

EXPLANATION

Jc

Carmel formation

This map unit is a tongue of the Carmel formation, and also includes the base of a tongue of the Navajo sandstone (which coalesces with the main mass of that formation in the Lees Ferry NW quadrangle to the east). It caps buttes in this quadrangle, is a minimum of about 75 feet thick and consists, from bottom to top, of: (1) red calcareous fine-grained sandstone that is partly even bedded and partly angular crossbedded with one set of fore-set beds and varies in thickness from about 5 feet to a few inches; (2) about 16 feet of white Navajo sandstone; (3) red bed, about 18 feet thick, the lower part of which is a calcareous siltstone that forms a ledge; (4) about 20 feet of white Navajo sandstone; (5) sandstone, about 2 feet thick, which is mottled white and brown calcareous medium-grained and in part crossbedded consisting of well-rounded well-sorted frosted quartz grains; (6) about 5 feet of white Navajo sandstone; (7) about 11 feet of the same rock as bed (5). About 70 feet of poorly exposed beds that may be either Carmel or the base of a tongue of the Navajo sandstone occur locally above these described. Loose sand a few feet in thickness covers part of the mapped unit.

Jn

Navajo sandstone

White to shades of red, brown, and orange coarse- to fine-, but predominantly medium-grained crossbedded sandstone, consisting of subrounded to well-rounded frosted quartz grains generally very poorly to firmly cemented, but locally well cemented with iron oxide; locally calcite cement is present. Locally lenses of sandy carbonate rock (calcareous dolomite and dolomitic limestone) occur. Generally, distinctive large- and medium-sized tangential crossbeds are prominent although parts of formation are nearly massive. Individual small contorted crossbeds occur in numerous small widespread areas. About 1,700 feet of the unit is exposed below the tongue of the Carmel formation. Topographically the formation forms rounded knolls and cliffs in which joints are prominent. Although bare rock is exposed over much of the area, in many places the outcrop is covered by sand usually a few feet, but locally as much as a few tens of feet in thickness. The only mineralized area in the quadrangle is at a copper prospect in a faulted part of the Navajo sandstone about 100 feet below the tongue of the Carmel formation, in the northeast part of the quadrangle.

Contact

Fault, showing dip

(Dashed where approximately located; short dashes where indefinitely located; U, upthrown side; D, downthrown side)

Vertical fault

(Dashed where approximately located; short dashes where indefinitely located; U, upthrown side; D, downthrown side)

High angle fault

(Probable offset, U, upthrown side; D, downthrown side)

Strike and dip of beds

Structure contour

Drawn on base of Carmel formation; dashed where approximately located; short dashes indicate projection above surface. Contour interval 100 feet. Datum is mean sea level. Data from adjacent quadrangles are used to locate contours.

