West Virginia Geological Survey. Vol. IIA. Supplementary coal report. I. C. White. Pp. xiv + 720 and map. 1908.

It is now five years since the publication of Dr. White's first volume on the coals of West Virginia. That was prepared from notes made by its author during many years of examination prior to organization of the state geological survey; so that, while giving matter of the utmost importance, it was more or less fragmentary and gaps remained in critical areas, where was to be sought the solution of some difficult problems in correlation.

More than two thirds of this supplementary volume is devoted to the Pottsville series, which occupies the southern part of the state on and beyond the New and Kanawha Rivers. Five years ago, positive correlation of beds had been determined in only a small part of this area and identifications elsewhere were little better than tentative. But during the interval many bore holes have been drilled and the cores have been measured with care; these measurements, and those of numerous exposed sections have made possible reconstruction of the general section and correction of errors found in earlier publications. It is unnecessary to mention these errors here, for though some of them were serious from the stratigrapher's point of view they are no longer, except in a very few instances, important from the economic standpoint, as the corrections have come in time. They reflect no discredit on the earlier students, as the deposits are so variable that the exact conditions could be ascertained in the semi-wilderness region only by the aid of diamond drill borings.

The Pocqno anthracite, just west from the Great Valley, receives proper attention. Now that official condemnation of the coals is available, it may be hoped that the Dora coal fields will no longer prove a source of profit to coal experts and of loss to would-be investors. Dr. White calls attention to the fact that, while the Pocono coal beds are found only along the easterly border of the Appalachian coal field, the same great formation is rich in petroleum and natural gas within the central and western parts of the field. He suggests that, in the deeper portions of the area where land plants could not flourish, there was a growth of marine plants and animals whose remains were changed into those hydrocarbons.

Dr. White divides the Pottsville series into Beaver, New River and Pocahontas, a much better grouping than that offered by Stevenson, as it recognizes the early work of Fontaine on New River and that of David White in the Pocahontas and southern Anthracite field; the individuality of the lower divisions is as distinct as is that of the Beaver. The area of the Pocahontas and New River coals is not far from 2,600 square miles and the amount of available coal is estimated at 10,000 millions of tons. The coals are of remarkable excellence, very low in ash and sulphur; those of the Pocahontas have usually less than 18 per cent. of volatile matter, so that they are practically smokeless when properly stoked and are the typical steam coals. The New River coals are richer in volatile, 17 to 26 per cent., but are as low as the others in ash and sulphur. These coals thin away from the southwestern outcrop and disappear toward the northerly and northwestwardly border of the basin in which the lower and middle Pottsville were deposited, each important member of the column overlapping its predecessor toward the west.

The new borings and sections have made clear the relations of the Kanawha or Beaver coal beds. The imperfect sections of five years ago in counties immediately north from the Kanawha have been replaced with numerous excellent measurements, which show that Stevenson's identification of the great Roaring-creek coal bed with the Stockton bed of the Kanawha is an error, the former being about 50 to 75 feet above the latter. The Kanawha black flint, overlying the Stockton, has been discovered below the Roaring Creek sandstone (equivalent to the Homestead of Pennsylvania) so that it can not be the Putnam Hill limestone of Ohio and is most probably at a Mercer horizon, 70 or 80 feet lower.

The Roaring Creek coal bed is taken by Dr. White to be the Lower Kittanning, the next bed above the Brookville, to which Stevenson

referred it. This difference in opinion is unimportant, as this is the lowest bed of the Allegheny in the region and is at only 10 to 30 feet above the sandstone which forms the top of the Pottsville.

This supplementary report is merely synoptical and it will be supplemented in turn by county reports giving the structure in detail. The plan and execution of the survey work are admirable; the measurements are very numerous and the correlations have been made with patient study; the analyses are in great part both proximate and ultimate and the number of them is unusually large. The new material, bearing on the origin of coal and the accumulation of coal beds is perplexingly important; if much more of this sort be presented, reconstruction of many familiar hypotheses will be necessary and much fine writing, of which the authors were justly proud, will become merely historical lumber.

JOHN J. STEVENSON

SCIENTIFIC JOURNALS AND ARTICLES

The Museums Journal of Great Britain for October, under the title "Board of Education: Circulation Department," states that the Victoria and Albert Museum contemplates extending the operations of its circulation department which is concerned with the loan of collections to provincial museums. In "Notes on an Eighteenth Century Museum" Thomas Southwell gives much information about the *Museum Boulterianum* a typical institution of its period. This contained many objects brought home by Capt. Cook, including specimens of *Hemignathus obscurus* and *Vestiaria coccinea*. The article on "The Lund Museum for the History of Culture" contains a brief discussion of the extent and character of restorations of art objects.

The American Museum Journal for November contains a brief account of "Cuthbert Rookery," the last of any size left in the state, and information as to "The Stefansson-Anderson Arctic Expedition" which is at work on the northeast coast, while Harlan I. Smith presents some of the results of "The Archeological Reconnaissance of Wyoming." It is noted that the Tuberculosis Exhibit will be opened the latter part of November. The number contains the lecture programs of various courses.

The Bulletin of the Charleston Museum for October notes the installation of the Museum Library in the new building and calls attention to the fact that it is the first free public reading-room in the city. The offices and workrooms are also in the new building and the re-arrangement of the collections is proceeding as fast as is possible.

The Zoological Society Bulletin for October contains an illustrated account of the elephant house soon to be opened to the public, and probably the most complete structure of its kind extant. In a note on "A Large Sea Turtle" (*Dermochelys*) it is stated that "It is not likely that any species of sea turtle exceeds 1,000 pounds in weight." This is probably true; it is surprising how animals shrink before tape line or scales and so far as we know the 840 pounds of this turtle is the maximum actually recorded. Mr. Beebe presents Part I. of an illustrated article on the "New World Vultures." He remarks that they apparently lack the sense of smell, but *per contra* it is to be noted that the olfactory lobes of *Cathartes* are well developed, being much larger than those of other birds. And what are olfactory lobes for but to record smells? Attention is called to the necessity for raising a fund for the purchase of bison for the Montana herd for which the government has provided a range.

THE tenth volume of the *Transactions* of the Texas Academy of Science, including the proceedings for 1907, has just been published. Its contents includes the following papers: "The Resistive Powers of the Animal Organism," the annual address by the president, Dr. James E. Thompson, professor of surgery in the medical department of the University of Texas, Galveston; "A Theory of Ferments and their Action," by Dr. James W. McLaughlin, Austin; "Soil Fertility and Phosphoric Acid," Dr. George S. Frapps, state chemist, College Station; "Lord Monboddo—