

Dutton's 1885 geologic map of west-central New Mexico

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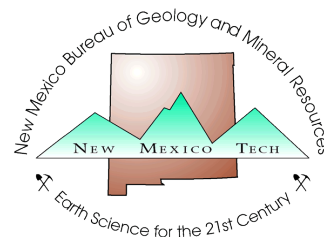
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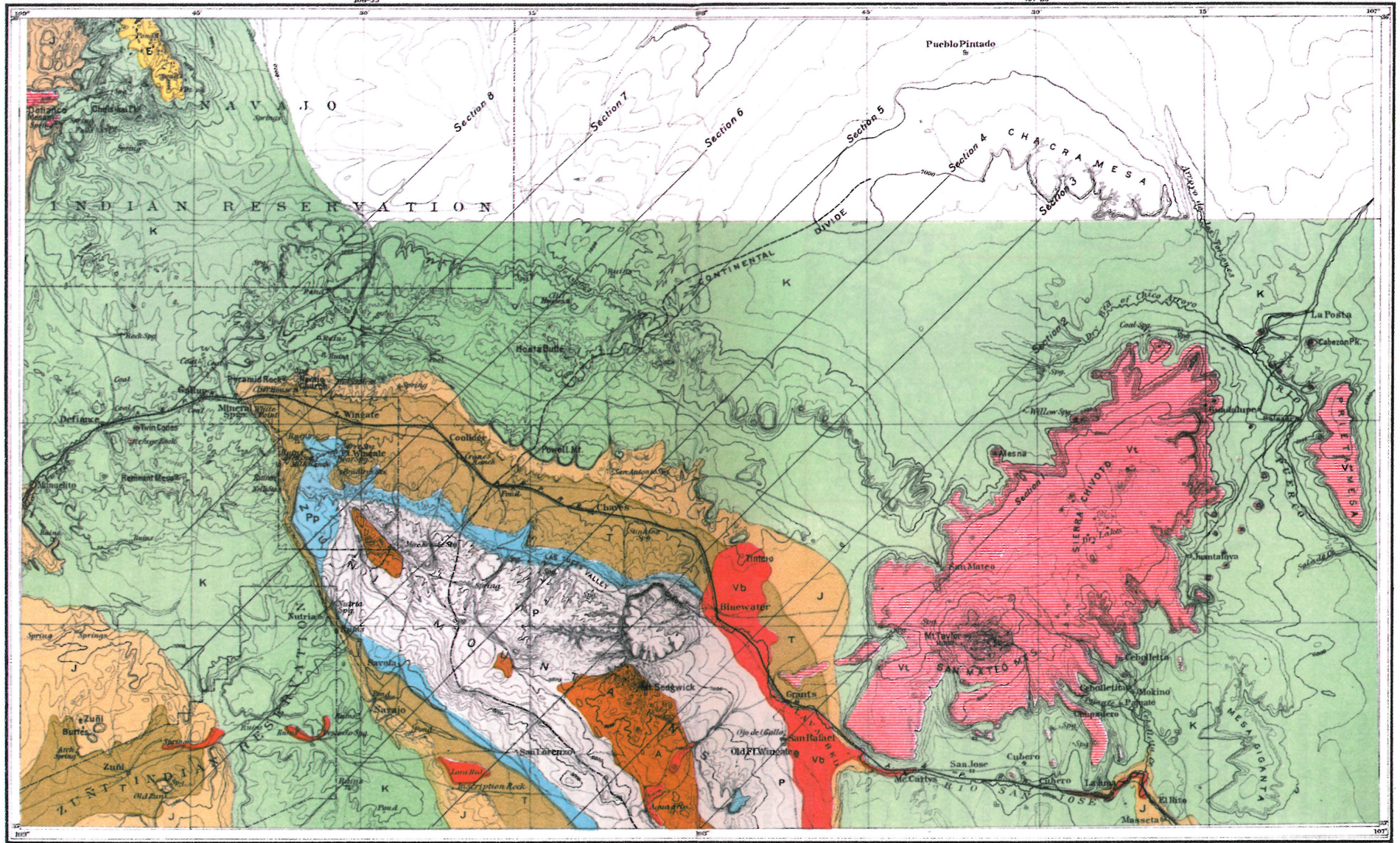
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GEOLOGIC MAP OF NORTHWESTERN NEW MEXICO

By Clarence E. Dutton

FIELD WORK OF 1904

Scale 1:640,000 = 10 miles 1 inch

Contour interval = 200 feet

Base from topographic work of the U.S. Geological Survey in 1881-3.