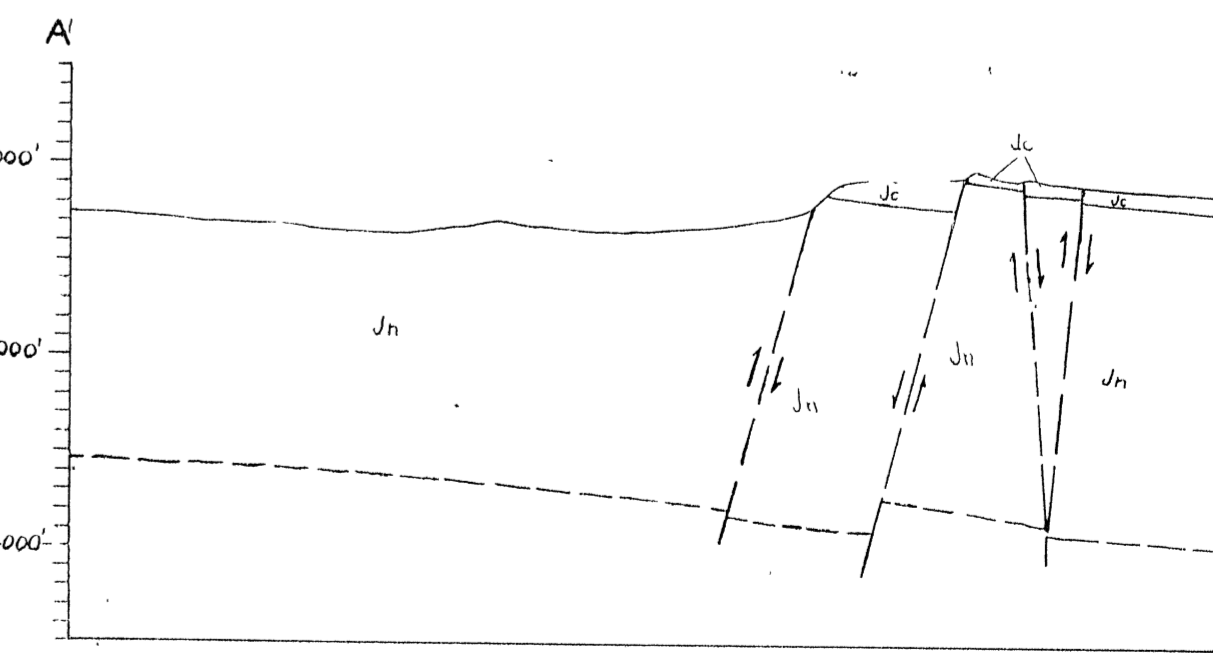
Prospect

Structural geology

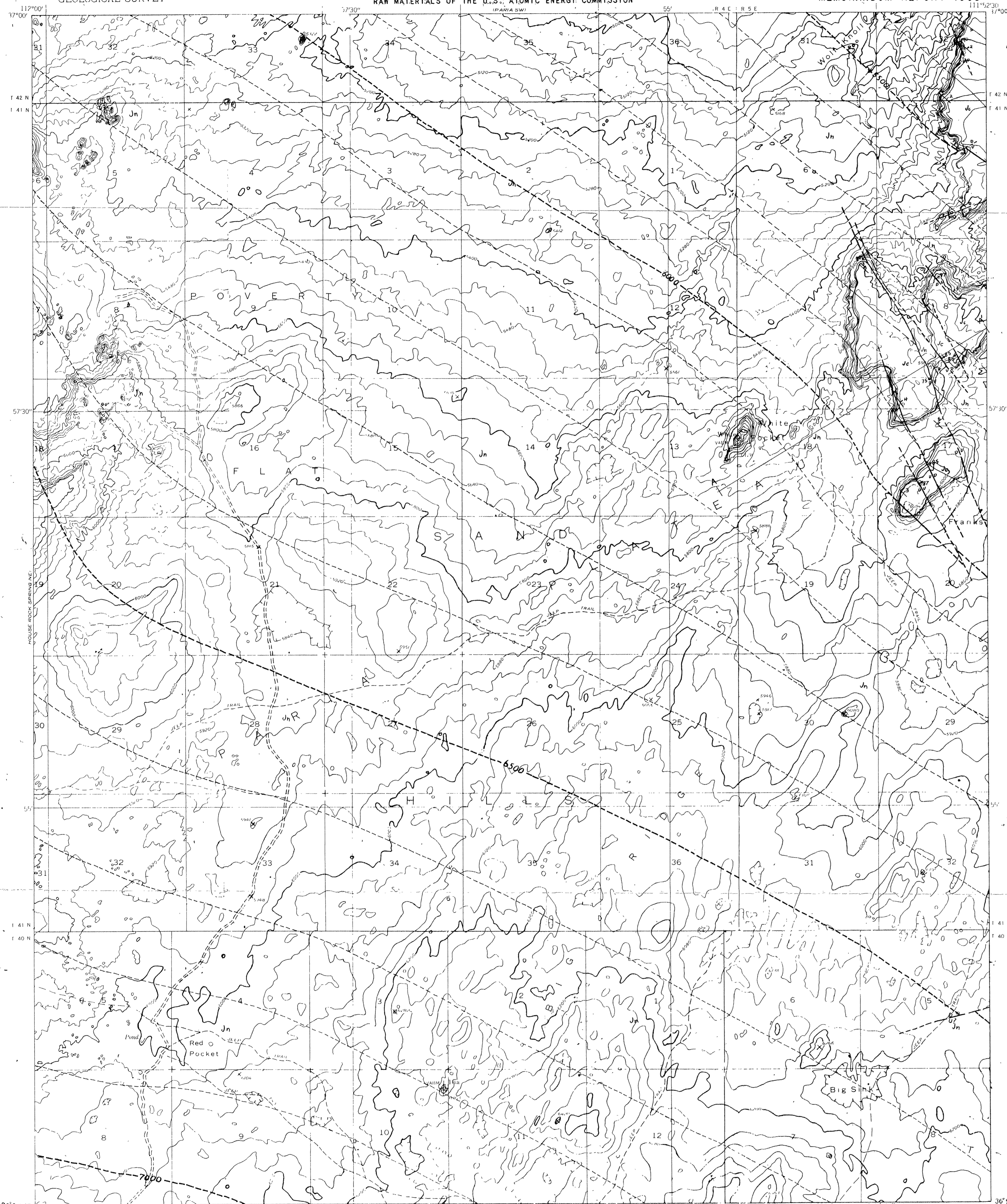
The western boundary of this quadrangle is a few miles east of the north-trending East Kaibab monocline. The regional dip in the quadrangle is about 100 feet per mile (2°) to the northeast. A major north-northwest trending, steeply dipping fault with the west side downthrown about 150 feet occurs in the northeast part of the quadrangle. Subparallel faults with offsets of from 10 to 30 feet occur in the same area; most of these have the east side downthrown. Other minor faults trending at about right angles to the major fault also occur. Along the line of the cross section the net offset of the faults is about 50 feet with the west side downthrown. The fault zone generally consists of a zone of fracturing several feet wide. Concretionary silica cements part of the sandstone where the major fault cuts the Navajo sandstone in the intertongued zone. The west-southwest-trending fault in the southeastern part of the quadrangle extends a few miles eastward into the adjacent quadrangle and consists of a complex fracture zone in which the fractures have been silicified. As a result the fractures stand up as small resistant ridges; this is also exhibited in some of the faults to the north.

