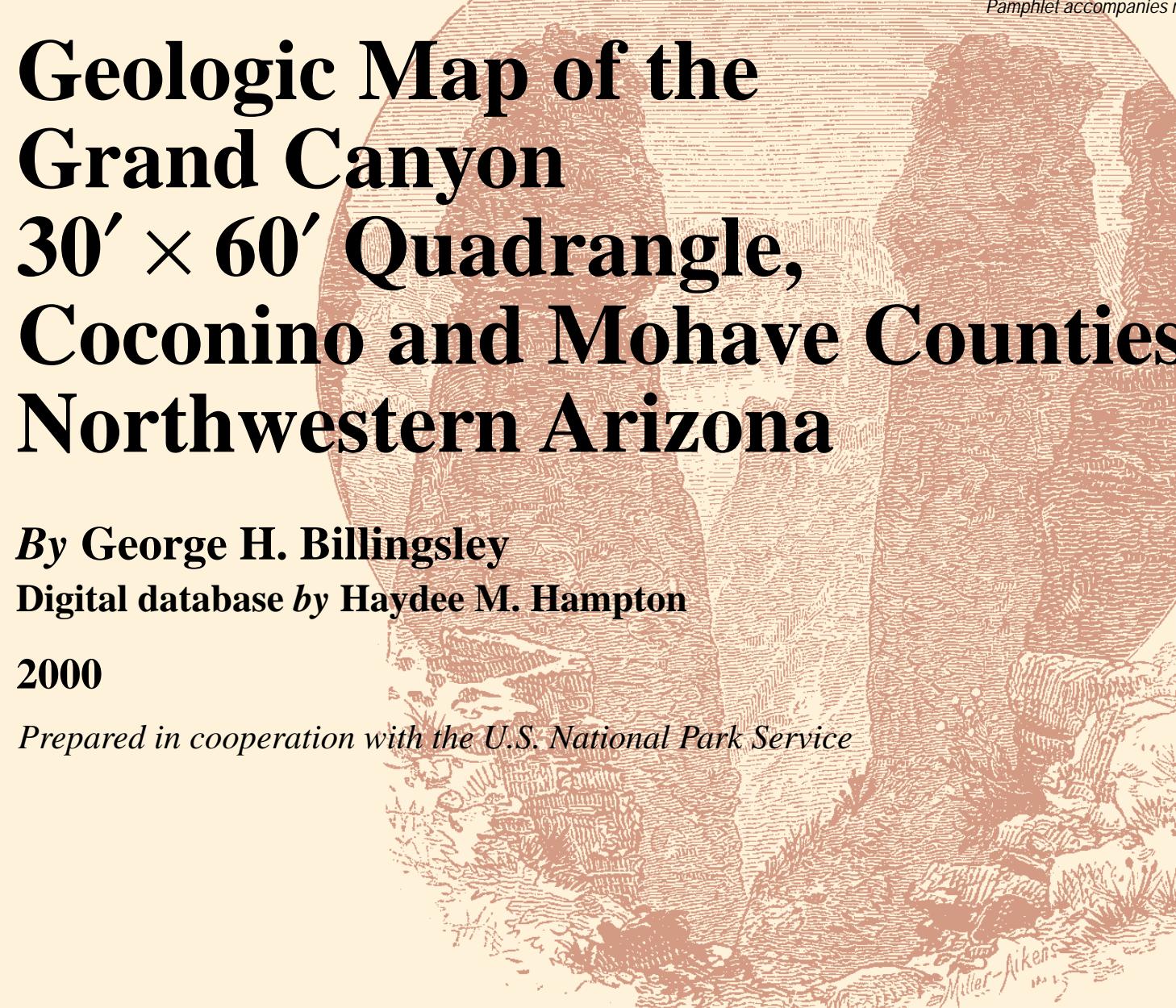


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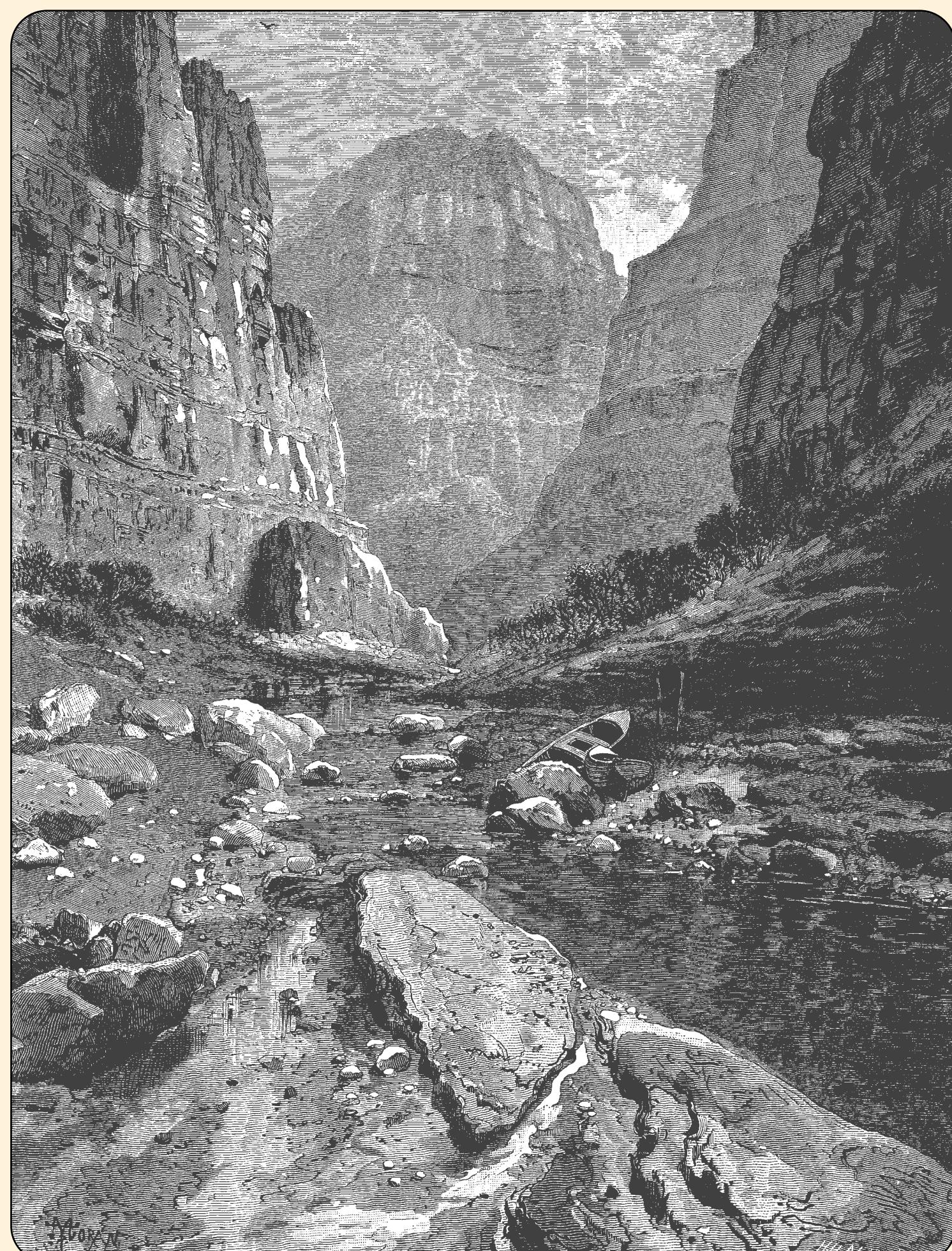


## Geologic Map of the Grand Canyon 30' x 60' Quadrangle, Coconino and Mohave Counties, Northwestern Arizona

By George H. Billingsley  
Digital database by Haydee M. Hampton

2000

Prepared in cooperation with the U.S. National Park Service



Kanab Canyon. Woodcut of drawing by Thomas Moran showing Kanab Canyon, near the junction of Kanab Creek with the Colorado River. About 2,800 feet of wall is shown here, the upper portion being the Red Wall. The upper walls (Aubrey Cliffs) are not exposed. The depth of Kanab Canyon here is about 4,700 feet. From U.S. Geological Survey Second Annual Report (1880-1881).

