Austin's 1989 Grand Canyon Guidebook that Austin "accidently" inserted a 1988 copyright Title Page into, after first claiming to Dr. Walt Brown that this "1988" publication proved that he (Austin) had priority in the discovery of Grand Lake.

Institute for Creation Research

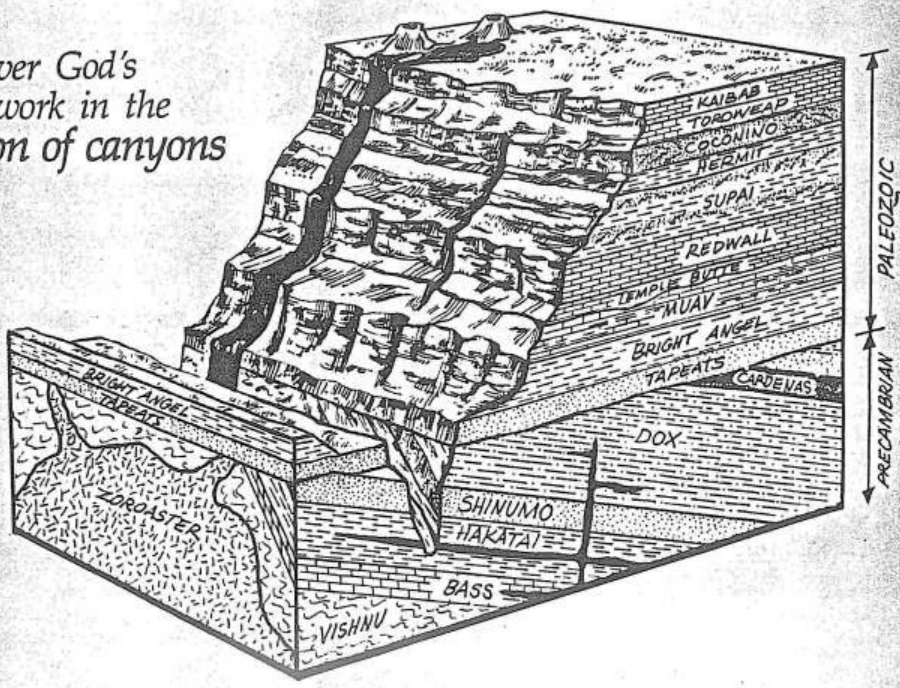
GRAND CANYON

FIELD STUDY TOUR GUIDEBOOK

APRIL 8-16, 1989

Raft Trip on Colorado River
Bus Tour of Northern Arizona & Southern Utah
Hiking Groups on Grand Canyon Trails

Discover God's handiwork in the canyon of canyons



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The Grand Canyon Natural History Association kindly granted permission to use portions of "Geologic Map of the Eastern Part of the Grand Canyon National Park, Arizona."

We are preparing our guidebook for publication, and request the comments and reviews of this guidebook by our tour participants. Please address your comments and reviews to Dr. Steven A. Austin at the above address.

A computer was asked to draw the shoreline of the lake which would form behind the Kaibab Upwarp if the Grand Canyon were blocked at the 5,700-foot elevation. The lake which would form is shown above. It would contain the water of three Great Lakes. This computer-generated lake approximates the outline of the ancient lake which breached its dam to form Grand Canyon.

limestone cliffs. If such cliffs are the result of continuous slow erosion over hundreds of thousands of years, we might expect a progressive increase in the decomposition of talus on the benches away from cliffs. Such boulder aging has not been demonstrated. Instead, we see shale benches which appear to have been swept clean of larger rocks by large flooding. Then after significant flood modification, a recent talus has accumulated.

When I favored the antecedent river and precocious gully theories, I had the problem of explaining where the products of 70 million years of river erosion went. I could not find appropriate erosional or depositional features to the west or east of the Grand Canyon which would have been produced by the long-continued action of the primeval Colorado River, and I knew that such incessant river action would erode and deposit one million cubic miles of material. With the catastrophic drainage theory there is no requirement for the Colorado River to erode for tens of millions of years because the river only needs to be thousands of years old. The lack of features which would be produced by an old river is an argument for a young river. The vast erosion off the plateaus could be produced by sheet flooding when the flood water retreated off the plateaus. It would have removed the sediment far from the plateaus. We would expect no stream deposits adjacent to the plateau. Then, after the Kaibab Upwarp occurred, impounded water behind the plateau was released by catastrophic breaching and drainage. The Grand Canyon and the establishment of the Colorado River through northern Arizona would be very recent geologic features. This explains why the products of the Colorado River's erosion and sedimentation are confined to near-surface sedimentary layers.

