

above Stanley's and in the field below. Those near Stanley's, perhaps six feet long, seem to have come from the precipice at the top of the mountain, as identified by the mineral composition. The largest block examined in the field is twelve feet long, six feet wide, and five feet high, and is of porphyry. Others were not examined, but these suggest that the syenite fragments started from the summit precipice. These struck the projecting ledges of porphyry three hundred feet lower down at the commencement of the steeper slope, when all of them combined furnished the accidental force which urged the moistened *débris* down the mountain-side with such fearful velocity.

The *débris* is thoroughly mixed with vegetable loam, and the black soil of the forest; so that, though covered by a yard thickness of mud, the field may again become productive to tillage. This mud disported itself very much like lava flowing down inclined slopes, the terminations being scalloped, and the surface waved by small ridges like ropy lava.

Briefly, then, the conditions giving rise to this slide upon Cherry Mountain seem to have been the presence of gravelly granitic *débris* upon smooth ledges having a jointed structure pointing downwards. This *débris*, thoroughly saturated by water, became plastic and moved downwards just as soon as the blocks of syenite and porphyry started on their course, breaking off trees, and thus increasing the moving mass every rod of the way, till the lessened slope caused the viscous flood to stop. Such has been the history, probably, of all the more notable slides in the White Mountains.

The locality may be reached most conveniently by way of the Whitefield and Jefferson railroad. All trains will stop at the 'slide station' if desired. This is a point only seventy-five rods distant from the base of the slide.

C. H. HITCHCOCK.

AN AMERICAN SILURIAN SCORPION.

ON Nov. 12, 1884, the announcement that a fossil scorpion had been found in Silurian rocks in Sweden was made to the Swedish academy of sciences, and the printed notice of it published in the *Comptes rendus* of the French academy, Dec. 1. On Dec. 18, Dr. Hunter of Scotland, in making the announcement of the Swedish discovery to the Edinburgh geological society, stated that he also had found a Silurian scorpion during the summer of 1883 in Scotland; and I can now add the statement that a fossil scorpion has been found in the Silurian rocks of America, and at an

earlier period than either the Swedish or Scottish specimen, as it was obtained by the discoverer on Nov. 10, 1882.

On June 8 of this year, Mr. A. O. Osborne of Waterville, Oneida county, N.Y., wrote me that he had that day sent me a small box of fossils which he wished me to name for him, mentioning a few of them as of "special interest, as they are the first of the kind that I have found." On opening the box, some two weeks after it arrived, I found among those of 'special interest' a nearly entire scorpion which measures a little more than one and a half inches in length, but wanting a part of the fifth, and all of the sixth, segment of the tail. The specimen is preserved on the surface of hard hydraulic limestone, and presents the dorsal side to view. It is extremely thin and compressed, and, as a part of the substance is removed along the right-hand side of the abdomen and over the entire portion of the tail shown, these parts expose the inside of the ventral surface. The specimen shows the Cephalothorax and the left mandible (1) in place; the left palpus entire, with its chelate process (2); the first walking limb on the left side (3), with an apparently *bifid* extremity; and parts of each of the other three limbs on the same side. On the right side the palpus is folded on itself, and is imperfect. On the Cephalothorax the eye-tubercle is distinctly visible, and the points indicating the ocelli are readily distinguished; the ridges marking the position of the lateral eyes are visible, but the ocelli cannot be distinguished. As the inside of the abdominal plates is seen for about one-third of their width along the right side of the specimen, the spiracles ought to be shown, if they ever existed. Points which may have been spiracles are faintly visible; but the actual openings must have been very obscure, if present at all. The crust of the specimen is smooth, and destitute of the elaborately granulose ornamentation which characterizes the Swedish specimen: consequently the obscurer features would be more easily detected. But the specimen being so extremely flattened and small, renders other features more difficult of recognition. There is one feature shown in which this species differs very materially from living forms of the group. The limbs are crowded forward. The coxa and second joint (trochanter) of the posterior limb appear from beneath the edge of the first dorsal segment, on the left side; the end of the second ventral segment (*b*) is equal in extent to the end of the second dorsal segment, and of the same length antero-posteriorly. In the

