

and at Uddevalla in Sweden, beds of shells of existing species, at considerable heights above the sea. Since that time, other naturalists have confirmed his observation; and, according to Ström, deposits occur at an elevation of more than 400 feet above the sea in the northern part of Norway. M. Alex. Brongniart, when he visited Uddevalla, ascertained that one of the principal masses of shells, that of Capellbacken, is raised more than 200 feet above the sea, resting on rocks of gneiss, all the species being identical with those now inhabiting the contiguous ocean. The same naturalist also stated that on examining with care the surface of the gneiss, immediately above the ancient shelly deposit, he found barnacles (*balani*) adhering to the rocks, showing that the sea had remained there for a long time. I was fortunate enough to be able to verify this observation by finding, in the summer of 1834, at Kured, about two miles north of Uddevalla, and at the height of more than 100 feet above the sea, a surface of gneiss newly laid open by the partial removal of a mass of shells used largely in the district for making lime and repairing the roads. So firmly did these barnacles adhere to the gneiss that I broke off portions of the rock with the shells attached. The face of the gneiss was also encrusted with small zoophytes (*Cellepora?* Lam.); but had these or the barnacles been exposed in the atmosphere ever since the elevation of the rocks above the sea, they would doubtless have decomposed and been obliterated.

The town of Uddevalla (see Map, p. 501.) stands at the head of a narrow creek overhung by steep and barren rocks of gneiss, of which all the adjacent country is composed, except in the low grounds and bottoms of valleys, where strata of sand, clay, and marl frequently hide the fundamental rocks. To these newer and horizontal deposits the fossil shells above mentioned belong, and similar marine remains are found at various heights above the sea on the opposite island of Orust. The extreme distance from the sea to which such fossils extend is as yet unknown; but they have been already found at Trollhättan in digging the canal there, and still farther inland on the northern borders of Lake Wener, fifty miles from the sea, at an elevation of 200 feet near Lake Rogvarpen.

To pass to the Baltic: I observed near its shores at Södertelje, sixteen miles S. W. of Stockholm, strata of sand, clay, and marl, more than 100 feet high, and containing shells of species now inhabiting the Bothnian Gulf. These consist partly of marine and partly of freshwater species; but they are few in number, the brackishness of the water appearing to be very unfavourable to the development of testacea. The most abundant species are the common cockle, and the common mussel and periwinkle of our shores (*Cardium edule*, *Mytilus edulis*, and *Littorina littorea*), together with a small tellina (*T. Baltica*) and a few minute univalves allied to *Paludina ulva*. These live in the same waters as a *Lymneus*, a *Neritina* (*N. fluviatilis*), and some other freshwater shells.

But the marine mollusks of the Baltic above mentioned, although very numerous in individuals, are dwarfish in size, scarcely ever