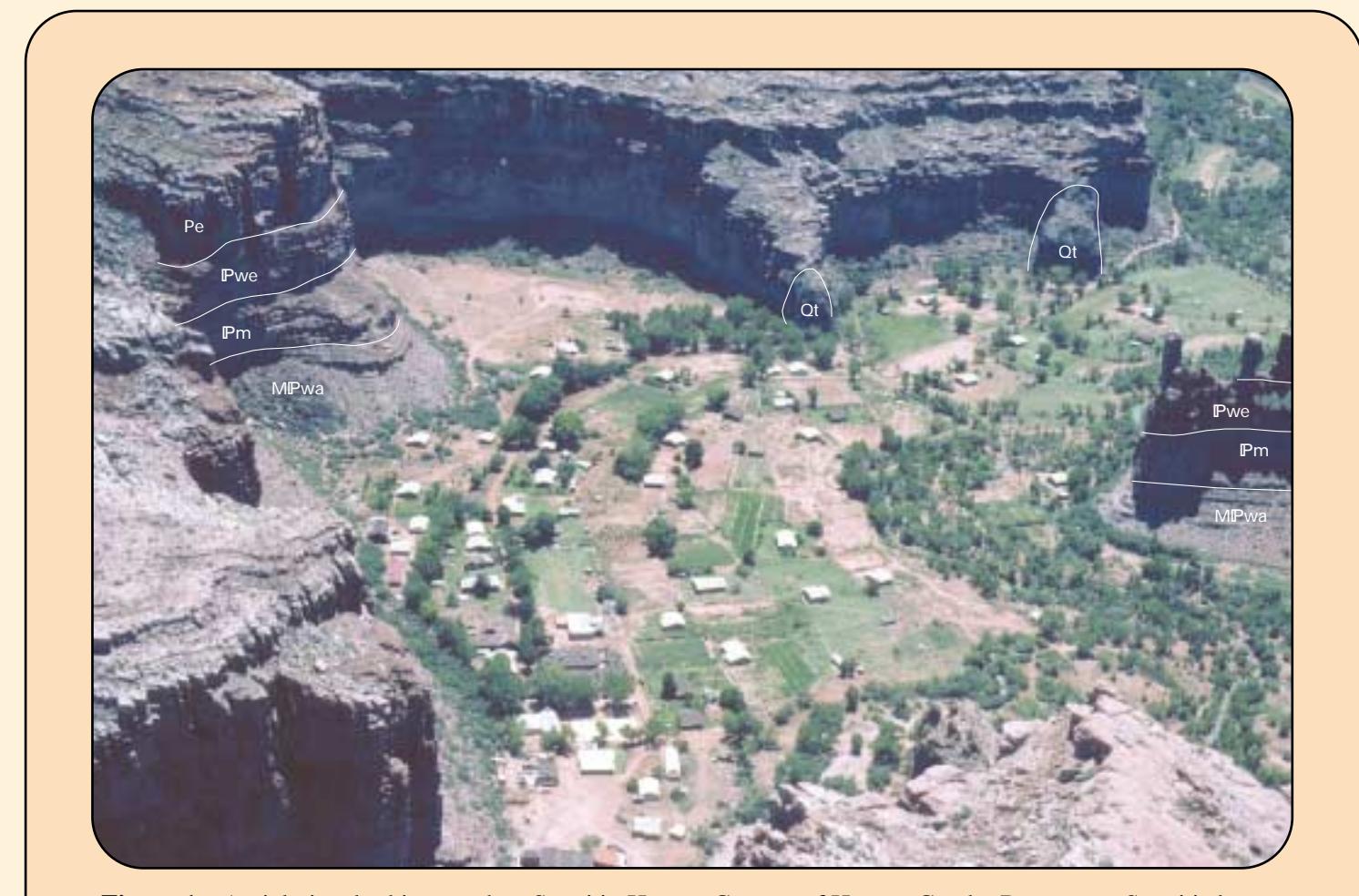


Figure 1. Aerial view looking south in Havasu Canyon of Havasu Creek. Domesite Schist is lower left of photo. The cliffs on these are Supai Group (Esplanade Sandstone (Ps), Wescogame Formation (Pw), Manakacha Formation (Pm)), and Watamongi Formation (MPw)). Unit Q is travertine deposits. The Redwall Limestone is under the alluvial valley floor. Photograph by G.H. Billingsley.



