

After further elaborate proceedings, "'Is this all?" asks the chairman. 'Oh no,' replied Mr. Cartesian, 'there are other proportions in which the ingredients may be combined so as to produce a possible movement,' and he was proceeding to state them when Mr. Commonsense interposed. 'Stop! Stop!' said he, 'I can make nothing out of all these figures. This jargon about x , y and z , may suffice for your calculations, but it fails to convey to my mind any clear or concise notion of the movements which the body is free to make.'"

So we might continue quoting every paragraph of this amusing but seriously constructed essay, with equal zest. The book closes with an elaborate bibliography containing all the work relating to the theory of screws from its inception with Poinsot, Chasles, Grassmann, Hamilton, Möbius and Plücker, to the modern advances of Clifford, Klein and their confrères and Ball himself.

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TOPOGRAPHIC ATLAS OF THE UNITED STATES.

The second folio of what promises to be a magnificent topographic atlas of the United States, published by the United States Geological Survey, has recently been issued. This second number, like the first, bears Henry Gannett's name, and like its predecessor, also presents illustrations of typical topographic forms for the use primarily of students and teachers of physiography. From the large number of topographic sheets issued by the Geological Survey, ten have been selected which furnish admirable examples of well-developed physiographic features, such as a coastal swamp, a graded river, Appalachian ridges, alluvial cones, etc., and bound in a folio, together with brief descriptions and explanations.

The maps have been well selected and in themselves, so far as one can judge who is not intimately acquainted with the areas represented, are all that could be desired. Not only does the field-work seem to have been carefully executed, but the engraving and printing is excellent.

The text accompanying each map is intended to supplement and explain the topographic and culture features shown on it. These descrip-

tions are for the most part evidently compilations from the writings of geologists and geographers, who have studied the areas represented or other similar regions, although no acknowledgments of the sources of information are made. Such references are much to be desired not only in justice to the original investigators, but for the purpose of directing the reader to sources of more extended information. In some instances the maps chosen represent topographic forms which have been carefully studied elsewhere, and might profitably be accompanied by citations from the descriptions of the type examples. Such references and citations could easily be made, as the printed text seldom occupies an entire page: in fact much valuable space is wasted.

Instructive and pronounced features on some of the maps are not referred to in the text, although there is space available. For example, in the description of the Norfolk sheet, the origin of the drowned stream valley, the prominent hills near the ocean's shore presumably dunes, and well-marked characteristics of the shore topography, due to the action of waves and currents, are not mentioned, but in place of such information a questionable explanation of the origin of Lake Drummond is presented. Again, in the text accompanying the excellent map of alluvial cones, no reference is made to the conspicuous channels excavated in their upper portions.

The pictures in the text are poorly printed, and one of them bearing the objectionable name of 'hogback,' is reversed in reference to right and left; this reversion throws the picture out of harmony with the diagram beneath it, intended to show the structure on which the monoclinical ridge depends. In the title of the picture just referred to—and the same is true in at least one other instance—no reference is made to the geographical position of the scene represented.

The diagram described as a 'volcanic neck,' might be accepted as representing a cross-section of a peculiar plutonic intrusion, but by no stretch of the imagination can it be considered as illustrating the structure of a volcanic neck. In attempting to indicate the 'stratified beds now eroded away' they are carried completely

over the intruded mass labeled 'lava,' seemingly with the intention of indicating that the intrusion did not reach the surface. We know, however, from the writings of Major Dutton that the volcanic necks in the Mt. Taylor region, the one selected, are the plugs hardened in the throats of normal craters.

An exception might be taken to the use of the word *crater* in reference to the great depression in the summit of Mount Mazama, but such a distinction I believe, was not made by Dutton and Diller, to whom we owe nearly all our information concerning the region in question.

In the interest of the large number of teachers and students who will consult the topographic folios of the U. S. Geological Survey, I venture to suggest that the descriptions accompanying the maps should be written by persons who are familiar with the regions represented and have a critical knowledge of their geology. These texts, although of necessity brief, should not be stultified compilations, but Nature herself speaking through a master interpreter.

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BOOKS RECEIVED.

Animal Life. DAVID STARR JORDAN and VERNON L. KELLOGG. New York. D. Appleton & Co. 1900. Pp. ix+329.

William Herschel and his Work. JAMES SIME. New York. Charles Scribner's Sons. 1900. Pp. vii+265. \$1.25.

The Teaching of Mathematics in the Higher Schools of Prussia. J. W. A. YOUNG. Longmans, Green & Co. New York, London and Bombay. 1900. Pp. xiv+141.

Lehrbuch der vergleichenden Anatomie der Wirbellosen Thiere. ARNOLD LANG. Second revised edition. First part, *Mollusca*. KARL HESCHELER, Jena. Gustav Fisher, 1900. Pp. viii+509.

SCIENTIFIC JOURNALS AND ARTICLES.

The Journal of School Geography, edited by Richard E. Dodge, of Teachers College, Columbia University, enters upon its fifth volume in January. The editorial staff will be strengthened by the addition of Mr. Mark S.

W. Jefferson, of the High School, Brockton, Mass., who will devote his attention to Secondary School Geography, and of Miss Ellen C. Semple, of Louisville, Kentucky, who will, as before, contribute articles and notes in reference to Anthropeo-geography.

The Plant World for November opens with an illustrated article on 'An Ornamental Species of *Bideus*' by G. N. Collins. It is a little irregular to learn that the now popular *Cosmos* flower was brought from Mexico twenty years ago and cast aside as a worthless weed. F. M. Burglehaus tells of 'Drying Botanical Dryers in Wet Weather' and Charles Newton Gould describes the 'Jack Oaks in Oklahoma' which are practically useless for anything save firewood. Charles A. White discusses 'The Varietal Fruit Characters of Plants' and 'English and American Weeds [are] Compared' by Byron D. Halsted with the result that in 100 species from each region less than one quarter of them are common to both lists. In the Supplement devoted to 'The Families of Flowering Plants,' Charles Louis Pollard treats of the orders Fagales, Urticales and Proteales.

No. 38, vol. 8, of the *Bulletin of the New York State Museum* is devoted to a 'Key to the Land Mammals of Northeastern North America' by Gerrit S. Miller, Jr., intended to furnish a ready means of identification with the least possible technical requirements. Keys are furnished to the various orders, families, genera, species and even subspecies of the mammals inhabiting the region noted, while references are given to the first publication of each name, the first use of the binomial or trinomial combination and to some recent work in which the animal is described in detail. Recently extirpated animals, such as the bison and walrus, are included and there is a short introduction defining the areas of the life zones of the region under consideration, and before the 'Key' proper is a check list of the 105 species treated. The work is not only useful for the amateur, but of great value to the working zoologist, as Mr. Miller is among our leading authorities on mammals and has devoted particular attention to those of New York State and the adjoining territory.