

the stage ever written, and it contains an absolutely incomparable gallery of verbal portraits of the great performers of the beginning of the last century. For an English actor or actress to have sat for his picture to Cibber is to have made sure of an immortality quite as secure as that of the Bostonian who was painted by Copley. And it was this marvellous artist in letters, this master of the difficult art of character drawing, whom Pope chose as the hero of the 'Dunciad'! Time was, when people thought that other artist of an exceeding skill, Boswell, also to be a fool. (There is, indeed, a certain likeness between Boswell and Cibber, which is well worthy of elaboration.) What Dr. Hill has done for Boswell's 'Johnson,' Mr. Lowe has done for Cibber's 'Apology.' He has purified the text of the second edition, the latest revised by the author. He has apparently verified every quotation, explained every allusion, and corrected every error of Cibber's—for Colley, with all his power of bodying forth a character, was careless of dates and reckless often as to the strict sequence of events. He has prefixed a reprint of the rare 'Historia Histrionica: An Historical Account of the English Stage,' first published in 1699 and admirably adapted to introduce Cibber's description of the London theatres as he first knew them. He has supplied a supplementary chapter, tracing Cibber's career to the actor's death in 1757, in the course of which he sketches the history of the battle between Cibber and Pope, and shows how completely Cibber got the better of the quarrel. He has prepared a list of Cibber's writings (in which we regret to see a repetition of the current British blunder that Mr. Henry Irving was the first actor of our time to discard Cibber's version of "Richard III": the credit is really due to Mr. Edwin Booth) and a bibliography of the writings about Cibber. He has appended a reprint of Tony Aston's 'Brief Supplement to Colley Cibber, Esq., His Lives of the late famous Actors and Actresses.' He has selected from the sixth edition of the 'Apology,' published in 1822 under the name of a man called Bellchambers (but, possibly, as Mr. Lowe has shown, the work of a man called Burn) such biographical notes as seemed worth preserving—the book thus despoiled, commonly known as Bellchamber's "Cibber's 'Apology,'" being a perfect model of how not to edit. He has prepared also an ample index, which seems exact as far as we have been able to test it. And in doing all these things he has done well, for he has given us an edition in all points excellent of a book deserving the most excellent editing—an edition worthy to be ranked with Dr. Hill's "Boswell's 'Johnson'" and with Canon Ainger's 'Lamb.'

While the editor has thus done his duty nobly, the publishers have not lagged behind. The book has been printed at the Chiswick Press; and type, paper, and presswork are all thoroughly satisfactory. Only 510 copies of the octavo edition have been printed, and only 305 of a larger-paged edition—"each copy numbered as issued and the type distributed." There are twenty-six added plates, all portraits and all copper-plate mezzotints newly engraved by Mr. R. B. Parkes, from "the best and most authentic originals," says the publisher's preface—and this we take to mean that they are after the earlier engravings mostly, and not direct from the original paintings. Among these twenty-seven plates are two portraits of Colley Cibber; one of his father, the sculptor; one of his son, who was a scoundrel; one of his daughter, the odd Charlotte Charke; and two of his daughter-in-law, Susanna Maria. There are also eighteen chapter-headings sketchily etched by M. Adolphe Lalauze after

contemporary engravings, and consisting chiefly of scenes from the plays to which Cibber is making constant reference. Although these are very slight, they add not a little to the interest of the edition. It remains to be said further only that the volumes are issued with gilt tops, uncut edges, and a simple and dignified Roxburghe binding.

American Weather. A Popular Exposition of the Phenomena of the Weather, including hot and cold waves, blizzards and tornadoes, etc. Illustrated with thirty-two engravings and twenty-four charts. By Gen. A. W. Greely, Chief Signal Officer U. S. A. Dodd, Mead & Co. 1888. 286 pp., large 8vo.