Julius Dyer & Co. Lith.

Dutton's 1885 geologic map of west-central New Mexico

Spencer G. Lucas, New Mexico Museum of Natural History and Science, 1801 Mountain Rd. NW, Albuquerque, New Mexico 87104

Clarence Dutton (1841–1912) published the first detailed geologic map of west-central New Mexico in the *Sixth Annual Report of the U.S. Geological Survey*. This map, at a scale of 1:640,000, covers an area of approximately 20,000 km² (7,722 mi²) and extends from the Rio Puerco on the east to the New Mexico–Arizona border on the west, and from Zuni Pueblo on the south to the southern end of the Chuska Mountains on the north. The map was the product of a mere summer of field work (in 1884). It is accompanied by eight cross sections along the southwest-northeast-oriented lines and a nearly 100-page-long, illustrated text.

Dutton's map accurately portrays the basic structure of the Zuni Mountains (a Precambrian core surrounded by Paleozoic and Mesozoic strata), the overall extent of the Mt. Taylor volcanic center, and the vast Cretaceous exposures (green color) characteristic of the surface geology of much of west-central New Mexico. The basement rocks crop out in three places (however, they are Proterozoic, not Archean), and the Carboniferous strata mapped by Dutton are now known to be Permian. Dutton's Permian and Trias

are now identified as Triassic red beds, but his Jurassic is still considered Jurassic, as is his Cretaceous. The Eocene rocks on the map are correctly located only at the southern tip of the Chuska Mountains (they are the Chuska Sandstone of current terminology). And, Dutton's perceptiveness is further revealed by his distinction of recent basalts from the older, "Tertiary eruptives."

The stratigraphic section on the northern flank of the Zuni Mountains is approximately 3 km (1.8 mi) thick, and Dutton (1885) first presented a detailed and largely correct stratigraphy of these rocks. Much more will be learned about the area Dutton mapped by participants in this year's 54th Fall Field Conference of the New Mexico Geological Society, to be held 24–27 September in west-central New Mexico.

Reference

Dutton, C. E., 1885, Mount Taylor and the Zuni Plateau: U.S. Geological Survey, 6th Annual Report, pp. 105–198

New Mexico Geological Society News

NMGS Spring Meeting April 11, 2003

The annual spring meeting will be held at Macey Center on the campus of New Mexico Institute of Mining and Technology, Socorro, New Mexico. Oral and poster sessions will focus on the geology and geophysics of New Mexico and adjacent areas. This year's special session will be "Caves and Karst"—studies involving carbonate diagenesis, cave and karst formation, karst hydrology, geomicrobiology, and any other appropriate topics. The session will also introduce you to the new National Cave and Karst Research Institute headquartered in New Mexico. The keynote speaker will be Dr. Louise Hose, newly appointed director of the National Cave and Karst Research Institute.

Registration information and program will be distributed in early March.

For general information about the meeting, contact the General Chairman:

Bill Raatz, raatz@gis.nmt.edu, (505) 835-5921

or visit the NMGS Web site:

<http://geoinfo.nmt.edu/nmgs/events.html>

NMGS 54th Fall Field Conference September 24–27, 2003

This year's fall field conference will be held in west-central New Mexico and on the Navajo Nation. The society last visited the eastern part of this area in 1989 and the western part in 1951 and 1967. The trip will focus on the classic Mesozoic strata and late Cenozoic volcanism of this area as well as on the uranium ore deposits. The conference is hosted by William Berglof (University of Maryland), Spencer Lucas, Larry Crumpler, and Andrew Heckert (New Mexico Museum of Natural History and Science), and Steven Semken (Diné College). Topics covered during the trip will encompass virtually every aspect of geology. The tentative itinerary is:

Day 1. Geology of the Defiance uplift and Chuska Mountains of the New Mexico–Arizona borderland, featuring Mesozoic stratigraphy and sedimentation, with stops at Todilto Park, Green Knobs, and Narbona Pass maar.

Day 2. Geology of the northern flank of the Zuni Mountains, featuring Mesozoic stratigraphy, sedimentology, and paleontology.

Day 3. Geology of the Mt. Taylor–Malpais volcanic fields and Mesozoic rocks and uranium ore deposits of the Grants district.

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