on "The Citizen's Rights as a Householder," tells the following story: "The series of papers upon the rights of citizens, of which this is the first, happened lately to be mentioned before a person of ripe and sound judgment, who has seen much of the world, but who is not a native of this Monte Cristo of nations; and this person, illuminated by the knowledge of many cities and men, thereupon exclaimed, 'Rights of citizens! You Americans haven't got any rights; or, if you have, you are all so afraid of each other, you dare not assert them.'"

— A curious phenomenon, in virtue of which electric cars are aided in ascending heavy grades, is alluded to by Joseph Wetzler in his article on "The Electric Railway" in the April *Scribner*. This phenomenon, which was probably first observed by Leo Daft, at his works in Greenville, N.J., in 1882, is, that, when the current passes from the car-wheel to the track, it causes an increased friction or resistance to sliding between them, the result of which is that slipping is to a large degree prevented, and heavier grades can be attempted. The explanation of this phenomenon, though not completely established, seems to lie in the direction of a slight welding action which takes place between the wheel and the rail, caused by the heat generated by the current.

— Messrs. Griggs & Co. of Chicago have published "Semitic Philosophy," by Philip C. Friese; and a singular book it is. The author professes to have the only true interpretation of Christ's doctrine of the kingdom of God, claiming that it is known "instinctively;" and he here gives a statement of the doctrine and its practical applications. He presents to us "so much of the unwritten, instinctive, rational, ideal, or natural constitution of the kingdom of God, or universal society of the races of mankind, as may, when universally assented to and adopted by tacit or express general agreement, be established as such in writing." It is drawn up in articles and sections like the Constitution of the United States, and provides for a republic of letters, a republic of the Church, a republic of industry, a republic of charity, and a republic of government, the organization and functions of each of which are duly set forth. What it all amounts to, we are unable to see. The book is a curious compound of crude social projects and hazy metaphysics, and that is all we can say for it.

— The opening article of *The Chautauquan* for April is by Professor James A. Harrison, Ph.D., LL.D., of Washington and Lee University, on "The Archaeological Club in Italy;" "Life in Modern Italy," by Bella Stillman, follows; the eminent philologist, Professor Federico Garlanda, of the University of Rome,

writes of "The Indebtedness of the English Language to the Latin;" Professor Adolfo Bartoli begins a series on "Italian Literature;" "The Politics of Mediaeval Italy" are considered by Professor Philip Van Ness Myers, A.M.; Principal James Donaldson, LL.D., of the University of St. Andrews, Scotland, contributes his second paper on "Roman Morals;" Albert Shaw, Ph.D., predicts a hopeful future for "Rising Bulgaria;" a new realm of investigation open to the physicist is discussed by Professor Edward L. Nichols of Cornell University, in "The Production of Artificial Cold;" the English writer, Arabella B. Buckley, continues her studies on the "Moral Teachings of Science;" and Mrs. Carl Barus does the same with "What are our College Women Doing?" New to most readers will be the information in the article, "A Botanical Garden in the Island of Java." "A Study of Spiritualism" likely to attract attention is contributed by a member of the Seybert Commission, Robert Ellis Thompson, of the University of Pennsylvania. The usual space is given to editorials and C. L. S. C. matters.

—The March *Magazine of American History* contains a chapter, "Celebrating the Birth of William Bradford," by Thomas Bradford Drew of Plymouth, taking us backward to the first settlement in New England; then we find some personal memories from the pen of Hon. Charles K. Tuckerman, writing from Italy on "Sir John Bowering and American Slavery." We have an account by W. R. Garrett, A.M., of the controversy concerning "The Northern Boundary of Tennessee," which stretched over sixty-eight years, and is interesting just now in view of the boundary suit recently instituted by Virginia against Tennessee in the Supreme Court of the United States; and entertainment is given in "Hawthorne's First Printed Article," by Kate Tannett Woods. "The Story of the Greatest Auditing Office in the World," by Milton T. Adkins, is statistical, but desirable to possess and preserve; and the "Neglected Grave of Seth Pomeroy," by Frank Sutton, will awaken sympathy. The leading illustrated paper of the number is a picture of "Life in New York Fifty Years ago," by the editor. The period reproduced opens with the completion of the Erie Canal; and glimpses are given, through the diary of an old New-Yorker for twenty-five years, of characters and affairs, of inventions, politics, and panics, of clubs, dinners, fancy balls, and foreign visitors. Dickens was here, and, being then regarded as the greatest living novelist, was feted and complimented beyond any other writer of his generation.

—Messrs. Ginn & Co. announce to be published in April or May, "Directional Calculus," by E. W. Hyde, professor of mathematics in the University of Cincinnati. This work follows in the main the methods of Grassman's "Ausdehnungslehre," but deals only with space of two and three dimensions. The first two chapters give the theory, and fundamental ideas and processes, of Grassman's admirable and comprehensive geometric method, with sufficient fulness and completeness, it is believed, to enable the student to pursue the subject satisfactorily through the remaining chapters, containing applications to plane and solid geometry and mechanics, or to enable him to read with comparative ease Grassman's original works. A very elementary knowledge of trigonometry, the differential calculus and determinants, will be sufficient as a preparation for reading this book. It is the hope of the author, that, by providing a textbook on this subject in English, he may contribute in some measure toward a more general study and knowledge of that wonderful mathematical system which, though published by its discoverer in 1844, has met with the most remarkable indifference and neglect at the hands of mathematicians up to the present time.