DURING the seventeen years' existence of the Government Weather Bureau, there has been no adequate presentation, in form adapted for intelligent but unprofessional readers, of the results gained from the great mass of records gathered concerning American weather. Professor Loomis of Yale has done more than any one else, not excepting the members of the Signal Service, to formulate and define the characteristics of our weather. His papers have been presented at the semi-annual meetings of the National Academy of Sciences for many years, and now constitute a body of information that has attracted universal attention among meteorologists, although it is unread and unknown among the thousands of Americans who would gladly be better informed on the heat and cold, flood and drought, in which they live; but Professor Loomis's papers were not prepared for this class of readers. The same is true in even a higher degree of the volume on the 'Recent Advances of Meteorology,' written by Professor Ferrel during his connection with the Signal Service, and published a few years ago as an appendix to one of Gen. Hazen's annual reports; it is original and profound, but it has not affected the popular attitude of meteorology in this country; it was not intended to do so. The professional papers of the Signal Service in their early issues bid fair to include treatment of our unsolved weather problems; but these have been cut off by the strict interpretation of the law founding the Service, in which no explicit authority is given for such publications. The official annual reports of the Chief Signal Officer can hardly be criticized for the absence of popular matter; they are filled chiefly with statistical summaries reported from the observing stations in all parts of the country, valuable to the student, but less readable than a dictionary to the ordinary outsider.

There is therefore manifestly a clear field for a popular work based on the materials stored away by the Signal Service, and Gen. Greely will surely find a large circle of readers who will for this reason need no further recommendation of his book than that afforded by his name on the title-page. He has long been connected with the service, and most honorably; his experience has been varied from the torrid deserts of Arizona to the frigid shores of the polar sea. Being now at the head of the service, he has its ample store of records at his disposal, and some of his leisure has been given to putting them in shape for popular understanding. The records and the leisure cannot be put to a better use, and the publication of 'American Weather' will undoubtedly tend to advance the interests of our Weather Bureau in the future. It is an excellent thing for a country when its leading officials prepare elementary books on their special subjects of study. Geikie has made illustration of how great a range of writing a leading investigator may cover—

from the technical reports issued as Director of the Geological Survey of Great Britain to primers on physical geography for use in the most elementary schools. He should have more imitators in this country.

Judging of its contents by the title of Gen. Greely's book when it was first announced, we must confess to some disappointment on reading it now, for more than half its pages are occupied with other subjects than weather. Several chapters are given to the commonplace of meteorological physics, and these are not distinctively better than similar chapters in text-books; space is also given to the description of the usual meteorological instruments, and of some unusual ones: all of this might, in our opinion, have been occupied to advantage by increased attention to the matter indicated by the title of the book. When the direct consideration of American features is reached, ninety-six pages are given to American climatic averages, and it is only at page 178 that the nominal subject of the book is taken up, leaving it less than half the pages of the volume. Of the twenty-four colored plates (which, by the way, are not numbered, although referred to by numbers in the text), only two are concerned with non-climatic averages; the rest all deal with annual and seasonal means, and cannot be used in understanding to-day's weather, or in solving that continual problem, the weather of to-morrow. Of the thirty-two figures in the text, actually only two are devoted to the illustration of our weather, a subject which might well require abundant diagrams. From all this, we can only conclude that American weather has not yet, even after seventeen years' work, received such study as will draw its secrets from it.

But Gen. Greely's book certainly contains much that the domestic weather prophet will read with interest and instruction, even though it does not refer chiefly to his avocation. Passing over the conventional parts already referred to, mention should be made of the excellent series of charts illustrating our normal atmospheric conditions in different seasons. No other work can approach Gen. Greely's in this respect, as far as the United States are concerned. The charts show the distribution of mean temperature, and of our absolute maxima and minima; the number of days in the year with a daily mean above 50° and below 32°; the mean variability of January temperature from day to day; the mean cloudiness for January and August; the average dates of the first and last killing frosts; and other similar elements. The barometric pressures are given for January and July without the usual reduction to sea-level, in order to show that the winter pressure, as actually observed in our continental interior, is less and not greater than the summer pressure, as the reader of text-books might conclude; but this departure from the ordinary method does not seem advisable, as pressure is not a climatic factor, and is important only in giving explanation of the course of the wind, which it fails to do if not reduced to some standard level of reference. The winds on the January chart over the Western plains all run in contradiction to the pressure gradients; thus, in correcting one ground of misapprehension, we fear that this chart may give rise to the more serious one, that the average wind of the interior in winter blows in disobedience to Buys-Ballot's law.

Under the heading of "Storms," areas of high and low pressure are described, and a good number of striking narrative accounts are given, which, being authoritative, will soon form the staple material of our text-books. The descriptive pages on cyclones, cold-waves, and

blizzards are excellent, but would have been improved by freer illustration. Little space is allowed for accounts of tornadoes; the time of their passage at a given place is said to be five or ten minutes—an obvious misprint for seconds. Weather prediction is dismissed with little more than two pages of rules; perhaps this subject has not yet been sufficiently discussed for fuller statement and illustration. Some consideration of certain notable failures of prediction, showing the great inherent difficulties of the work, would, we think, have been edifying to the public.