CONCLUSION

There will need to be more investigations of how the Grand Canyon was eroded. The notion that the Colorado River carved the canyon, as the antecedent river theory assumes, over millions of years is untennable and now recognized so by most geologists. The concept of Grand Canyon erosion from stream capture by enlargement of a gully involves an accident of incredible improbability. The explanation of recent erosion of the canyon in association with catastrophic drainage from a great flood seems to integrate and coordinate a great number of facts in believable fashion. I found that the statements of Scripture provide an acceptable framework for interpreting the erosion of the Grand Canyon.

BIBLIOGRAPHY ON GRAND CANYON EROSION

Anonymous, 1985, Grand Canyon legend: Ex Nihilo, v. 7(3), p. 11.
(Review of the catastrophic drainage legend of the Havasupai who live in the Grand Canyon.)

Austin, S.A., 1984, Rapid erosion at Mount St. Helens: Origins, v. 11, no. 2, pp. 90-98.
(Analysis of blocked and breached drainage of the North Fork of the Toutle River which has a miniature "Grand Canyon" formed by catastrophic erosion since 1980.)

EVIDENCES FOR RELICT LANDSCAPE AND YOUTHFUL CANYON

If the Grand Canyon was eroded largely by catastrophic drainage of impounded water behind the uplifted plateau, I would expect the landscape to show marks of erosion by energetic agents. My attention is drawn to many features which appear to be stagnant, not evolving. The prominent slopes of the canyon are dominantly in an arrested stage of development. An excellent example is the cliff of Redwall Limestone which has an accretionary reddish coating derived from overlying Supai redbeds dominating its exposure. This cliff is not now slowly eroding back through a major extent of the canyon. Another example is the Vishnu Schist of the inner gorge which is dominated by an accretionary coating of desert varnish, another chemically attached residue on to the rock surface.

I also notice that the very low relief surface of the plateaus which form the north and south rims of the Grand Canyon are landforms which are not now evolving. When I favored the antecedent river and precocious gully theories, I had to apologize for the plateaus assigning them to pre-Laramide erosion by sluggish rivers near sea level. I marvelled at how such landforms could endure as elevated features for tens of million years. The catastrophic drainage theory I now favor easily accomplishes the plateau erosion by sheet flow of the flood waters over the plateau surface before the water became channelized to erode the canyon. I no longer need to explain why the plateaus have endured millions of years, because I no longer regard them as that old, but recent features, which could be thousands of years old.

Hundreds of smaller side canyons branch off from the Colorado River in the Grand Canyon. What is interesting is that these side canyons are typically short, rather wide, quite deep and have bowl-shaped heads ("amphitheatre" heads). These side canyons of this shape are not typical of enlarged gullys which usually have narrow V-shaped heads. I could not conceive of a very old river canyon having such short and wide features. Instead, such amphitheater-headed side canyons remind me of collapse features formed where water oozes out of wet sediment causing the supporting layers of sediment or rock to be removed so collapse occurs. Technically, this process is known as "sapping" and would have been an important process as greatly enlarged flow through the main canyon down cut and caused poorly consolidated sediment marginal to the canyon to dewater and slump into the main canyon. These amphitheater-headed canyons today rarely have springs at their heads, and, therefore, can be recognized to be relict features. They resemble some of the side canyons formed by catastrophic erosion on the North Fork of the Toutle River in 1982 after the eruptions of Mount St. Helens.

Evidences can be found for increased water flow in the past on the Colorado River. Just upstream from Grand Canyon in Marble Gorge, the channel of the Colorado River forms incised meanders. Laboratory experiments indicate that these elaborate meandering canyons could not have formed by the continued action of the present river. Greater water flow was required. Thus, the present Colorado River can be considered "underfit" relative to its canyon.

Another evidence of increased water flow in the past comes from consideration of cliffs near the Colorado River, especially upstream from Grand Canyon where broad flat benches of shale occur below sandstone and