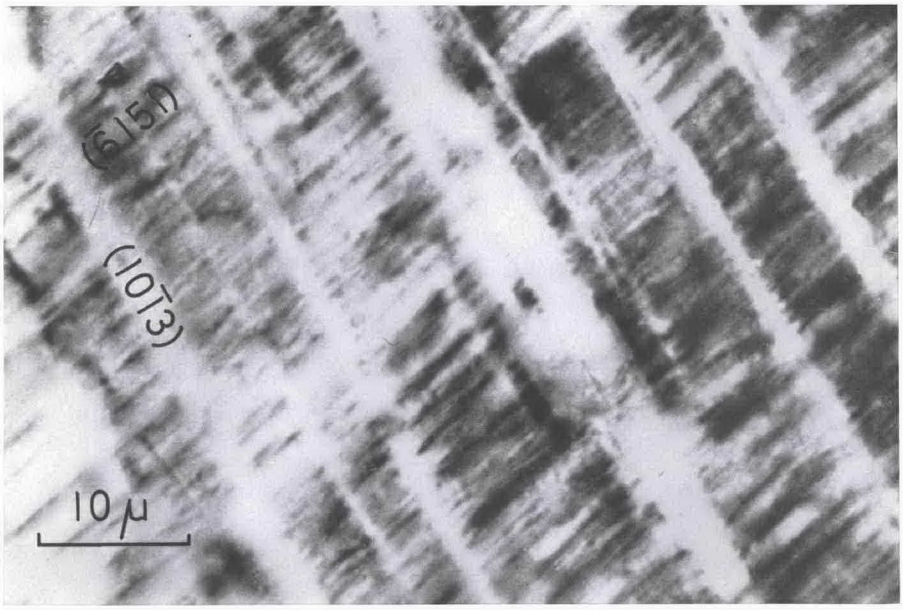

Fig. 4. Homogeneous lamellae in quartz from sample S 349. Crossed nicols

of quartz samples compressed under static high pressure conditions as well as CARTER (1964, 1968) from several impact crater breccias have not been found. In our samples asymmetrical effects are sometimes observed, both in normal or phase contrast illumination, due to an oblique cut of the planar elements.
Differences in extinction of lamellae and surrounding quartz range between 0° and 5°. Phase contrast illumination reveals very clearly that the refractive indices of the lamellae are lower that those of the host quartz. Also their birefringence is lowered. Most lamellae of this kind are parallel to {10$\bar{1}$3} planes.
3.1.4. Filled Lamellae. Multiple sets of these lamellae parallel to {10$\bar{1}$3} planes have only been found in sample S 289 (Fig. 5). They are 1 to 3 μ thick, of lenticular shape and filled with very fine crystalline material of higher refractive index and higher birefringence than the host quartz.
Since sample S 289 contains stishovite (STÖFFLER, personal communication) it is assumed that the granular material filling the lamellae is stishovite.
3.1.5. Planar Fractures. Quartz in all investigated samples contains planar fractures parallel to rational crystallographic orientations. The broadest of these appear as open fissures filled with secondary minerals such as montmorillonite or quartz. They are not as abundant as decorated and smooth planar elements nor are they arranged in the same regular manner. In addition, their spacing is much wider (mutual distance more than 20 μ). Planar fractures of this type occur preferably parallel to {0001} or {10$\bar{1}$1}, some few parallel to {10$\bar{1}$3}.
Figs. 6 and 7 illustrate examples of planar fractures parallel to {0001} and {10$\bar{1}$1}. It can be seen that these fractures first broke the quartz grains into separate parts. In a later stage closely spaced planar elements developed confined to these individual domains. Planar fractures acted like grain boundaries and were not

