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Blaney and Loomis—Mt. Desert Island. 399

ART. XLI.—1 *Pleistocene Locality on Mt. Desert Island, Maine*; by DWIGHT BLANEY and F. B. LOOMIS.

ON the southern end of Mt. Desert Island, Maine, at the head of Goose Cove, there occurs a deposit of Pleistocene clays which has never been described. The bed is so peculiarly rich in well-preserved fossils that it should be a frequented locality for the study of postglacial marine remains. It has a further interest because on the other side of the island in Frenchman's Bay, only about ten miles away, a careful study of the marine fauna has been made for a period of many years, so that an opportunity is presented for an unusually interesting comparison of these two faunas, both the Pleistocene and the recent faunas having lived under approximately the same bottom conditions, except as to the matter of temperature.

The clays form a bed from below the low-tide level to about twenty feet above high tide, making a bank which blocks the head of the cove, and especially along its lower portions is well exposed. In the shallow water of the cove many of the shells may be found washed out, but most of the fossils will not stand such rough treatment as the weathering by the sea imposes. The clay is fairly soft and as the fossils nearly fill it, collecting is rapid work. We found it convenient to collect the larger shells on the spot and carry home blocks of clay, from which after drying the delicate and smaller shells could be easily washed out. The abundance of the material may be judged from the fact that in two to three hours we collected over three hundred shells.

The following is a list of the shells taken from this locality, with comments as to the abundance of the fossils in the clay, and in Frenchman's Bay, some ten miles away:

	Goose Cove	Frenchman's Bay
1. <i>Pecten islandicus</i> , Müller	The most abundant and well preserved form.	Very rare, only dead shells ever found.
2. <i>Mytilus edulis</i> , Linne	Very abundant but poorly preserved, crumbling easily.	Very abundant.
3. <i>Modiolus modiolus</i> , Linne	Rather rare and of small size.	Very abundant.
4. <i>Nucula tenuis</i> , Montagu	Rare.	Common.
5. <i>Leda minuta</i> , Müller	Fairly common.	Not found.
6. <i>Leda pernula</i> , Müller	Not common.	Not found.
7. <i>Astarte elliptica</i> , Brown	Very abundant.	Not found.
8. <i>Astarte laurentiana</i> , Lyell	Common.	Not found.

		Goose Cove	Frenchman's Bay
9. <i>Cardium pinnulatum</i> ,	Conrad	Not common.	Very common.
10. <i>Serripes groenlandicus</i> ,	Gmelin	Fairly common.	Rare.
11. <i>Macoma calcarea</i> ,	Gmelin	Very abundant.	Common.
12. <i>Mya arenaria</i> , Linne		Rare.	Very abundant.
13. <i>Mya truncata</i> ,			
var. <i>uddevallensis</i>		Very abundant.	Never dredged alive
14. <i>Saxicava arctica</i> , Linne		One double valved specimen.	Very common.
15. <i>Bela turricula</i> , Montagu		Rare.	Very common.
16. <i>Buccinum undulatum</i> ,	Linne	Common.	Common.
17. <i>Fusus</i> (<i>Chrysodomus</i>)			
decemcostatus, Say		Rare.	Very common.
18. <i>Fusus</i> (<i>Sipho</i>) <i>pygmaeus</i> ,	Gould	A fragment.	Very common.
19. <i>Trichotropis borealis</i> ,	Sowerby	Rather rare.	Common.
20. <i>Aporrhais occidentalis</i> ,	Beck	Rare.	Not common.
21. <i>Lunatia groenlandica</i> ,	Beck	Common.	Not common.
22. <i>Lepeta caeca</i> , Müller		Fairly common.	Very common.
23. <i>Margarita cinerea</i> ,	Couthouy	Fairly common.	Common.
24. <i>Rhynchonella psittacea</i> ,	Gmelin	Two valves.	Not found.
25. <i>Terebratella spitzberg-</i>			
ensis (?), Davidson		One fragment.	Not found.

Beside the above these clays contain a series of barnacles, and Bryozoa, but we did not collect these in quantities sufficient to be significant.

The species most abundant in these Pleistocene clays, like *P. islandicus*, the *Leda*, *Astartes*, *Mya truncata*, *Rhynchonella* and *Macoma calcarea*, are now either wanting or extremely rare in Frenchman's Bay, but are the common forms of the Labrador coast. This whole Pleistocene fauna with much the same relative abundance in the different species is the typical fauna of the Labrador waters. The conditions under which the Pleistocene fauna lived and those of the Labrador waters of to-day would seem to be much the same, and the sole cause of the transfer of this fauna from Maine to Labrador has been temperature. As the Pleistocene fauna moved north, a more southern fauna has taken its place.

If the Pleistocene fauna of Maine and the recent fauna of

Labrador to-day were both preserved as fossil faunas, the temptation would be very strong to identify them as of the same age, which indicates some of the difficulties in the way of synchronizing two extinct faunas, when the time element separating them is not very great. In this case the constant element has been temperature.

The clays at Goose Cove, Mt. Desert Island, would usually be designated as Leda Clays, but it should also be noted that they contain *Saxicava*, which in Canada belong to a later phase. The mingling of Leda faunas and *Saxicava* faunas is characteristic of the deposits in Maine.

In general the Goose Cove fauna resembles most closely the fauna found in New Brunswick and described by Matthew. It is also very similar to the fauna found at Portland, Me., but differs from both of these in many fundamental respects. From the collections made at Saco, Me., and at Gardiner, Me., the Goose Cove fauna differs even more widely, though it would be expected to resemble them more closely. The presence of *Modiolus modiolus* in abundance, of *Trichotropis*, of the *Ledas*, and *Astartes*, of *Rhynchonella psitticea* and *Terebratella* make a surprising close affinity to the fauna found at Montreal where these forms are distinctive, and occur in about the same relative abundance as at Goose Cove.

For the most important literature see the following, which contain all the minor references :

Dawson, J. W., Canadian Ice Age, 1894.

Packard, A. S., Glacial Phenomena of Labrador and Maine, Memoirs Boston Soc. Nat. Hist., vol. 1, pp. 210-303, 1865.

Stone, G. H., The Glacial Gravels of Maine, U. S. Geol. Survey, Monograph 34, 1899.

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