

surface dipping eastward at approximately 30° , and separating the Cambrian dolomites from the overlying Lewisian gneiss. The gneiss is so heavily deformed that it is converted to phyllonite for a distance of almost 20 feet above the thrust. The thrust is not exposed to the south, but the outcrop may be followed in the topography as far as the Bealach Conival, where it is truncated by the Ben More thrust. Although the rocks in the vicinity of the Allt Poll on Droighinn are not sufficiently well exposed to show the exact outcrop of the thrust, I am unable to accept Bailey's suggestion (1935, p. 157) that the thrust dies out at this locality.

I have traced southward the important dislocation that displaces the Moine thrust at the Stack of Glencoul; there is no doubt that it is in fact the northward continuation of the Ben More thrust, as shown by Peach and Horne (Assynt sheet, 1923). Thus the contention of Clough (in Peach *et al.*, 1907) and Bailey (1935, p. 160) that the line of outcrop of the Ben More thrust lies to the west of that shown on the map and ends a mile southwest of the Stack of Glencoul is without basis.

The outcrop of the Ben More thrust is clearly visible on the hillside west of Gorm Loch Mor (pl. 6, *b*), where the thrust dips at more than 40° toward the east, and the overlying quartzites are contorted about a north-trending axis (fig. 20 in pocket, XIII). The course of the thrust is again visible farther to the south, in Coire a' Mhadaidh (pl. 7, *a*), where it dips at approximately 50° to the east. The gradient of the thrust is steeper than that of the ground surface at this locality, giving rise to the V-shaped outcrop seen on the map (fig. 1, in pocket). On the south side of Conival the Ben More thrust is well exposed above the level where it transects the Glencoul thrust, and the thrust is again seen to dip at more than 50° toward the east. At both of the last-mentioned localities the rocks to the east of the thrust are also folded about north-trending axes (fig. 20, in pocket, XIV, XXII). South of Conival the thrust is nowhere well exposed, but my revision of the mapping between Loch Ailsh and Cnoc a' Chaoruinn (fig. 10, in pocket) shows that the thrust does not follow the course previously assigned to it, but crosses the ground west of Strathsheaskich to Cnoc a' Chaoruinn, where it again displaces the Moine thrust. The thrust previously referred to as the Ben More thrust (Peach *et al.*, 1907), the Assynt thrust of Sabine (1953), is also displaced by the Ben More thrust. Sabine considered that the Assynt thrust was an extension of the Ben More thrust, but regarded it as "continuing southward the effect of the Glencoul Thrust" (1953, pp. 151-152). Whereas previous writers have postulated only one major thrust south of Conival, the evidence suggests that two thrusts—the Assynt thrust (the southern extension of the Glencoul thrust) and the Ben More thrust—are in fact present. Remapping of the area between Conival and Sgonnan Beag is required to ascertain the exact outcrops of the two thrusts. The Ben More thrust may outcrop in the Oykell Valley, where the rocks are poorly exposed, or the outcrops (fig. 20, in pocket) of the two thrusts may be almost coincident along this section.

The Ben More thrust displaces the Moine thrust in the two areas described above (pp. 360-373), and it also transects both the Glencoul and Assynt thrusts. Thus it is evident that it did not develop contemporaneously with the other

major thrusts, but is a late-stage dislocation cutting across the preëxisting nappes. Moreover, the degree of deformation along the Ben More thrust where it is exposed is low, suggesting that movement on the thrust has been slight. The displacement of the Moine thrust at the Stack of Glencoul and Cnoc a' Chaoruinn probably represents the total displacement on the thrust; this is slightly more than 500 feet in the north and less than 500 feet in the south.

This conclusion provides additional support for the hypothesis, first suggested by Bailey (1935) and later developed by Sabine (1953), that the Ben More and Glencoul nappes (Survey usage) are parts of a single tectonic unit, for which Sabine proposed the term "Glencoul-Assynt thrust-masses" (1953, pp. 151-152). If the displacement (slip) on the Ben More thrust is of the order of 500 feet, the Glencoul and Assynt thrusts are indeed parts of the same great dislocation. It is inconvenient to use two separate names for different parts of the same thrust, and hereafter I refer to the whole dislocation as the "Assynt thrust." When that part of the thrust north of Conival is specifically discussed, the term "Assynt (Glencoul) thrust" is used.

Peach and Horne (Peach *et al.*, 1907) regarded the whole mass of rocks below the Glencoul and the southerly part of the Ben More thrust (Survey usage) and above the sole as an immense zone of imbrication produced by the movements on these thrusts. This mass, however, contains the massive syenites of the Loch Borolan complex and a considerable volume of Lewisian and Cambrian rocks which do not show the degree of reverse faulting characteristic of a zone of imbrication. The mass may be regarded as a second great nappe of similar significance to that above the Assynt thrust.

The geometry of the outcrop of the boundary known as the Sgonnan Beag thrust shows that it is definitely not a planar or a gently curved surface; it resembles more the boundary surface of an intrusion, as Bailey (1935) has pointed out. The additional evidence afforded by the presence of intrusions of grorudite within the syenite mass itself and in the Lewisian gneiss surrounding the mass (Sabine, 1953, p. 152) strengthens the case against the existence of an important thrust. Thus the Loch Ailsh syenite seems to be neither a klippe carried on the Sgonnan Beag thrust, as represented by Peach and Horne (Peach *et al.*, 1907), nor a window exposed through the thrust, as suggested by Lugeon (in Bailey, 1935), but a part of the Ben More nappe of Peach and Horne.

From this evidence, then, it is apparent that the rocks between the Moine thrust and the sole belong to two great thrust slices or nappes, as shown in figures 20 (in pocket) and 25. The lower nappe rests on the sole and is overlain by the Assynt thrust, which supports the upper nappe. To avoid the introduction of additional place names into the nomenclature, I call the slices the *upper Assynt nappe* (the "Glencoul-Assynt thrust-masses" of Sabine) and the *lower Assynt nappe*. The rocks exposed in the upper nappe include Lewisian gneisses, Torridonian and Cambrian sediments, and syenitic rocks of the Loch Ailsh mass. The lower nappe consists of Lewisian and Cambrian rocks along with the great plutonic mass of Loch Borolan; Torridonian rocks are not exposed in the small area where the base of the Cambrian is exposed, but may be present elsewhere underneath the Cambrian rocks. Whereas the lower nappe contains a consid-