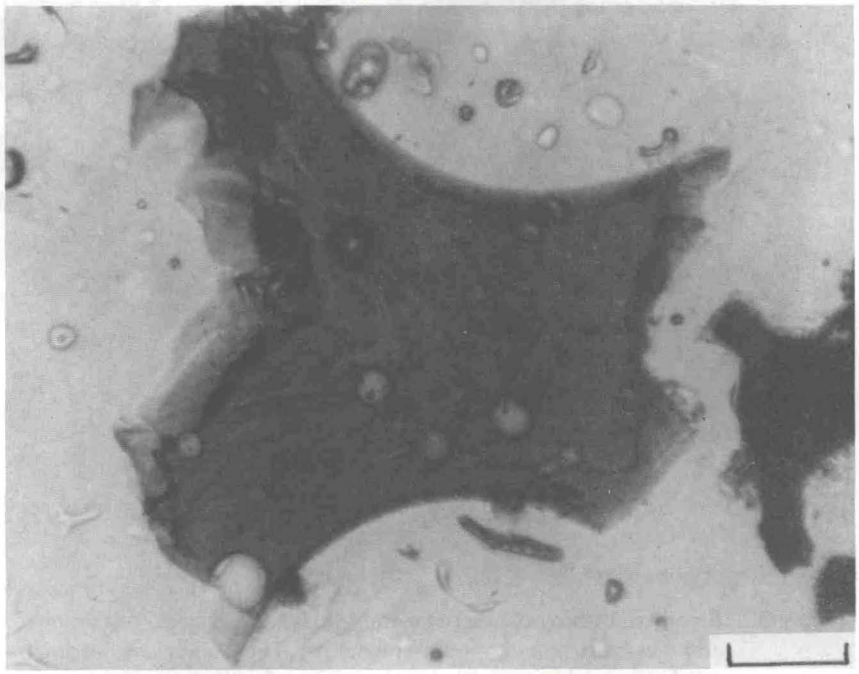

Figure 29. Dense, light green glass fragment with well-developed schlieren of lighter-colored glass forming a contorted flow structure. The curved boundaries at top and bottom suggest that the fragment may have been originally enclosed between two large bubbles in a larger vesicular fragment. Rare Ni-Fe spherules are observed in the glass (very small spherical dark bodies; recognizable in reflected light). Fragment 301,15; plane polarized light; scale bar 0.1 mm.

In quenched fragments that were originally completely glassy, the crystal textures reflect such parameters as the cooling rate and viscosity of the melt and do not provide evidence about the original source of the melt itself. In fragments which lack exotic inclusions, heterogeneous schlieren, or other indicators of impact origin, the crystallization fabrics observed could be produced either by rapid cooling of extruded magma (primary melt) or by rapid quenching of impact-produced glass (secondary; impact melt).

This uncertainty in origin is especially great for a number of fragments which contain fairly large crystals, generally associated with intersertal textures (Figures 39, 41). Two types of such glasses can be distinguished. The more common type is apparently basaltic and has pyroxene as the liquidus phase, accompanied by a high content of fine-grained quench opaques (Figure 39). The second type, which is much less common, contains lathlike crystals of plagioclase which often display skeletal or swallowtail forms and are accompanied by a brown intersertal glass containing fine microlites (pyroxene?). This second type, in which plagioclase is the liquidus phase and opaques are rare, is apparently related to the other feldspathic rocks. It may be either a primary

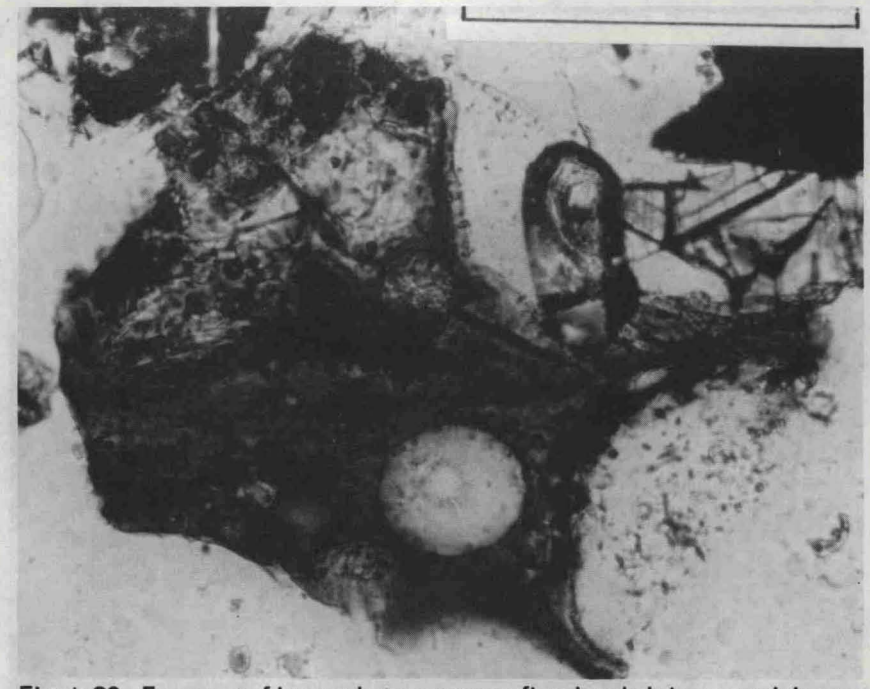

Figure 30. Fragment of brown, heterogeneous, flow-banded glass containing several diverse rock and mineral fragments. The plagioclase-bearing basalt fragment (upper left) shows incipient fusion and assimilation of plagioclase at the contact with the glass; plagioclase is being converted to a clear vesicular glass. The elliptical clear fragment (lower right) is a microcrystalline anorthosite fragment. The pyroxene and opaque grains which occur at upper right are part of an adjacent fragment. Fragment 318,104; plane polarized light; scale bar 0.1 mm.

Figure 31. Fragment of dense, dark brown, flow-banded glass containing diverse fragments of ophitic basalt (left), microgranular gabbroic anorthosite (center) and a single crystal of pyroxene or feldspar (lower right). Fragment 318,166; plane polarized light; scale bar 0.08 mm.