tion of shocked inclusions, and the processes of chemical variation. Isotopic studies have already made a contribution. The study of argon distribution in shocked rocks shows a distinct correlation with grade of shock metamorphism and with the degree of secondary alteration [*Hartung et al.*, 1971]. The ratio of strontium isotopes has been determined at several craters, for example, Henbury [*Compston and Taylor*, 1969] and Tenoumer [*French et al.*, 1970] and has been shown to be similar in melt and country rocks, as expected under the impact hypothesis.

Further theoretical studies are needed in which the scaling of the strength of target materials is more fully considered. The indication that large craters contain more melt, relative to crater dimensions, than small craters implies a decrease of excavation efficiency with increasing crater size. Also a larger proportion of the melt is not ejected but remains in the crater as a continuous lining of the crater floor and walls. If similar relationships hold on the moon, large lunar craters such as Tycho, if formed by impact, should be floored by a sheet of shock-melted rock several hundred meters thick, which initially would have extended up to or even over the crater rim. Rapid, deep sliding to form the central uplift and terracing of the rim would disrupt the sheet and possibly lead to flow and ponding of still fluid impact melt.

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