

List of Captions

Figure Number

- 1 Diagrammatic representation of the calcite (a) and dolomite (b) structures. In (a) section is drawn normal to the a_2 axis. The structure is twinned on $\underline{e}_1$ {0112}, with the gliding direction and sense of shear indicated. $\underline{r}_1$ {1011} and $\underline{f}_1$ {0221} translation planes, gliding directions, and senses of shear are also indicated. In (b) the plane of the section is parallel to a_3 {1120}. Gliding direction for translation on {0001} is not in the plane of the section, but is parallel to any of the three $\underline{a}$ axes. The system for twin gliding parallel to $\underline{f}$ is also illustrated.
- 2 Critical resolved shear stress (τ_c) for $\underline{e}$ twin gliding and $\underline{r}$ and $\underline{f}$ translation in calcite as functions of temperature at different strain rates (unpublished compilation, H. C. Heard, 1966).
- 3 Critical resolved shear stress as function of temperature (at strain rate of 1.7×10^{-4} /sec) for basal translation and $\underline{f}$ {0221} twinning in dolomite (after Higgs and Handin, 1959, Figure 12).
- 4 Stress-strain curves for dry Yule marble and calcite single crystals extended or compressed at 10 kilobars confining pressure, strain rate of 2.5×10^{-4} /sec, and at different temperatures. Specimen orientation is indicated for each curve. Each curve represents an average of two or more experiments (after Griggs and Miller, 1951, Figures 3 and 4; and Griggs, et al., 1951, Figures 1 and 2).
- 5 Stress-strain curves for dolomite single crystals loaded parallel to the $\underline{c}$ axis at 5 kilobars confining pressure, strain rate of 1.7×10^{-4} /sec, and temperatures as noted on each curve (after Higgs and Handin, 1959, Figure 6).
- 6 Schematic illustration of the calcite structure showing loading conditions favorable for $\underline{e}$ twin gliding (on left) and for $\underline{r}$ translation (on right).
- 7 Ultimate compressive strengths and ductilities of water-saturated rocks as functions of depth. Effects of confining (overburden) pressure, temperature (30°C/km), and "normal" pore pressure included, strain rate of 1.7×10^{-4} /sec (after Handin, et al., 1963, Figure 27).
- 8 (a) Photograph of a section through a deformed cylinder consisting of a dolomite core surrounded by calcite marble. Contrasting behavior is shown by marked development of shear fractures in the dolomite and their absence in the marble. (b) Geometry of fractures in the dolomite of (a). Extended 31 percent at 5000 bars confining pressure, strain rate of 1.7×10^{-4} /sec, 300°C (after Griggs and Handin, 1960, Pl. 8).