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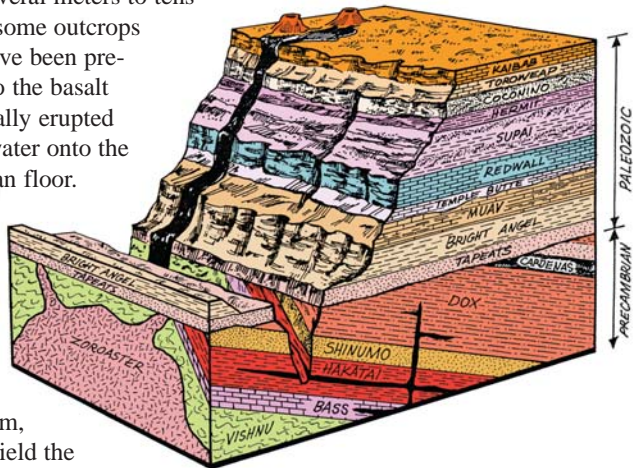
RADIOISOTOPE DATING OF GRAND CANYON ROCKS:

ANOTHER DEVASTATING FAILURE FOR LONG-AGE GEOLOGY

by Andrew A. Snelling*

Deep inside the Inner Gorge of Grand Canyon, northern Arizona, are the crystalline basement rocks that probably date back even to the Creation Week itself. Clearly visible in the canyon walls are the light-colored granites, such as the Zoroaster Granite, which are stark against the darker, folded strata of the Vishnu Schist and the other metamorphic rock units of the Granite Gorge Metamorphic Suite¹ (see lowest purple and green shading in diagram). These are former sedimentary and volcanic strata that have been transformed by heat and pressure, possibly during the intense upheavals when the dry land was formed on Day 3 of Creation Week.² Among these metamorphosed volcanic strata are amphibolites, belonging to the Brahma Schist. These were originally basalt lava flows several meters to tens of meters thick. In some outcrops pillow structures have been preserved, testimony to the basalt lavas having originally erupted and flowed under water onto the Creation Week ocean floor.

Metamorphic rocks are not always easy to date using radioisotopes. Results obtained usually signify the "date" of the metamorphism, but they may also yield the



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“age” of the original volcanic (or sedimentary) rock. The “age” or “date” is calculated from the amount of the daughter isotope produced by radioactive decay of the parent isotope. In Grand Canyon, the “date” of metamorphism of the basalt lavas to form these Brahma amphibolites has been determined as 1690-1710 Ma (million years ago), based on U-Pb dating of minerals in the overlying Vishnu Schist and underlying Rama Schist that formed during the metamorphism.^{3,4} It is also claimed that the original basalt lavas were erupted between 1741 and 1750 Ma, based on U-Pb dating of “original” zircon grains in metamorphosed felsic (granitic) volcanic layers within the Brahma and Rama Schists.^{4,5}

RATE Research

Twenty-seven Brahma amphibolite samples were collected from various Inner Gorge outcrops as part of the RATE (Radioisotopes and the Age of The Earth) project. These included seven samples from a 150 meter long and 2 meter wide amphibolite body outcropping just upstream from the mouth of Clear Creek at river mile 84 (measured from Lees Ferry). All 27 samples were sent to two well-credentialed internationally-recognized, commercial laboratories for radioisotope analyses—potassium-argon (K-Ar) at a Canadian laboratory, and rubidium-strontium (Rb-Sr), samarium-neodymium (Sm-Nd), and lead-lead (Pb-Pb), at an Australian laboratory. Both laboratories use standard, best-practice procedures on state-of-the-art equipment.

Results

The model K-Ar ages for each of the samples ranged from 405.1 ± 10 Ma to 2574.2 ± 73 Ma. Furthermore, the seven samples from the small amphibolite unit near Clear Creek, which should all be the same age because they belong to the same metamorphosed basalt lava flow, yielded K-Ar model ages ranging from 1060.4 ± 28 Ma to 2574.2 ± 73 Ma. This includes two samples only 0.84 meters apart that yielded K-Ar model ages of 1205.3 ± 31 and 2574.2 ± 73 Ma. The computer program Isoplot⁶ was used to plot isochrons and calculate isochron ages from the other radioisotope analyses. The best isochron plots, where all the variation from the line of best fit to the data incorporates all the analytical errors, yielded an Rb-Sr isochron age of 1240 ± 84 Ma, an Sm-Nd isochron age of 1655 ± 40 Ma, and a Pb-Pb isochron age of 1883 ± 53 Ma.

Discussion

Most people believe that when the different radioisotope dating methods are used on the same rock unit they all yield the same age. However, the radioisotope dating of these Grand Canyon rocks clearly demonstrates that the disagreement, or isochron discordance, is pronounced. Even when the calculated error margins are taken into account the different radioisotope dating methods yield completely different “ages” that cannot be reconciled— 1240 ± 84 Ma (Rb-Sr), 1655 ± 40 Ma (Sm-Nd), and 1883 ± 53 Ma (Pb-Pb) (see diagram). None of the obtained isochron “ages” corresponds to the “date” for any recognized event, neither the original lava eruptions nor the subsequent metamorphism. And the K-Ar model “ages” are so widely divergent from one another (ranging from 405.1 ± 10 Ma to 2574.2 ± 73 Ma), even from very closely spaced samples from the same outcrop of the same original lava flow, as to be useless for “dating” any event.

These discordant results could easily be dismissed as an isolated aberration, perhaps due to the uncertain effects of metamorphism and any subsequent alteration, especially during erosion and weathering. However, they are confirmation of the

ment within and between the methods is the norm, even at the outcrop scale. This is a devastating “blow” to the long ages that are foundational to uniformitarian geology and evolutionary biology. Yet the discordance patterns are consistent with past accelerated radioisotope decay, which would also render these “clocks” useless. Thus there is no reliable evidence to dispute that these metamorphosed basalt lava flows deep in Grand Canyon date back to the Creation Week only thousands of years ago.

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