recent scorpions this segment is not visible in any position (at least, not in any which I have examined), there being only five ventral plates of the abdomen; while here there are six in sight, which are almost exactly coincident with the dorsals in position. Another feature, I feel, ought to be noticed here. In recent scorpions the tail-segments seem as if reversed in position; that is, when straightened out on a plane with the abdomen, what would appear as the dorsal surface is below, and the bend of the articulations is upward. In this one it has been exactly the reverse; the under surface, as shown on the specimen, presenting only the two longitudinal ridges, and showing also the sinus at the posterior part of the segments occupied by the chitinous portion of the joint. The Swedish specimen would also appear to present this feature, as the upper surface, as figured on Thorell and Lindström's plate, shows the four ridges of the dorsal side of the tail-segments. The proportionate breadth of the body would indicate the American individual as a female, as it is of an elongate, oval form, being half as wide across the fourth dorsal segment as the entire length of the abdomen.

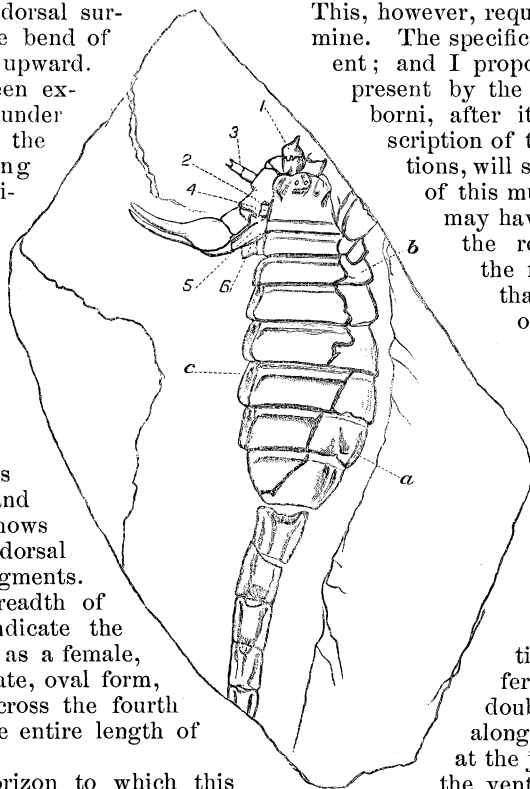
The geological horizon to which this American specimen belongs is that of the water-lime group, at the extreme base of, or perhaps more properly below, the lower Helderberg group (equivalent to the Onondaga salt group of central and western New York), and is nearly the same as that from which the Swedish specimen was obtained, probably somewhat lower. The associated fossils are *Eurypterus remipes* DeKay, *Dolichopterus macrocheirus* Hall (only lately obtained from this locality), *Pterygotus Osborni* Hall, and *Leperditia alta* Conrad. In other parts of the state, other forms of *Eurypteri* are found; also *Ceraticaris*, with a very few molluscan forms, — all indicating a marine deposit. The fossils associated with the Swedish specimen are closely similar to the above in part. But many of the

brachiopods mentioned as occurring there are allied to forms occurring in beds below, while others would indicate a horizon of lower Helderberg age; so that we may infer that the two forms belong very nearly in the same position geologically.

The zoölogical affinities of the American scorpion very closely resemble those of the Swedish specimen; and it may, perhaps, be classed under the same genus, *Palaeophonus*. This, however, requires further study to determine. The specific relations are quite different; and I propose to designate it for the present by the name *Palaeophonus Osborni*, after its discoverer. A full description of the specimen, with illustrations, will shortly be given in a bulletin of this museum. It is possible this may have been a land-animal, like the recent scorpions, certainly the natural inference would be that it was; and the finding of an undoubted stigmata in one of the ventral plates of the Swedish specimen would certainly lend strength to the supposition. But on this American specimen, where one end of each of the ventral plates is exposed to view, the stigmata certainly ought to appear; but it would require so great a stretch of imagination to see them, that I prefer to leave them as extremely doubtful. There are, however, along the left side of the body, at the junction of the dorsal with the ventral plates, in what should be the flexible chitinous membrane of the four stigmatic segments, what might very readily be interpreted as stigmatic openings(c); but these are so anomalous in their position that I have as yet felt uncertain of their nature, and also of the terrestrial character of the animal.

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AN EVENING IN CAMP AMONG THE OMAHAS.

WE had just finished our supper in the long conical shadow of the tent; and, the dishes being disposed of, we settled ourselves for the