Economic geology

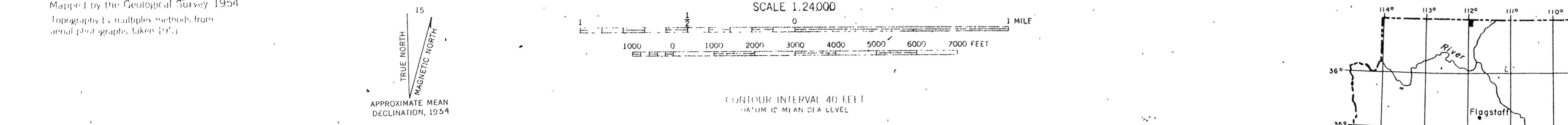
The Chinle formation which is uranium bearing in adjacent quadrangles is not present in the map area.



SECTION ALONG LINE A-A'

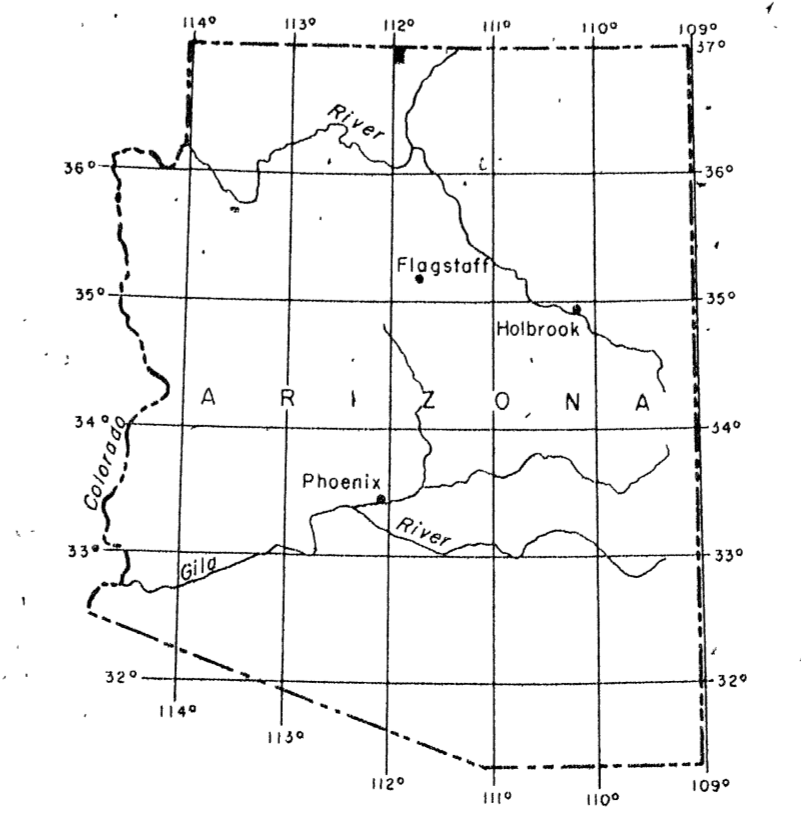


Map by the Geological Survey 1954
Topographic 1:25000 contours from aerial photograms taken 1953



PRELIMINARY GEOLOGIC MAP OF THE PARIA PLATEAU NW QUADRANGLE, COCONINO COUNTY, ARIZONA

BY
JOHN D. WELLS



INDEX MAP OF ARIZONA SHOWING AREA OF THIS REPORT

Middle and upper Jurassic

JURASSIC

JURASSIC AND JURASSIC(?)

(200)
T67 nm
no 1008