5. *Dredging in Lake Superior under the direction of the U. S. Lake Survey.*—Extensive dredgings were undertaken the past season in Lake Superior, from the U. S. steamer Search, under the direction of Gen. C. B. Comstock, Superintendent of the Lake Survey. Dredging was carried on from the shallow waters, especially along the north shore, down to 169 fathoms, the deepest point known in the lake. In all the deeper parts of the lake, the bottom, as shown both by the dredging and by the soundings executed by the Survey, is covered with a uniform deposit of clay, or clayey mud, usually very soft and bluish or drab in color. Water brought from the bottom at many points was perfectly fresh; that from 169 fathoms gave no precipitate with nitrate of silver. The temperature, everywhere below 30 or 40 fathoms, varied very little from 39°, while at surface (at the time of the observations, during August) it varied from 50° to 55°. The fauna of the bottom corresponds with these physical conditions. In the shallow waters, the species vary with the varying character of the bottom, while below 30 to 40 fathoms, where the deep-water fauna properly begins, the species seem to be everywhere very uniformly distributed. The deep-water fauna, as might be expected from the unfavorable character of the bottom, is meager, and seems to be characterized rather by the absence of many of the shore species than by forms peculiar to itself. Some of the more interesting species occurring in deep water were: *Mysis relicta* Lovén, at various depths from 4 to 159 fathoms; *Pontoporeia affinis* Lindst., at nearly every haul from the shallowest to the deepest; a small undescribed species of *Pisidium*, down to 159 fathoms; several forms of dipterous larvæ, allied to *Chironomus*, down to the same depth; several species of Lumbricoid worms, of the genera *Tubifex*, *Senuris*, and an allied genus; and a species of *Hydra*, which was found from the shore down to 159 fathoms. Of these, the *Mysis*, *Pontoporeia*, and *Pisidium* are identical with species found by Dr. Stimpson in his dredging in Lake Michigan, a short account of which was published in the American Naturalist for September, 1870. The species of *Mysis* and *Pontoporeia* I am unable to distinguish from specimens from Lake Wetter in Sweden. In the Swedish lakes, these species were associated with *Idotea entomon* and *Gammaracanthus loricatus*, marine species, and were supposed by Lovén to have been derived from ancient marine species left in the lake basins by the recession of the ocean. The occurrence of these forms in Lake Superior, so far removed from the ocean, is certainly a very interesting fact in the geographical distribution of species, but one which I will not attempt to discuss in this brief notice. In the shallow waters many interesting species were obtained. Among these was a new species of *Crangonyx*, a genus closely allied to *Gammarus*, and heretofore known only from a few species found in the fresh waters of the old world, which occurred in 8 to 13 fathoms; and at the same depth, species of *Lumbricus*, *Nepheleis*, *Procotyla*, *Gammarus*, *Asellus*, *Limnæa*, *Physa*, *Planorbis*, *Valvata*, *Sphærium*, *Pisidium*, etc. A full report will soon be published.

S. I. SMITH.

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