—Interest seems never to be lacking in the controversy over the relative value of realism and idealism in the researches of natural science, and those who insist upon using the "subjective" method of investigation in studying phenomena of the "objective" work are still severely criticised. S. C. Griggs & Co. have now in press, and will issue at an early day, "The World Energy and its Self-Conservation," in which the author, W. M. Bryant, reasoning from the standpoint that "truth in its

vital reality is to be attained only through a complete blending of these two methods," discusses the deepest questions of science.

—Briefly stated, the results of the inquiry by W. E. Stone regarding the saccharine substance in the sweet potato, reported in the February number of *Agricultural Science*, are these: the saccharine substance of the sweet potato exists chiefly, if not entirely, in the form of sucrose; the use of the polariscope in the quantitative determination of the same seems possible (such determinations showed one and a half to two per cent of sucrose in the fresh potatoes); the temperature of cooking (baking) inverts the sucrose and converts more or less of the starch into a soluble form. A part of Mr. Stone's investigation was made at the laboratory of the Tennessee Experiment Station, the remainder at Purdue University.

—"The Scratch Club," by Hugh A. Clarke, Mus. Doc., professor of music in the University of Pennsylvania, has been issued by the Poet-Lore Company, Philadelphia. Under the title of "The Scratch Club," the author has given a lively record of the meetings of an imaginary group of musicians, who discuss music and kindred subjects, and tell stories, some grave, some gay, forming a sort of musical "Tales of a Wayside Inn." Musical taste in America, Handel's "Messiah," Beethoven's "Aurora" Sonata, music in the public schools and in the churches, international copyright, and bad music, are some of the subjects touched upon in the course of these animated conversations.

—We learn from *The Scottish Geographical Magazine* that a new and corrected edition of the topographical map of France, which was commenced in 1818, will shortly be issued. The map printed from the original copperplates is now, of course, out of date; but to alter these large plates is a work so tedious, that it has been put off as long as possible, new roads, etc., being marked on the zincographic edition. The latter process, however, lacks the clearness and sharpness of copperplate engraving; and therefore the Service Géographique de l'Armée, presided over by Gen. Derrécagaix, is engaged in correcting the original plates. In the new edition, alterations and extensions of roads and railways will be duly marked, the towns be enlarged to their present size, the spelling of names corrected, and even fortification works will appear. The unwieldy sheets will be divided into four sections each, measuring 40 by 25 centimetres (about 15½ by 9½ inches). Each section will be sold for 50 centimes.

—Lieut.-Col. Sir Andrew Clarke delivered an address before the London Chamber of Commerce on Nov. 6, 1889 (*Chamber of Commerce Journal*, Dec. 5, 1889), in which he demonstrated the remarkable rapidity with which the British protected states have developed. The foreign trade of Perak has increased from £248,796 in 1876, to £3,134,685 in 1888; and the little state of Selangor, with an area of about 3,000 square miles, which in 1873 had practically no trade at all, exported and imported in 1888 goods to the value of £2,372,756. Revenue and population have correspondingly increased. The twenty miles of railway opened in Selangor in 1887 pay a dividend of 25 per cent, and the eight miles completed in Perak in 1888 pay 8½ per cent. These railways are now being extended, and will promote the prosperity of the country, and yield a satisfactory dividend. Half the tin in the world is exported from these states, and there is a large auriferous region, watered by a navigable stream. The agricultural prospects are equally bright. Perak can produce coffee of fine quality, and yields abundance of pepper and nutmegs. Selangor grows coffee, pepper, tea, and tapioca; indigo has been successfully tried; and land has been granted for the cultivation of tobacco. In Sungei Ujong, 35,871 acres are already under cultivation, and good crops of coffee are produced. Pahang, which has only recently been received under British protection, has hardly been exploited at all; but it will probably prove to be the richest of all these states. Besides its mines, it has fine timber, and most tropical products have been grown in small quantities.

—The discussion on anonymity in journalism will be continued in the *March New Review* (New York, Longmans), with extracts from letters by Labouchere, Lang, Justin McCarthy, Grant Allen, and others; and Mr. Allen also contributes an article on the "Origin of Animals."

— "Motive Power for Street-Cars" is the title of a book published by the John Stephenson Company of this city. The volume is made up mainly of extracts from the proceedings of a recent meeting of the American Street Railway Association. It is handsomely illustrated.

—Harper & Brothers have just issued the second volume of "What I Remember," by the octogenarian novelist Thomas Adolphus Trollope, the elder brother of the late Anthony Trollope. The first volume, which was published about two years ago, closed with the death of Mr. Trollope's first wife in 1865; the new volume covers the period from that date to the year 1889. Among the well-known people with whom the reader becomes acquainted in these pages are Liszt, Von Bulow, Gen. Sheridan, King Humbert, Pope Leo, Salvini, Ristori, Cardinal McCloskey, Jenny Lind, Lanciani, and Holman Hunt.

