reduced by a layer of graphite. The method could be used to very high pressures (40 kb) and the pressure, in one version, could be changed at the low temperature being used. On the other hand, in order to secure an isotropic stress, the specimen had to undergo plastic deformation. This may be allowable in some experiments such as the effect of pressure on the superconducting transition temperature or on polycrystals; but it has to be eliminated in work on galvanomagnetic properties where the damage may produce effects many times greater than those being studied (Itskevich, 1964).

D. FROZEN OIL–KEROSENE

This method has been used by Gaidukov and Itskevich (1963) and Itskevich (1964). In it the pressure (up to 15 kb) is first generated by a piston in a cylinder at room temperature where the oil–kerosene mixture is fluid. The fluid is then slowly solidified by cooling and finally the whole cylinder and piston can be cooled to helium temperatures.

E. CLAMP TECHNIQUES

These are extensions of the very-high-pressure techniques used at room temperature. They have been much used in studies of the superconducting transition temperature and may well come into greater use as the pressure range at low temperatures is extended. Some versions suffer from the disadvantage (as do the techniques A and D above) that the apparatus must be warmed to room temperature to change the pressure. Some ultra-high-pressure techniques (up to $\sim$500 kb) have also been used at low temperatures (see, for example, Drickamer, 1965; Stager and Drickamer, 1963).

F. HELIUM GAS

In this technique the pressure is generated in fluid helium at a temperature close to, but just above, the corresponding solidification temperature (see Fig. 1). The helium is then allowed to solidify around the specimen under study by careful cooling. This process can either be at constant volume (as used originally by Dugdale and Hulbert, 1957) or at constant pressure. This latter method was introduced by