of a form belonging to the *Z. flemingi* lineage. The cardinal angle is even larger than that of *Z. flemingi.* The characters of the resilifer and cardinal teeth are similar to those of *Z. flemingi,* but otherwise only juvenile characters are exhibited. The form that the lunule and anterior adductor groove would have in adults cannot be estimated from the available material, and the species is therefore poorly characterised. As there is a definite size limit at about 50 millimetres it is considered to be highly unlikely that adults will be collected from this locality. All other Castlecliffian *Zenatia* are typical *Z. acinaces.* Consequently, this form has been named from the available rather inadequate specimens in the belief that better material will not come to light.

Figured specimen: the figures are all of the holotype (TM3844), the only complete double-valved specimen seen. It has small internal limy deposits which indiscriminately overlie muscle scars and surrounding shell, and seem to have formed after death.

The occurrence of this form at Te Piki is yet another indication of the distinctive nature of the molluscan fauna of this locality. The occurrence of peculiar forms of common Castlecliffian genera such as *Murexsul, Penion, Buccinulum, Cominula* and *Glaphyrina* (Powell, 1934), the occurrence of warm-water genera such as *Heliacus, Agnewia, Capulus* and *Eunaticina* (the last two occurring very rarely at Castlecliff) and the small size of the specimens of *Pecten novaezelandiae aotea* Fleming are all evidence that this area was considerably warmer in the Uppermost Castlecliffian than it is at the present day. In this light the fact that *Zenatia tekikiensis* is related to the warm-water Waitotaran *Z. flemingi* is not surprising.

Subgenus ZENATRARIA new subgenus

Type species: *Zenatia* (*Zenatraria*) *vellai* n.sp., Lower Pleistocene, New Zealand.

Shell comparatively strongly inflated, with a distinct flattened dorsal area behind the umbones, gaping moderately at each end. Umbones a little more prominent than in *Zenatia* s. s. Posterior outline regularly rounded. Lunule similar to that of *Z. flemingi,* long and rather narrow, sloping outwards at the top, causing a prominent straightening of the dorsal part of the anterior outline. Anterior adductor groove central. Anterior pedal retractor muscle scars inclined at a much lower angle than those of *Zenatia* s. s., the lower one close to or bevelling the posterior margin of the adductor scar. Cardinal angle very small, hinge otherwise typical. Resilifer with a moderately deep anterior groove. Adult size approximately as in *Zenatia acinaces.* Other characters as in *Zenatia* s. s.

The cardinal angles of species of *Zenatia* fall into three distinct groups. In the *Z. flemingi* group they range from about 75 to 90deg., in the *Z. acinaces* group from about 60 to 80 degrees, and in the *Z. vellai* group from about 45 to 60deg. These three groups are considered to be evolutionary lineages. The *Z. flemingi* group is morphologically similar to *Zenatia* s. s. and is not separated as a subgenus. *Zenatia vellai* is morphologically very distinct, having a more inflated shell, more rounded posterior end, longer anterior end with a comparatively straight upper margin and long narrow lunule, and anterior pedal retractor muscle scars of a different shape and in a different position from those of *Zenatia acinaces.* The muscle scars in particular are considered to be highly significant, and are presumed to reflect a different anatomy from that of *Z. acinaces.* It is considered that *Z. vellai* has deviated sufficiently from the morphology of typical *Zenatia* to be placed in a separate subgenus. The new species *Z. waipipiana* has a similar cardinal angle to that of *Z. vellai* and has a rounded posterior end and a long straight dorsal anterior margin, but its muscle scars are little different from those of *Zenatia acinaces.* It is therefore thought to be on a line between *Zenatia*