—Messrs. Ginn & Co. announce "Open, Sesame!" edited by Mrs. B. W. Bellamy and Mrs. M. W. Goodwin. This book is a collection of prose and verse, comprising more than a thousand selections carefully edited, and arranged for committing 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 Scientific Publishing Company, P.O. Box 1833, New York, announce the publication of "Gems and Precious Stones of North America," by George F. Kunz, gem expert with Tiffany & Co. This book is a popular description of their occurrence, value, history, and archæology, and of the collections in which they exist, with a chapter on pearls. The standing of the author will serve as a guaranty for the excellence of the work. The several species and varieties of precious stones are described systematically, and the work is far more detailed and thorough than has hitherto been attempted. This magnificent work is profusely illustrated with the finest colored plates ever engraved for a work of this kind, being the very best work of Messrs. Prang & Co.

—In *Garden and Forest* for March 19, Mr. Charles Eliot continues his series of articles on old American country-seats, with a delightful sketch of Montgomery Place; and this fine old home of the Livingstons is illustrated by a view of its entrance front, and another of an avenue on the grounds. The same number contains articles on street trees, the dwarf Japanese plants at the Paris Exposition, the winter colors of the bark of trees and shrubs, and the cultivation of strawberries, besides much seasonable information concerning the garden in early spring.

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.

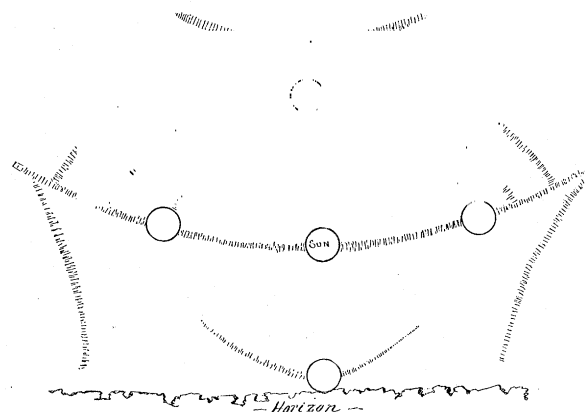
On request, twenty copies of the number containing his communication will be furnished free to any correspondent.

Solar Halos.

THE forenoon of March 2 in central and southern Arkansas was cold and calm, and the sky was cloudless though somewhat hazy. About eight o'clock white and colored bows appeared in the haze

about the sun, and continued to be visible until about half-past ten, when it gradually disappeared. This phenomenon seems to have been most brilliant in the south-western part of the State. One of my assistants on the Geological Survey of Arkansas, Mr. James Perrin Smith, who witnessed it in Howard County, Ark., sends me the figure accompanying this (made on the ground), and a letter, a part of which I append.

Mr. Smith writes from Venetia Grove, Howard County, Ark.: "At 8.30 there was not a cloud in sight, but the eastern sky had a hazy appearance. The sun was shining with full brilliancy; and on the right and left of it, and above it at equal distances, three other suns appeared, shining almost as brightly as the sun



proper. The figure called for a fourth secondary sun, but it was too near the horizon for this to be seen. Radiating from these suns were brilliant rainbows forming regular spherical triangles. The brightness of the suns and bows lasted but a few minutes, and then began gradually to fade. Within fifteen minutes, however, the sun had risen high enough to bring the fourth secondary sun to view, but by this time the rainbow lines with it were very indistinct. By ten o'clock the whole spectacle had faded away."

JOHN C. BRANNER.

Little Rock, Ark., March 10.

Lake and River Temperatures.

A SERIES of temperatures of the water taken during last summer near the outlet of Lake Ontario and in the St. Lawrence and other rivers by the writer, and during the last and previous seasons in the Georgian Bay by Staff Commander Boulton, R.N., appears to establish some interesting results, which will be detailed in the forthcoming number of the *Canadian Record of Science*. While some of the results are not novel, they all exemplify some characteristics of fresh water in the great masses in which it occurs in the Great Lakes and the St. Lawrence and its tributaries, under the varying conditions of climate which the geographical position of these lakes and rivers presents. The points of interest are,—

That the Georgian Bay, as well as Lake Superior, forms a great area of cold water,—apparently considerably colder at the bottom than even the deeper parts of the central basin of Lake Huron, and varying in July and August between 37.75° and 39.5° F.

That the occurrence in midsummer of a temperature at the bottom of the Georgian Bay, below that of water at its maximum density, is remarkable, and may be due to strong bottom currents.

That the waters of the lakes and St. Lawrence flow onward in areas of different temperatures; the variation being generally from 1° to 3°, and being equally observable under as well as at the surface.

That the general rise in the temperature of the Lake Ontario waters, as the summer advances, is at first slow, compared with the general rise in the temperature of the air; but, as midsummer is reached, the rise is more rapid.

That motion in water, as in a long rapid, appears to at least sensibly raise its temperature. Continuous strong currents, on