The "white rocks" (Refs. 1 and 2) and other large boulders on the rim and ejecta blanket of Cone crater reveal the following sequential history of the Fra Mauro Formation:

1. The Pre-Imbrium terrane in the source area of the Fra Mauro Formation is represented in the large boulders by a heterogeneous assemblage of fragments of dark and light rocks. These fragments are mainly 10 cm or less in size with just a few compound clasts ranging up to 1.5 m. Wilshire and Jackson (Refs. 3 and 4) show that the compound clasts contain at least 4 generations and extend to as small as 0.1 mm.

2. The Imbrium event is represented in the boulders by the incorporation of this heterogeneous fragmental material into dark and light layers that were contorted during transportation, deposited in linear ridges and consolidated into rock types seen in the boulders and samples. These are the F3 and F4 fragmental rocks of Jackson and Wilshire (Ref. 4).

3. After the Imbrium event, the rocks underlying the linear ridge at the Apollo 14 site were fractured and jostled by cratering that preceded the Cone crater event.

4. The Cone crater event excavated the ridge generated in (2) and emplaced the "white rocks" and other large boulders in their present positions. The post-Cone crater history has included rounding and etching of the large boulders by micrometeorite bombardment.

References and Note

3. Wilshire, H.G., and Jackson, E.D., Petrology of the Fra Mauro Formation at the Apollo 14 Landing Site, this conference.
4. Jackson, E.D., and Wilshire, H.G., Classification of the Samples Returned From the Apollo 14 Landing Site, this conference.
5. Work done under NASA Contract Number T-65253-0