Reviewed research article

Tjörnes – Pliocene and Pleistocene sediments and faunas

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Abstract — *On the western side of the Tjörnes Peninsula in North Iceland a long sequence of fossiliferous marine sediments, basalts, and diamictites records the climatic history of the North Atlantic during the Pliocene and Lower Pleistocene. The Pliocene Tjörnes beds are divided in three biozones; the* Tapes *Zone (oldest), the* Mactra *Zone, and the* Serripes *Zone (youngest). The Tjörnes beds consist mainly of marine silt- and sandstones, but there are also several fossiliferous terrestrial beds in the lower part. The marine faunas in the* Tapes *and* Mactra *Zones are mainly boreal, but during the deposition of the* Serripes *Zone the fauna greatly diversified with immigration of Pacific molluscan species with more arctic elements. They reached the North Atlantic at 3.6 Ma after migration through the Bering Strait coeval with closing of the Central American Seaway. Marine molluscs of Pacific ancestry in the* Tapes *and* Mactra *Zones post-date also the first opening of the Bering Strait. In the Breiðavík Group, diamictite beds alternate with volcaniclastic mudrocks and sandstones, and basaltic lava flows. Fourteen lithological cycles are identified in the Breiðavík Group each one starting with a diamictite interpreted as lodgement tillite and ending with terrestrial sediments and lava flows. Interbedded marine fossiliferous mudrocks and sandstones contain arctic to boreal faunal assemblages. The oldest cycle in the Breiðavík group was probably deposited about 2.5 Ma, just after the Gauss/Matuyama polarity reversal.*