

Recent work (Kinny et al. 2005) has suggested that the Lewisian Gneiss Complex of North-west Scotland comprises a collage of small-scale Archaean terranes, assembled and variably reworked during the Proterozoic. The Laxford Shear Zone is one likely terrane boundary, separating two crustal blocks with different protolith ages, metamorphic histories, and chemical compositions. To the south are granulite-facies TTG gneisses of the 'Assynt terrane' which have undergone only limited Proterozoic deformation. To the north of the shear zone are amphibolite-facies granodioritic gneisses of the 'Rhiconich terrane', which show extensive Proterozoic deformation, migmatitisation and metamorphism. The Laxford Shear Zone itself forms a zone a few kilometres wide, along which early movement occurred during the Inverian event, before emplacement of the Scourie Dyke Swarm at c. 2400-2000 Ma (Heaman and Tarney, 1989). Later reactivation occurred during the Laxfordian event (c. 1740 Ma; Corfu et al., 1994), chiefly along discrete, mappable shears. Along the shear zone itself are a variety of granitic sheets, some foliated, others undeformed. These granitic sheets die out rapidly to the south of the shear zone, whereas to the north they grade into migmatitic gneisses. If the hypothesis that the Laxford Shear Zone represents a terrane boundary is correct, then the two main questions are: when were the two terranes accreted, and what tectonic processes were operating at that time? To fully answer the first question, we have carried out U-Pb zircon dating, using both spatially constrained LA-ICPMS (zircon) and single crystal TIMS (zircon and titanite) methods. Our new dating of highly deformed granites and paragneisses within the shear zone provides clear evidence for a metamorphic event at c. 2500 Ma, considered to be the Inverian event. Since the younger intrusions (Scourie Dykes, granitic sheets) are found within and on both sides of the Laxford Shear Zone, initial terrane assembly is considered to have occurred at c. 2500 Ma. The age of the younger Laxfordian event is constrained by dates for the granitic sheets. Our dates on these intrusions confirm the existence of two intrusive events, one at c. 1880 Ma and the other at c. 1775 Ma. Thick (up to 50 m) granitic sheets intruded at c. 1880 Ma are focused along the core of the shear zone, and almost certainly represent the introduction of new magma. In contrast, the c. 1775 Ma event at Laxford is associated with more localised crustal melting, and may perhaps be correlated with the c.1740 Ma titanite age for the metamorphic event. Laxfordian deformation and melting was focused in the less-competent, more fertile amphibolite-facies gneisses of the Rhiconich terrane.