

REGULAR EVENING MEETING

THE CANYONS OF JOHN WESLEY POWELL

by D. L. Baars



Major Powell made the first complete run and the first scientific examination of the canyons of the Green and Colorado rivers in 1869 and again in 1871-72. In 1972 the Four Corners Geological Society repeated his entire journey, with the exception of the sections inundated by reservoir waters, in commemoration of the centennial of the completion of Powell's canyon explorations. The canyons were found to be only little changed and as geologically fascinating as they were to Powell and his men.

The river trip started in rubber boats at the Gate of Lodore in the Uinta Mountains where the Green River plunges headlong into deep canyons cut into Precambrian quartzites, crossing the main axis of the Uinta arch. On the south flank of the principle structure, rocks of Paleozoic and Mesozoic age are well exposed as the river crosses a couple of magnificent faults and dissects Split Mountain.

In the vicinity of Vernal, Utah the river flows placidly across Tertiary lake deposits, and then begins its descent through strata of Tertiary and Cretaceous age in Desolation and Gray canyons, to emerge at Green River, Utah. Below Green River, the canyons again deepen into rocks of progressively older age into Labyrinth and Stillwater canyons, exposing strata of Jurassic and Triassic age. At the confluence of the Green and Colorado rivers, the canyon has been deepened into strata of Pennsylvanian age, and Cataract Canyon below is a series of closely spaced rapids in the 2000 foot-deep canyon cut into the Hermosa Group. A 200-mile-long traverse of the Colorado Plateau has taken us slowly and progressively downward through rocks of middle Tertiary through Middle Pennsylvanian age in a continuous stratigraphic column.

From Hite, Utah, we must fly over Glen Canyon, now inundated by Lake Powell, to Lee's Ferry just below Glen Canyon dam. There, the river trip is resumed down Marble and Grand canyons. The trip begins in rocks of Triassic age and slowly but surely transcend the stratigraphic column through 4000 feet of Paleozoic rocks and 14,000 feet of Precambrian sedimentary and metamorphic rocks to the heart of Grand Canyon. Then for some 200 miles, the course of the river follows rocks of Precambrian and Cambrian age, emerging from Grand Canyon in the Grand Wash Cliffs of Lake Mead in Nevada.

The river field trip has taken us from rocks of Precambrian age upwards into Tertiary strata, back down again in time to Pennsylvanian evaporites, and down toward the center of the Earth to rocks of very ancient Precambrian time in Grand Canyon. This magnificent cross-section of the Colorado Plateau and the complete history of geologic time must have impressed Major Powell as it did our motley field trip one hundred years later.

BIOGRAPHICAL SKETCH - D.L. Baars

Don received a B. S. in geology from the University of Utah in 1952; worked for Shell Oil Company as an exploration stratigrapher from 1952 to 1961; then as a research geologist for Continental Oil Company from 1961 to 1962. He received a Ph.D. in geology from the University of Colorado in 1965; taught three years at Washington State University before going to Ft. Lewis College in 1968. He has authored twenty-five technical papers, mostly on the geology of the Colorado Plateau, and received four Best Paper of the Year awards from the Rocky Mountain Association of Geologists.

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