sionally stable material (we used aluminum), and so designed that, when the saw has cut halfway through the chip, the long axis of the glass slide is approximately radial to the saw blade. Note, given this last condition, that an angle of less than 50° would make the saw more "self-energizing"; *i.e.*, the saw would have a greater tendency to pull the work through. This would give less "feel" to resistance to cutting, but a smoother feed; a compromise is reached at 50°. Note also that the groove continuing the back wall of the slide recess, which is a coincidental result of machining the recess with an end mill, forms a useful drain for rock-flour and cutting-fluid "mud"; there is no corner to become clogged.

The holder was made in our shop for a cost of approximately $30. Any vacuum source capable of reaching about 25 inches is adequate. Our experience indicates that most sections can be trimmed in less than one minute. For the petrographic laboratory already equipped with an adequate trim saw, the holder described here will allow the making of thin sections as rapidly as will more elaborate equipment and at far less cost.

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DISCUSSION ON "TRIDYMITE-CRISTOBALITE RELATIONS AND STABLE SOLID SOLUTIONS"

by D. M. Roy and R. Roy, *Am. Mineral.* **49**, 952, 1964

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There are a number of points in this paper which warrant discussion. The authors point out (p. 953) that a phase change is proof of instability of the starting material under the conditions of an experiment, but is no proof of the stability of the product. However, they appear to have decided in advance what the stable phase is, and later, to have interpreted experimental results as proof of stability. It appears desirable to clarify whether they mean (p. 953) that instability only, and not stability, can be definitely proved.

It is agreed that a phase change proves instability of the starting material under the relevant conditions, and accordingly discussion of the electrolysis experiments of Flörke (1956), also described elsewhere, (Flörke, 1961; Holmquist, 1961), is necessary. These appear to establish that tridymite is not a form of pure SiO_2, and becomes unstable as impurities are removed. The authors' views on these results are of considerable importance.

The authors identify only their tridymite-S and tridymite-M, apparently on the basis of only four or five major *x*-ray diffraction peaks in a limited range of 2θ. Also they conclude (p. 961) that ascribing tridymite stability to impurities requires "a series of coincidences by which in *each* case with totally different ions, a 'compound' is formed with very small amounts of unknown ion(s)." Both of these warrant consideration in terms of the work of Flörke (1961) who reports diffraction patterns which show significant differences over a wide range of 2θ for tridymites formed with different impurities. This led to Flörke's (1961) criticism of Hill and Roy (1958) that a few major peaks are insufficient to characterize tridymites. If a number of *different* tridymites were formed in the authors' experiments, the coincidences are no longer necessary. It therefore appears necessary for the authors to state whether the full 2θ range was examined, and if so, whether differences were observed. The authors interpret changes in diffraction angle in terms of solid solution effects only. In view of Flörke's (1961) results, angular displacements could be due to structural changes as well, and can be interpreted as solid solution effects only if angular displacement of diffraction peaks is the only change, and relative intensities are maintained. This makes examination of the complete diffraction pattern additionally desirable.

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COMMENTS ON "A METHOD OF CLASSIFYING ANALYSES WITH ANY NUMBER OF TERMS"

by J. B. MERTIE

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One of the fundamental mathematical concepts that Mertie (1964) has failed to grasp is that a system of p independant variables can only be *uniquely* defined by p parameters and that any attempt to define it with