The subject is illuminated, but by no means exhausted. It is to be hoped that in some later year, when our weather types are better classified, Gen. Greeley may give us a second volume.

Footprints of the Pioneers in the Ohio Valley.
A Centennial Sketch. By W. H. Venable,
LL.D. Cincinnati: Robert Clarke & Co.

THIS book is a fagot of quotations, to which the author has contributed little more than the band which ties them together; but possibly he could not otherwise have better secured his end. His aim was to furnish such details regarding the settlement of the Ohio valley as an average reader would crave on its centennial year. With this view he brings forward original eye-witnesses—pioneer explorers, settlers, and lookers-on. Their testimony is the more welcome because it was gleaned, much of it, from books out of print and hard to procure. The information thus given does not lack vividness, variety, or raciness. The writer, however, interlards his prosaic details with about a dozen poems, which often come in as incongruously as if they were recited by witnesses in the midst of their testimony in a court of justice. Such purple patches seem as ludicrous as the gay feathers pinned on an Indian's blanket.

The woodcuts, all poorly executed, are analogous to the letter-press, that is, they are an odd mixture of fancy and fact—portraits realistic, perhaps, though their origins are not related, and ideal scenes which seldom have more verisimilitude than was to be seen in the picture of the Israelites crossing the Red Sea, which was all one dead wall or barn-door of Spanish brown.

The facts, mainly concerning the rise and ante-steamboat progress of Ohio, the mother-State of the Northwest, are stated with tolerable accuracy; yet Kentucky is said to be "old in comparison with the other States added to the Union since the Revolution" (p. 20). The writer had forgotten that Vermont is older than Kentucky by well-nigh a year. The admission of Vermont was in 1791, February 18, or March 4; that of Kentucky was in 1792. Again, the United States in 1783 are described as "a larger section of America than the territory north of the Great Lakes and the St. Lawrence" (p. 15). In fact, the area of our Union was then 813,765 miles, which is less than one-fourth of 3,524,152 miles included in the region north of it and retained by Great Britain. Lewis and Clarke are declared "the first white men to traverse the continent by traversing its water courses" (p. 104). It was 1805 when those explorers reached the Pacific, but that ocean had been reached a little further north a dozen years before, in 1793, by Alexander Mackenzie, who had been knighted for his exploit in 1801. The original name of Cincinnati (Losantiville) is traced to its originator John Filson, but it is not so analyzed as to show why the name was given to a settlement opposite the mouth of the Licking. The letter L is the initial of Licking, and os is Latin for mouth. It is only when the first syllable is ex-

plained that the rest of the hybrid becomes plain of itself.

Many pages betray careless proof-reading, or something worse. Thus, La Salle's name *Cavelier* is spelled as though it were the title cavalier. This error may be a misprint, as no doubt Willis Creek (p. 16) is for Will's Creek, as well as Caiuga, Scaneateles, etc. (p. 97), an insignia (p. 59), Missouri had water connected with the Pacific, and the date 1785 (p. 96) when Dr. Eliot, late of St. Louis, is described as writing in Boston. But the area of the Northwestern territory is set down as 265,878 acres (p. 105). Can "acres" be a misprint for "miles"? At best it can be called by no more charitable name than heterography. The English are spoken of as "basing a prior right to the continent by virtue of Cabot's discoveries." No hint is given as to any basis for this basing.

Five or six pages are dedicated to the buckeye, a tree which has given a sobriquet both to Ohio and Ohioans; but we are not told what the tree is, nor yet how it came by its name. Webster is equally unsatisfactory. He says: "Buckeye—a tree, the *Æsculus flava*, indigenous in the Western States; *Æsculus glabra* is the fetid, or Ohio buckeye"—a definition worthy of Bardolph's elucidation of "accommodated." But this word is one proof among ten thousand that the New Dictionary of Dr. Murray is first, and all the rest are nowhere. What does that say of buckeye? "It is the American horse-chestnut," quoting for the first appearance of the word in any book Morse's Geography, 1789-96, and adding that the tree is so called from the hilum of the fruit (the mark or scar where a seed is attached to its base) having the appearance of a stag's eye.

