contact relationships between the greenstone body and its mudstone matrix were considered. On the west side of Nelly's Cove, superb examples of siltstone and sandstone clasts are contained in a mudstone matrix and flattened in the plane of the moderate south-easterly dipping S1 cleavage. Isolated folded chert beds that yielded a middle Devonian ostracod fauna to Cooper (1987) were also observed; it was suggested, however, that these were present as olistoliths and did not represent the true depositional age of the unit. Lambert (1965) used this locality to propose a sedimentary origin for this unit (the Roseland Breccia Formation of Holder and Leveridge, 1986) which had previously been interpreted as a fault breccia (Meneage Crush Zone). The complex association of clasts varying in size from several millimetres to tens of metres and set in a mudstone-rich matrix, was interpreted in terms of a submarine debris flow, although it probably also acted as an important shear-zone during later deformation.

South side of Porthallow Cove (SW 7985 2320)

After retracing our steps, we proceeded to the south side of Porthallow Cove. The first outcrops encountered were of thinly-bedded siltstones. Further eastwards, a relatively steep south-easterly dipping faulted contact with fine-grained mica schists is observed. This was interpreted as the contact between the Roseland Breccia Formation and the Old Lizard Head metasediments of the Lizard Complex. To complete the story, the party continued another 100m or so eastwards until a low angle fault was inferred to place serpentinized peridotite over the Old Lizard Head metasediments. After a summary of the day's geology, the party returned, somewhat weather-beaten to the Porthallow car park.

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Field excursion to the Lizard Complex, 5th January 1991

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The Lizard Complex is thought to be part of a dismembered Variscan ophiolite which developed in a back-arc basin environment during Lower Devonian times. The exposed parts of the complex comprise three tectonic units separated by subhorizontal thrust planes. Thrusting took place in the oceanic environment, close to the site of generation of the ophiolite, because a granulite facies, dynamothermal metamorphic aureole underlies each thrust plane.

Only in the highest (Crousa Downs) tectonic unit is part of the largely undeformed ophiolite preserved. In excellent coastal sections between Kennack Sands and Porthoustock it is possible to trace the sequence from mantle peridotites (harzburgites and dunites), through gabbros, into the root zone of the sheeted dyke complex, with associated minor plagiogranites.

Elsewhere, in the lower tectonic units, mafic rocks (gabbros, sheeted dykes and perhaps lavas) have been converted to granulites and amphibolites. Minor amounts of pelitic schist are thought to be derived from thin oceanic sediments. The Kennack "Gneiss" is believed to have been formed by melting of ocean sediments and lavas beneath the sole of the in-oceanic thrust underlying the middle (Goonhilly Downs) tectonic unit.

The obduction of the ophiolite across Devonian sedimentary rocks involved only local retrogressive metamorphism near the boundary thrust plane.

In atrocious weather an enthusiastic party of about 20 first examined the classic exposures of the Coverack shore. Beginning at the northern end of the bay, they studied the gabbro, gabbro pegmatites, various minor basic intrusions and the capricious nature of the hydrothermal alteration. To the south rotated ultramafic xenoliths appear in the gabbro and these increase in size and frequency towards the village. Ultimately the ultramafic rock can be shown to be *in situ* and cut by many sheets and dykes of gabbro and gabbro pegmatite. Near the harbour, below a new retaining wall which has concealed critical exposures, the party examined the complex relationships between the ultramafic rock, troctolites and gabbros. The troctolites have often been assumed to be disrupted cummulates, though the group noted that they carry the same tectonic fabric as the peridotite, and that this quite definitely pre-dated the emplacement of the gabbros.

In gale-force winds and a ferocious hail-storm the party visited Carrick Lûz. The magnificent flaser gabbros, with huge, defomed and serpentinised xenoliths of peridotite, have usually been interpreted in terms of a large dyke. A new and more plausible explanation was offered that Carrick Lûz represented a downwarp, essentially a syncline, in the deformed MOHO.

After a welcome lunch and shelter from the weather the group visited the root zone of the sheeted dyke complex between Manacle Point and Porthoustock. They recognised that all the dykes are not of the same age and that some, in the classic manner of ophiolites, have only one chilled margin. The party spent some time studying the plagiogranite breccias which are intruded along some of the dykes. The group crossed to the north side of the Porthoustock valley to see the same assemblege of rocks (gabbro - dykes - plagiogranites) in a highly deformed state in the middle tectonic unit of the ophiolite.

The excursion ended with a brief visit, in fading light and against a rising tide, to Kennack Sands. The party examined critical exposures of the "Gneiss" on the foreshore where undeformed metadolerite, with xenoliths of gabbro and peridotite, is cut by a net-vein complex of microgranite. It was deformation of the net-veined rock which produced the more typical banded Kennack Gneiss.

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