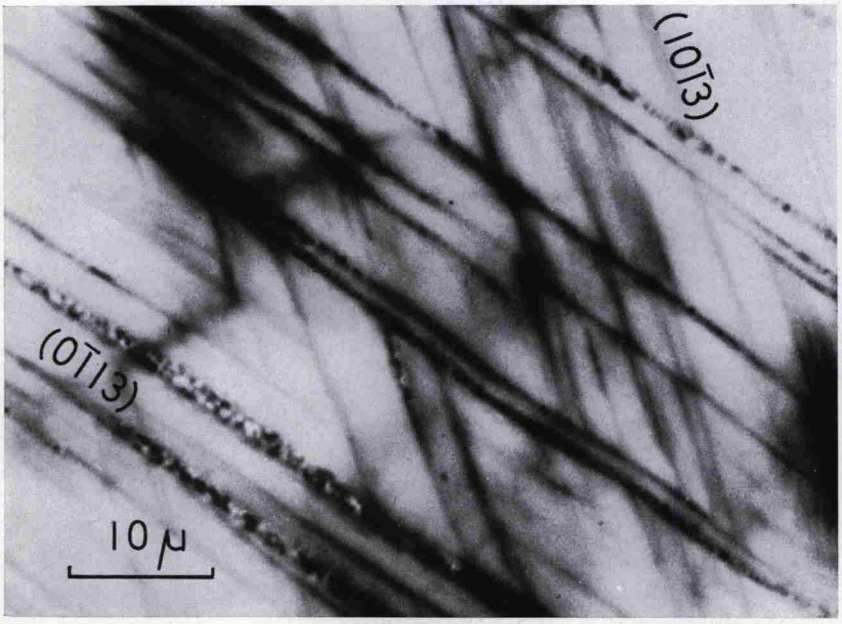

Fig. 5. Lamellae filled with fine grained stishovite. Quartz from sample S 289. Crossed nicols

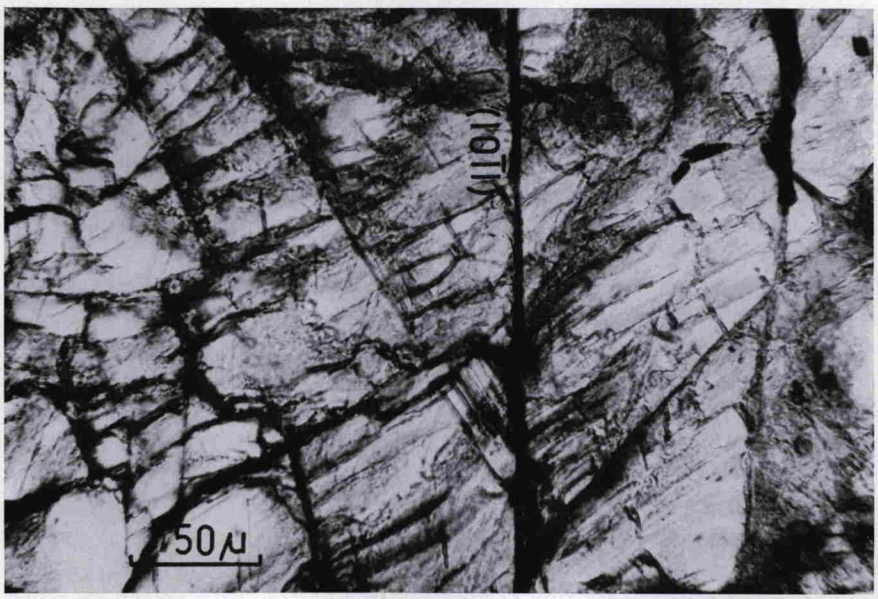

Fig. 6. Planar fracture parallel to {10$\bar{1}$1} and planar elements parallel to {10$\bar{1}$3}, formed later, therefore terminating at the fracture. Quartz from sample S 350. Crossed nicols

transgressed by planar elements. In cases like those illustrated in Figs. 6 and 7 the difference of planar elements and planar fractures is readily seen. Their distinction becomes difficult however — sometimes even impossible — if the planar fractures