But, on the whole, the readable style of this centennial sketch, which is now seasoned by seasonableness, as well as its store of piquant anecdotes, and the rarity of many of the extracts, must secure the booklet a wide circulation. It will satisfy a popular demand.

Microscopical Physiography of the Rock-making Minerals. By H. Rosenbusch.
Translated and abridged by Jos. P. Iddings.
John Wiley & Sons. 1888.

AMONG the many advances in natural sciences during the last twenty years, none has been more remarkable or fruitful than the introduction of the use of the microscope in geology. In botany, in physiology, throughout the organic world in short, the value of the microscope in revealing hidden processes of life and disease had long been recognized. Its use in these sciences was, however, a simple and direct increase of the power of the human eye, magnifying it many hundred times. The processes of formation of the crystalline rocks, which have congealed from a fused mass, in most cases long ages ago, could not be discovered by direct observation, since they had long ceased to act. By cutting these rocks, however, into thin sections, thinner than a sheet of paper, so that they became as transparent as glass, and studying their internal structure under polarized light—light whose vibrations have been reduced to a single plane by passage through a Nicol or calc spar prism—and with due regard to the laws of optics and of crystallization of the various minerals which enter into the composition of rock-masses, the geologist has been finally enabled to trace the development of the various rock ingredients from the original fused magma of the granites, basalts, and other eruptive rocks, and thus take a long step in advance in the study of the constitution and manner of formation of the earth's crust, which must at one

time have been entirely in a molten condition. In this minute and laborious study, the Germans, as might have been expected, have been the pioneers, although this line of research was first suggested by an Englishman, Sorby, who made some interesting discoveries with regard to liquids enclosed in quartz and precious stones.

In 1873 Ferdinand Zirkel, one of the youngest professors of the University of Leipzig, who had made this subject his special study, and had been teaching it to his pupils for a number of years, published the first book upon the subject, entitled 'The Microscopical Characteristics of Minerals and Rocks.' In 1874 Prof. Zirkel was induced to visit this country and examine the large collections of eruptive rocks illustrating the geology of the then little known Rocky Mountain region, made by the members of the Geological Exploration of the Fortieth Parallel, under the direction of Clarence King. The results of this study formed the sixth volume ('Microscopical Petrography') of the publication of this survey, and was the first introduction of the subject to the American scientific public.

In the fifteen years that have elapsed since Zirkel's first publication, the number of persons making a study of this subject has vastly increased, and during this time great changes have taken place which have almost revolutionized it. Many of Zirkel's somewhat empirical conclusions have been modified by his more philosophic successor in the field, H. Rosenbusch, formerly of Strassburg, now of Heidelberg University, who now stands as the acknowledged authority throughout the scientific world. The second edition of his great work upon the microscopic study of minerals and rocks, of which the subject of the present notice forms the first volume, has been translated and abridged by his former pupil, Mr. Jos. P. Iddings, and thus made available for the American student who is unfamiliar with the German tongue. Mr. Iddings has brought to his task a valuable experience in the work of the United States Geological Survey, qualifying him to supplement many omissions in the original work in regard to American occurrences. His abridgment consists mainly in the omission of certain historical data, all material necessary for the instruction of the student having been carefully retained. This translation will undoubtedly constitute for a long time to come the standard authority upon microscopical petrography, the only other works upon the subject in the English language being elementary treatises of comparatively little value.

Roman Mosaics; or Studies in Rome and Its Neighborhood. By Hugh Macmillan, D.D., LL.D., etc. Macmillan & Co. 1888.

THESE "Mosaics" are pictures of Rome wrought in a background of Presbyterianism by the hand of a Scottish divine. As a result, they are decidedly lacking in the sparkle of the gems seen in the shops about the Piazza di Spagna, the loss of which is perhaps compensated by many highly improving moral reflections concerning the objects portrayed, set forth in very elaborate rhetoric. In the obelisks, for example, the author sees "the eternal sun, thus fittingly represented by an object that lifts its stern finger in unchangeable defiance of the vicissitudes of the seasons and the ages." The Cumæan Sibyl suggests to him that "God did not leave the Gentile nations without some glimpses of the truth which He had revealed to His own chosen people," inasmuch as "beneath the gross external polytheism of the multitude there were deep, primitive springs of godli-