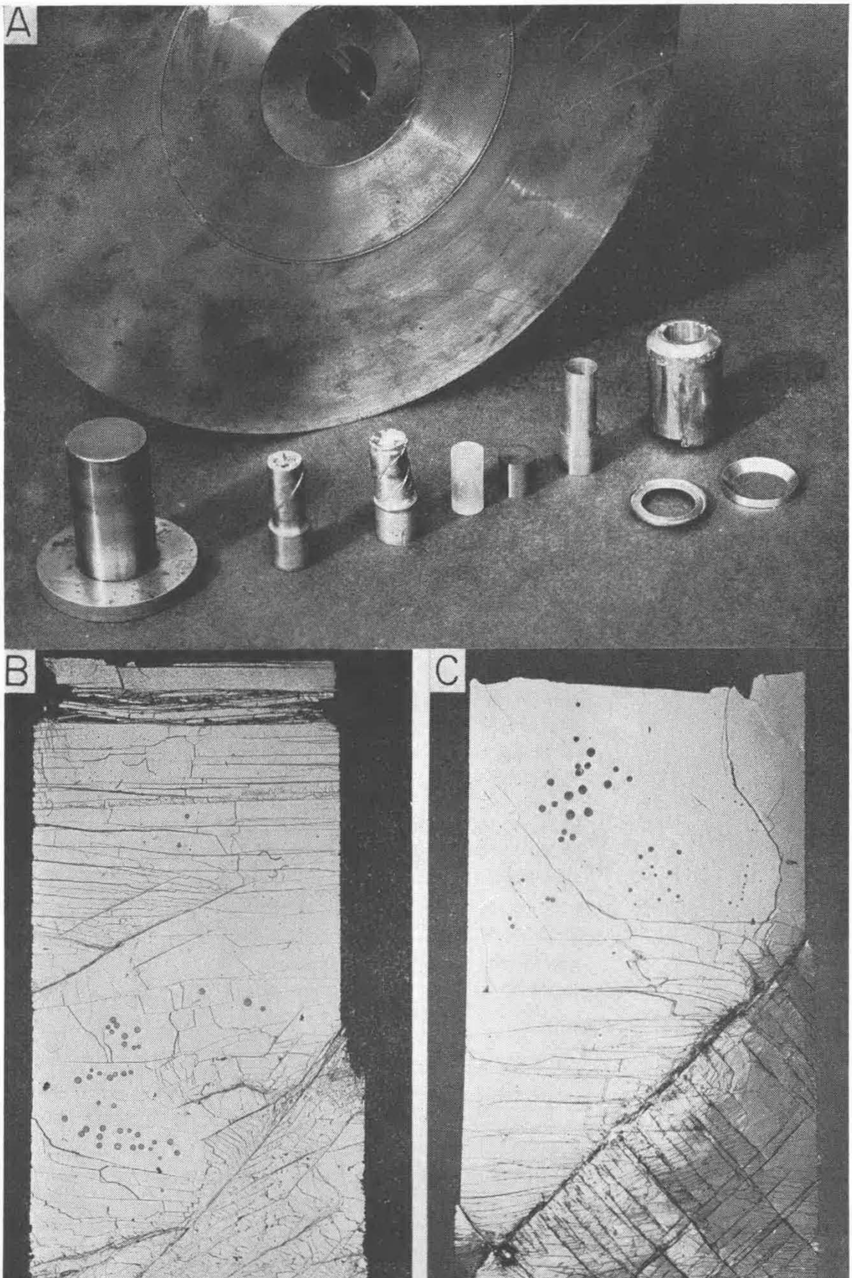
A
B
C

TABLE 1

Orientation of cylinders	Experiment number	Strength of specimens (σ_1-σ_3) in kilobars		Stresses in main fault at rupture in kilobars	
				τ	σ
||c	781	46.7		22.6	44.7
||c	782	45.4	Average = *46.5*	22.0	44.2
||c	783	47.3		22.9	44.9
⊥r	785	42.1		20.4	43.0
⊥r	786	41.6	Average = *42.6*	20.2	42.8
⊥r	787	44.2		21.4	43.8
⊥z	780	40.8	Average = *42.1*	19.8	42.5
⊥z	789	43.4		21.0	43.5
⊥m	779	41.0	Average = *42.8*	14.7	33.3
⊥m	790	44.6		16.0	33.8
B	792	46.2	Average = *44.3*	23.0	48.5
B	793	42.3		21.1	46.8
A, C, D		Not determined			

made of sections prepared from both groups of samples, and the structures in the samples from both groups are identical for any given orientation (table 2).

The strengths obtained from the smaller samples (table 1) show very good reproducibility compared with those obtained in earlier studies of the strength of quartz at room temperature (summarized in Griggs, Turner, and Heard, 1960). The mean deviations of the measurements range from 0.7 kb, for cylinders parallel to the *c*-axis, to 2.0 kb for cylinders compressed parallel to *B*. The values for the cylinders compressed parallel to the *c*-axis are consistently higher than those for the other orientations; the values for the other orientations are more variable and show considerable overlap in their range. For this reason experiments with smaller samples were not carried out for all the eight orientations, as an unreasonable number of runs would have been necessary to demonstrate a relationship between the strength and crystallographic orientation of the cylinders.

PETROGRAPHIC OBSERVATIONS

Structures in the deformed quartz.—The most marked characteristic of all the section, except those not deformed to rupture, is the presence of many fractures with different orientations. The most obvious features in the thin sections are thin, well-defined zones of shearing, along which there are generally marked displacements of the crystal. The structures fall within the category referred to by Griggs and Handin (1960, p. 348) as "faults",[1] and this term is adopted for these features. The displacements on these faults account for most of the permanent strain in the crystals. The faults commonly occur in parallel sets in a specimen, and many specimens contain two or more sets (pl. 1B, C). It is generally possible to identify one *main* fault, or set of faults, along which most of the displacement has occurred and against which subsidiary faults are terminated (pl. 1B). But this distinction is not always possible: in some samples two

[1] A "fault" is defined as "a localized offset parallel to a more or less plane surface of nonvanishing shear stress" (Griggs and Handin, 1960).