avidity. This interesting observation indicates a narrow food habit for this species.

Of the nine remaining larvæ of the original lot, five were reared to the adult state. The first pupa appeared March 8, the adult emerging five days later. Thus 179 days had elapsed between the date of collection and the date of pupation, during the last 149 of which the larvæ had been without food.

Among the larvæ kept out of doors, which were under nearly natural conditions, the first pupa appeared 196 days after the date of collection and the last 201 days. The latter lived 18 days, but the adult failed to emerge.

This would indicate that under natural conditions one would expect the pupæ to appear during the latter part of March and most of April and the adults during April and possibly May.

The average length of the known larval life of the ten individuals which transformed to the pupa state was 196.5 days. The shortest period was 179 days, and the longest 205 days. How much it would be necessary to add to this in order to arrive at the total larval life is not known; nor do we know the incubation period, as we were unable to secure eggs.

The shortest pupal period was five days, the longest 11 days, and the average 7.3 days. The shortest adult life was one day, the longest 11 days, and the average 6.8 days. It is probable that with natural conditions the adult stage would have been somewhat lengthened, for this species is rather shy and could not be expected to thrive well under close confinement.

From the fact that a few adults were present when the larvæ were collected, September 10, 1906, together with the dates of emergence of those we reared, we are led to believe that there are at least two broods per year at this latitude. These broods probably are not sharply defined, because of the variation in time required to hatch the eggs of those mosquitoes which lay their eggs singly. It is probable that during the latter part of summer all stages may be found together.

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DISSOROPHUS—A CORRECTION

In the *American Naturalist* for November, 1895, Professor E. D. Cope described (p. 998) a new form of Paleozoic amphibian, from the Permian of Texas, which he designated by the name of *Dissorophus multicinctus*. He based the new form on a series of "ten consecutive vertebræ and their appendages" and on account of the peculiar carapace referred to it as a "batrachian armadillo." He characterized the new form as follows:

> The neural spines are elevated, and the apex of each sends a transverse branch which extends in an arch on each side to the ribs. These spinous branches touch each other, forming a carapace. Above and corresponding to each of them is a similar dermal osseous element, which extends from side to side without interruption on the median line, forming a dermal layer of transverse bands which correspond to the skeletal carapace beneath it.

In the *Proceedings of the American Philosophical Society* for May 15, 1896, Cope published on Plate X. three figures of the same specimen and gave the name as *D. articulatus* Cope. Again in the *American Naturalist* for November, 1896, under the title of "Permian Land Vertebrates with Carapaces" (p. 936), he gave additional notes on *Dissorophus* and repeats the same figures which were given in the *Proceedings of the American Philosophical Society,* 1896, Plate X., and again gives the name as *Dissorophus articulatus* Cope.

In Hay's "Catalogue of the Fossil Vertebrata of North America," there are given two species of *Dissorophus, D. multicinctus* Cope, and *D. articulatus* Cope, and reference to the *Proceedings of the American Philosophical Society,* 1896, Plate X., is omitted. Broili ("Paleontographica," 1904) follows Hay, evidently, in making out his list of the Stegocephalia of the Permian of Texas, since he also gives the two species of *Dissorophus.*

There can be no doubt that there is but one species of *Dissorophus* and that species is *Dissorophus multicinctus* Cope first described in 1895. That the specimen first described is the same as the one figured on Plate X. of the *Proceedings of the American Philosophical Society,* can not be questioned. Cope

says the specimen consisted of "ten consecutive vertebræ and their appendages," and this is the number of vertebræ figured on the plate. Nowhere is *D. articulatus* designated as a new species and the original description applies exactly to the figures there given.

Cope's ability to shift names is well known to those who are accustomed to deal with subjects treated by him, but usually such shifted names were detected, either by Cope or others. This appears not to be the case with *Dissorophus* and, so far as I can learn, the correction has never been made. *Dissorophus multicinctus* Cope is the only species of that genus which is valid and it is desirable that the synonymy of *D. articulatus* with the first described *D. multicinctus* should be established before the mistake goes further into the literature.

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November 14, 1907

CURRENT NOTES ON LAND FORMS

THE PENEPLAIN OF NORTH CENTRAL WISCONSIN

THE peneplain of north central Wisconsin has been recently described with rare skill by S. Weidman in a state survey report (Chap. XII., pp. 575–631, in "Geology of North Central Wisconsin," Bull. XVI., Wisc. Geol. and N. H. Surv., 1907). The teachers of the state and geographers in general will here find excellent account and illustration of the still undissected parts of the peneplain, of the well-defined, though small, monadnocks that rise above it, and of the valleys that have been eroded beneath it; they will find also a well-considered and lucid discussion of the origin of these features. The once continuous upland is ascribed with good reason to the destruction of ancient mountains of disordered and generally resistant rocks in an almost complete pre-Cambrian cycle of subaerial erosion. The submergence of the resulting peneplain, its burial beneath an unconformable cover of paleozoic strata, the elevation of the region with the resultant removal of the covering strata and resurrection of the buried peneplain, and the dissection of the peneplain by superposed rivers are all clearly set forth. The upland rises from 1,000 feet at its southern border to 1,500 feet at the northern part of the area. As the rivers are followed southward, there is a gradual transition from well-enclosed valleys, 200 or 300 feet deep, floored and sided with disordered rocks, through shallower valleys, floored with disordered rocks but sided with stratified rocks, to open valleys, floored and sided with stratified rocks. There is a corresponding passage from higher, more northern uplands of disordered rocks, through somewhat lower uplands, patched over with scattered remnants of the once more extensive cover of stratified rocks, to the lower ground of the still remaining, continuous stratified cover. All these features are so well presented that they may be accepted as standard accounts of typical physiographic features. If a hesitating geographer is still to be found, unconvinced of the desirability of replacing older empirical methods by newer explanatory methods in the description of land forms, let him read this essay.

The attention of others engaged upon physiographic reports for state surveys may well be directed not only to the general plan of this report, but particularly to four helpful block diagrams (pl. 68–71), which promptly and concisely set forth the essentials of the story to be told, so that its details may afterwards be apprehended in proper relation to the more general features. The chapters on glacial and alluvial deposits also contain geographical material. One of the very few points on which Weidman's form of statement might be changed to advantage is that concerning the adjustment of rivers. It is said: "Under normal conditions, streams . . . tend, not only to flow in nearly direct courses, but also to avoid the harder rocks, thus seeking to establish their courses upon the softer formations and to move along lines of least resistance" (p. 616). This might give the impression that the establishment of stream courses along belts of weak rocks is accomplished by the preexistent streams themselves, as an active, almost intentional process. The quoted phrase might be changed to read: "Streams of early origin are often led to avoid the harder rocks by the later development of subsequent