

in which are found mainly norepinephrine-containing nerve endings and axons is due to a change in some regulatory mechanism acting upon the uptake process. This effect seems to be specific for norepinephrine; we have not been able to detect it with H^3 -serotonin under similar experimental conditions (8).

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17. We are very grateful to Dr. S. Kety for his numerous suggestions in this work and his help in the preparation of this manuscript. We wish to thank Micheline Durand for valuable assistance in the preparation and analysis of the tissues, and Madame Coindet and Professor S. Kiyono for their help in checking the EEG records. This investigation was supported in part by grants from the Institut National de la Santé et de la Recherche Médicale, the Laboratoire de Physiologie des Centres Nerveux de la Faculté des Sciences de l'Université de Paris, the National Institute of Mental Health (MH-12017), the Air Force Office of Scientific Research (European Office of Aerospace Research, USAF) and the Société des Usines Chimiques Rhone-Poulenc.

3 November 1967

Littorina littorea: Occurrence in a Northern Newfoundland Beach Terrace, Predating Norse Settlements

In recent years several articles have dealt with the time of appearance and the apparent diffusion of the marine gastropod *Littorina littorea* Linné in eastern North America. It has been suggested that the species could have been introduced accidentally in Norse vessels during their voyages of around 1000 A.D., or subsequently (1). Because the species is well established on the beaches adjacent to the site of a Norse settlement near L'Anse aux Meadows on the Newfoundland side of the Straits of Belle Isle and because archeological examples antedating the European settlement of New England have been found, the suggestion of introduction by the Norsemen

was not unreasonable. Now, however, we have evidence that the introduction occurred at a time appreciably earlier than that at which the Norsemen occupied this area.

During the summer of 1964, in the course of conservation work at the site at L'Anse aux Meadows, I encountered two examples of *L. littorea* (2) within the raised marine beach terrace on which the Norse houses had been constructed. To minimize flooding during the spring thaw, a 24-m drainage trench was dug transversely across the terrace, the surface of which is about 3.6 m above highwater mark. The trench, with a maximum depth of 2.4 m, revealed typical wave-washed sand

and gravel capped with about 9.6 cm of dark brown fibrous turf. Below the influence of soil acids, there were some scattered fragments and occasional small concentrations of water-worn marine shells, mainly *Mytilus*, in friable condition. From the trench walls were obtained two examples of *L. littorea* and one specimen of *Buccinum undatum* Linné. They lay several feet below the surface, clearly in the undisturbed, wave-deposited material; these date from the period of terrace formation.

No determinations of age have been made for the marine terraces in northern Newfoundland and adjacent Labrador. In his detailed study of the region, Tanner (3) was reluctant to estimate the ages of the lower terraces. He attributed them to post-glacial times and remarked on the unmodified, fresh appearance of some terraces in certain situations; he also noted that the uplifting is seemingly still in progress. From my own observations in Newfoundland and Labrador I concur that many situations suggest that land rise continues at the present.

Those concerned with how a European gastropod reached America should check data on movements of hydrographic drift bottles in the northern Atlantic waters. The Labrador Eskimos in the vicinity of Hopedale, like their relatives in northeastern Greenland, were familiar with iron, in the form of nails, long before they established direct contact with Europeans. The main source of such iron was driftwood, presumably from European sources. If this source is born out by specific drift data, some examples of *L. littorea* might have traveled the same route on driftwood.

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23 October 1967