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PALEONTOLOGY.—*Discovery of Permo-Carboniferous vertebrates in the Dunkard formation of West Virginia.*¹ R. W. WHIPPLE, Marietta College, and E. C. CASE, University of Michigan.

On December 27, 1929 Mr. Goff Carder reported to Professor R. W. Whipple the discovery of certain bones at Portland, Jackson County, West Virginia. Professor Whipple visited the locality and determined the horizon to be the Upper Marietta sandstone, which is in the lower portion of the Dunkard. The Marietta sandstones, named by I. C. White² from their typical outcrop in the vicinity of Marietta, Ohio, are easily recognized in this area; and in the interval between the Lower Marietta sandstone and the Upper Marietta sandstone are shaly sandstones, shales and red clay (Creston beds). The bones are from the lower part of the Upper Marietta sandstone 130 feet above the railroad track over Skull Run. The specimen was in a soft clayey cross-bedded sandstone, carrying an abundance of large flakes of white and black mica, made up of small rounded grains of quartz and the whole weathering to a light brown color.

The site was in the center of an old road and the specimen had been partly destroyed by passing wagons. All material that could be recovered was collected and has been studied by Professor E. C. Case. The specimen consists of parts of the spines, centra and ribs of *Edaphosaurus cruciger* Cope. More than half of four spines have been pieced together; there are in addition two nearly complete centra of

¹ Received June 23, 1930.

² West Virginia Geological Survey **2**. 1903.

posterior dorsal vertebrae, two nearly complete ribs, and numerous fragments and short pieces of other spines and ribs. So much of the specimen has been recovered that the identification is certain. This discovery confirms the identification of a small fragment previously discovered at Marietta in the Creston beds horizon.³

In a visit by Professors Whipple, Case and Hussey, to the region on May 31, a stop was made at Limestone Hill, on the boundary between Wood and Wirt counties, about thirty miles south of Marietta on the road to Ravenswood, West Virginia. At this locality in the cuts along the new highway are fine exposures of the upper Dunkard rocks with a series of at least four distinct limestones in the upper horizons. The limestone at this locality was identified by I. C. White⁴ as the Nineveh Limestone, which is one of the most important beds in the upper Dunkard, as it can be traced for many miles in the high ridges of hills in the region. It is not a well defined stratum, for it varies from one to five feet in thickness and is often separated into shaly and nodular layers. Ray V. Hennen⁵ designates the three upper beds as the Upper Rockport limestone, Middle Rockport limestone and Lower Rockport limestone from the fine exposures developed near Rockport, Wood county, two and a half miles north; and in his section identifies the lower or fourth bed as the Nineveh limestone. These Rockport limestones are of only local extent, and after further field studies may be identified as phases of the Nineveh limestone.

The upper Rockport is a lens of limestone from one foot to eighteen inches thick. At the upper surface there are a few inches of sandy limestone filled with fragments of bone. Below this, or a phase of it, is a dark mud-shale with numerous fragments. The shale is so fragile that it could not be handled without preparation but there were identified in the field: *Pleuracanthus* (probably the form described by Stauffer and Schroyer as *Diplodus washingtonensis*); scales and teeth of fish, probably the *Paleoniscus* of Stauffer and Schroyer; vertebrae very similar to *Lysorophous*; vertebrae very similar to *Theropleura*; a few large teeth of a Pelycosaur like *Dimetrodon*; a small amphibian femur of the type of *Trimororhachis*; and numerous fragments of plates from the head of a similar form.

³ STAUFFER, C. R. and SCHROYER, C. R. *The Dunkard series of Ohio*. Bulletin 22, Fourth Series, 1920.

⁴ U. S. Geol. Survey Bulletin No. 65: 33. 1891.

⁵ West Virginia Geol. Survey, Report on Wirt, Roane and Calhoun Counties. 46 and 143. 1911.

A careful study of the material is planned and may lead to different conclusions, but it seems quite certain that the fauna is very similar to that previously described from near Danville, Illinois, and to that of the Permo-Carboniferous beds of Texas and Oklahoma.

BOTANY.—*A new species of Calathea from Panamá.*¹ C. V. MORTON, National Museum. (Communicated by WILLIAM R. MAXON).

The following species of *Calathea* was discovered by Dr. A. F. Skutch while engaged in research work at the experiment station of the United Fruit Company at Almirante, Panamá, and is based on ample material presented by him to the U. S. National Museum. The description is also drawn in part from field notes made by Doctor Skutch, who is planning to publish shortly an account of the morphology and method of unrolling of the leaves.

***Calathea magnifica* Morton & Skutch, sp. nov.**

Large herb reaching a height of 5 meters; radical leaves 2-ranked, homotropous; petioles reaching about 290 cm. in length, the lower half sheathing, the upper half terete, 1.3–1.6 cm. thick, the callous body at its upper end 23 cm. long; lamina with the right half always innermost in veneration, gradually increasing in size until the plant matures, oblong, truncate at apex, slightly asymmetric, the largest 114 cm. long by 58 cm. broad, glabrous, the lower surface whitish with a thick layer of wax, this separating in large flakes upon drying; stem 110–150 cm. long, bearing two leaves, the first one with the blade equaling that of the radical leaves, the second reduced; sheath 30–56 cm. long, not or scarcely auriculate, pubescent with short, simple hairs; inflorescence of two groups of spikes, one group from the axil of each of the cauline leaves; peduncles of spikes in the axils of lower leaf 30–60 cm. long, of upper leaf 10–50 cm. long, flattened, often flexuous, pubescent (especially at apex), streaked with pale green and brown; primary spikes 7–9, secondary spikes often arising from the lowermost bract of a primary, subcylindric, 18–30 cm. long, 3.5–5 cm. thick, the bracts 16–20 or more, distichous but somewhat displaced by a spiral twist of the axis, thus forming two spiral series, leathery-chartaceous, broadly obcordate, 5–6 cm. long, 5.5–7 cm. broad, pale green streaked or washed with brown, sparsely pubescent outside, glabrous within; primary bractlets winged on the back, hispid along the wing; flowers in pairs, the two usually not developing simultaneously, 4.6 cm. long; sepals lanceolate, 9–10 mm. long; corolla tube 2.6 cm. long, lobes oblong, obtuse, 20 mm. long, 7 mm. broad, dark Corinthian purple; staminodium white, obovate, 1.5 cm. long, ovary naked, surrounded by a tuft of hairs arising from its base; capsule loculicidal, 1.7 cm. long, pink; seed 7 mm. long; aril lamellose, 5 mm. long.

Type in the U. S. National Herbarium, no. 1,409,622–3, collected at the research station of the United Fruit Company, Almirante, Panamá, April 20, 1929, by A. F. Skutch (no. 12).

¹ Published by permission of the Secretary of the Smithsonian Institution. Received June 15, 1930.



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