Figure 2. Aerial view looking north down Colorado River towards the southeastern end of Powell Plateau. Kabib Formation (Pk), Tropius Formation (Pf), Cocomino Sandstone (Pc), Hermit Formation (Ph), Esplanade Sandstone (Ps), Wescogame, Manakacha, and Watamongi Formations, undivided (MPw), Surprise Formation (Mf), Redwall Limestone (Mr), Temple Butte Formation (Dtb), Muav Limestone (Cm), Bright Angel Shale (Csa), Tropius Sandstone (Cs), and Vishnu Schist (Xv). Photograph by G.H. Billingsley.

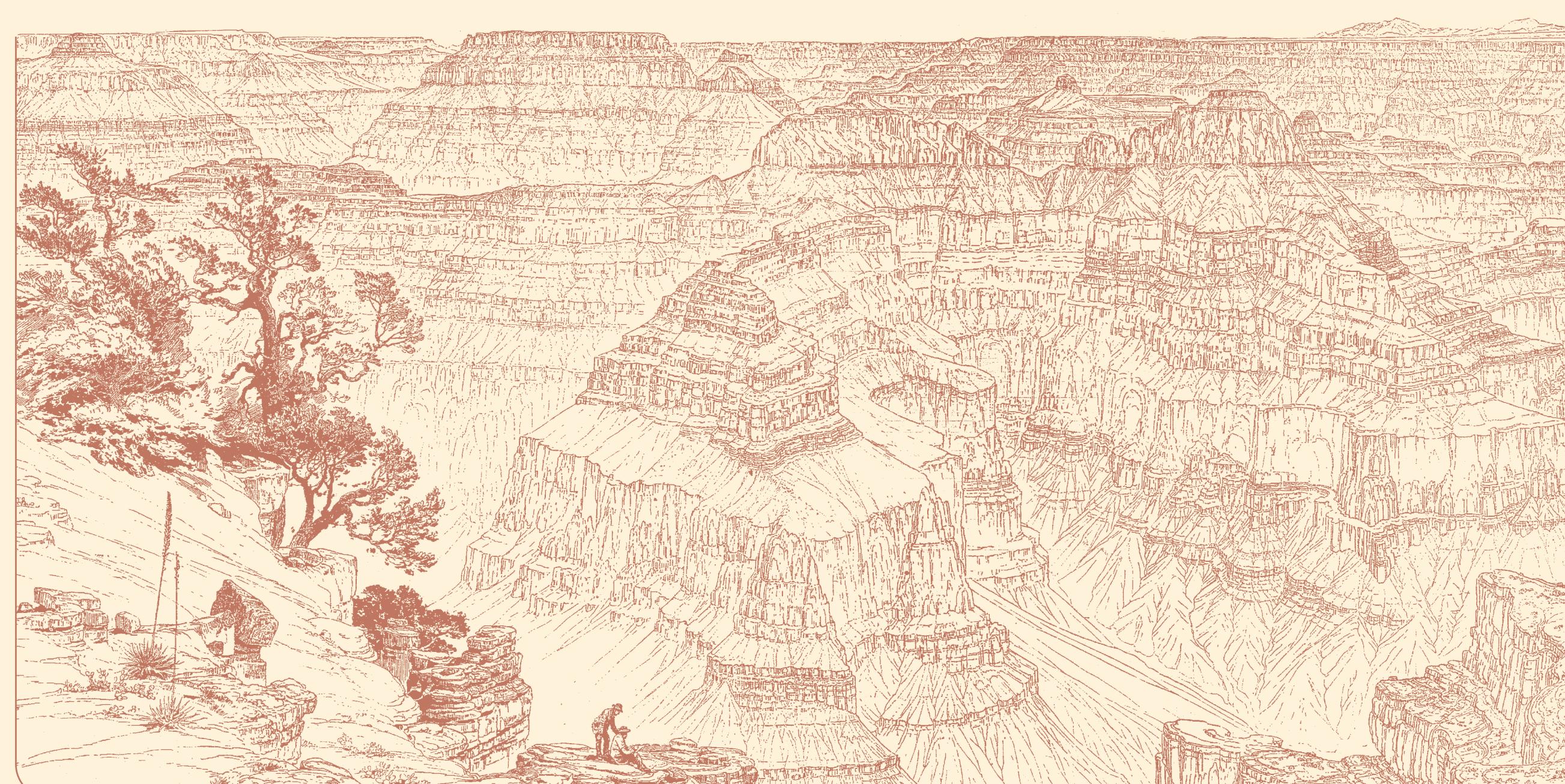
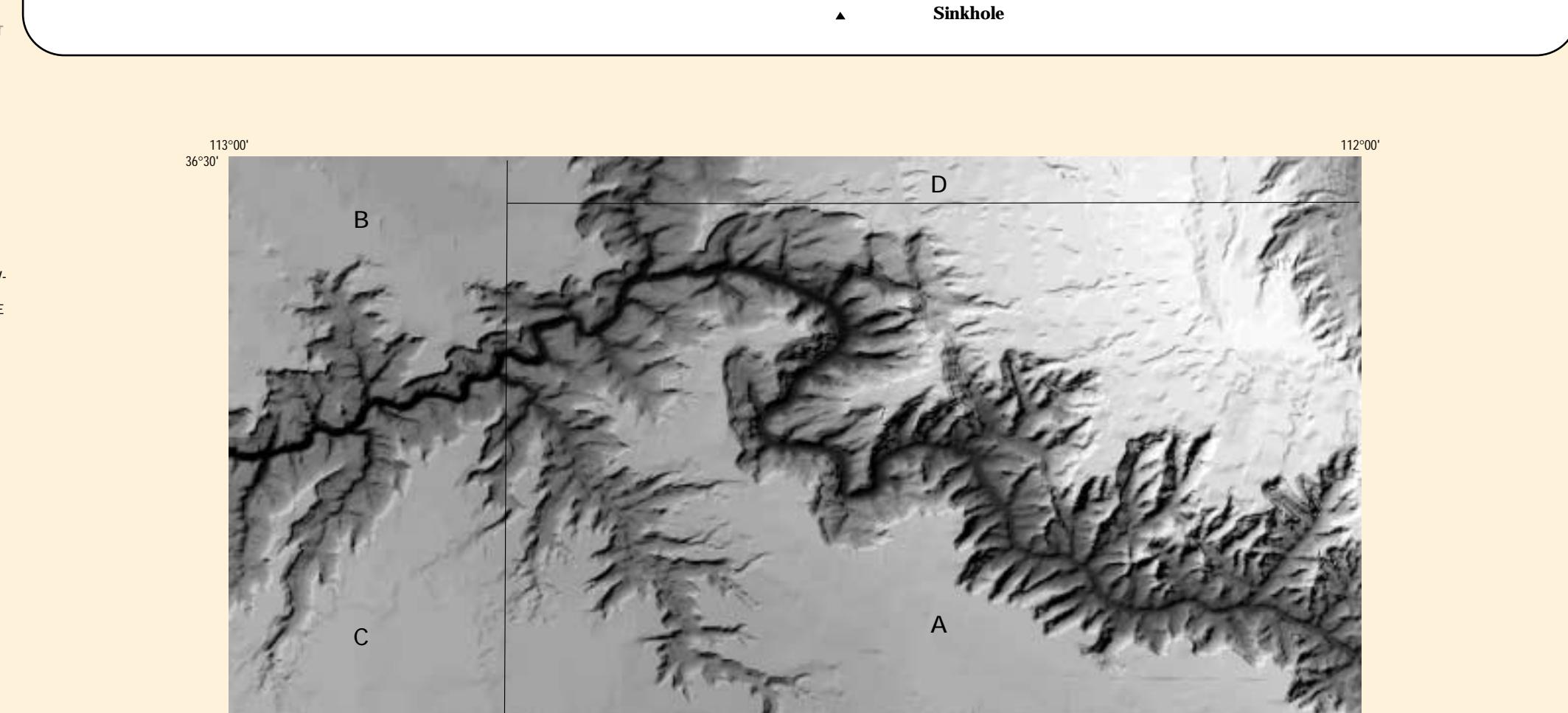
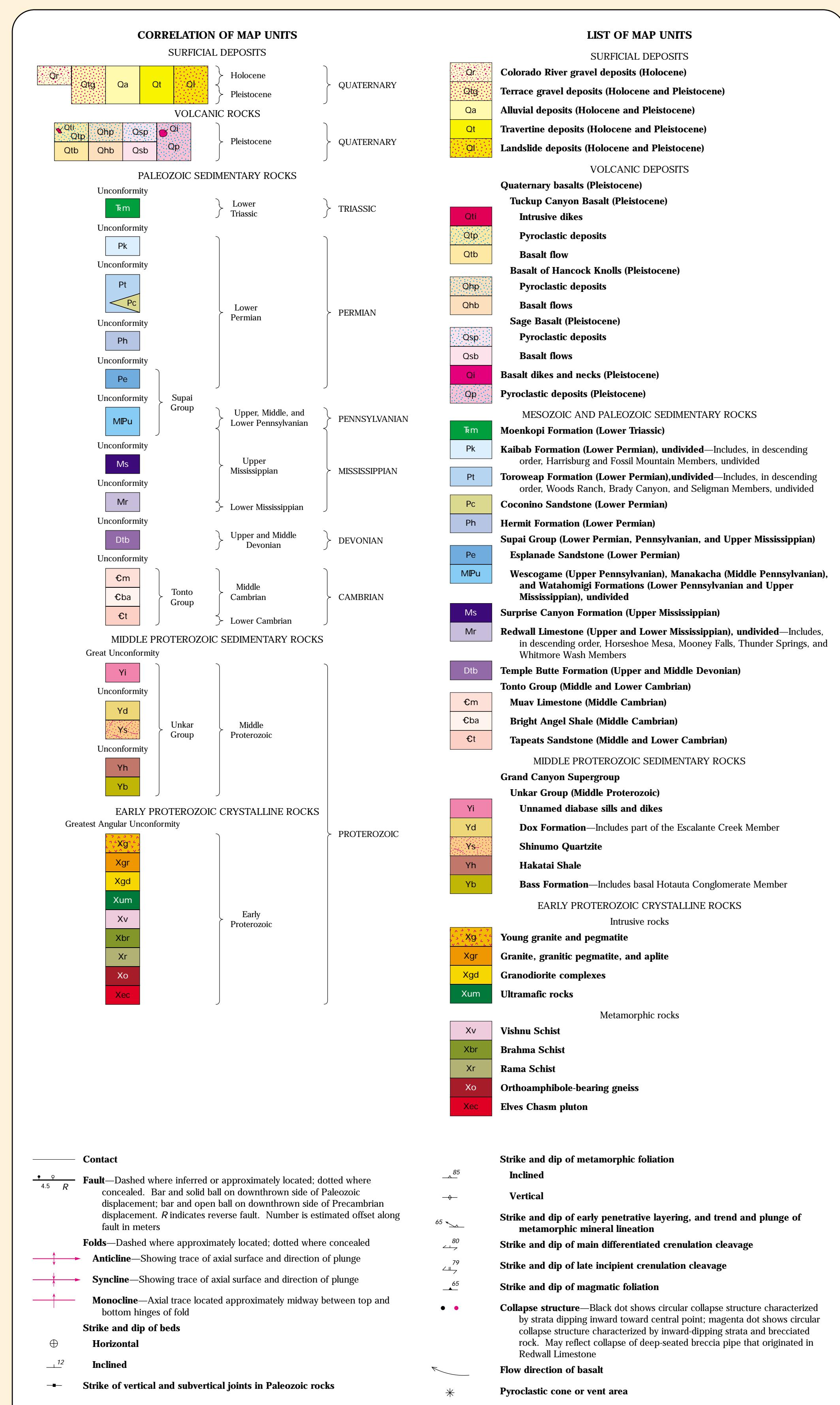
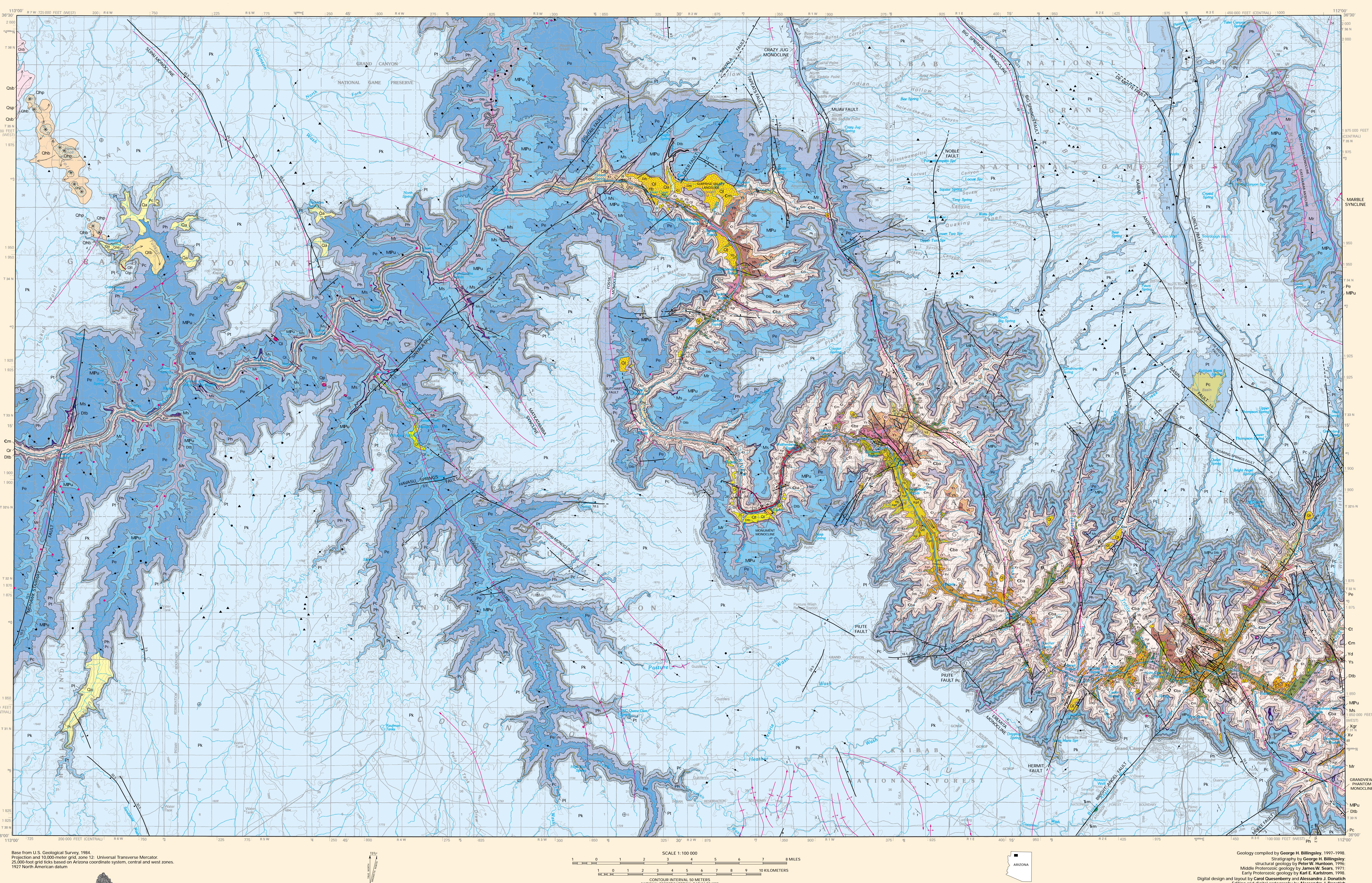
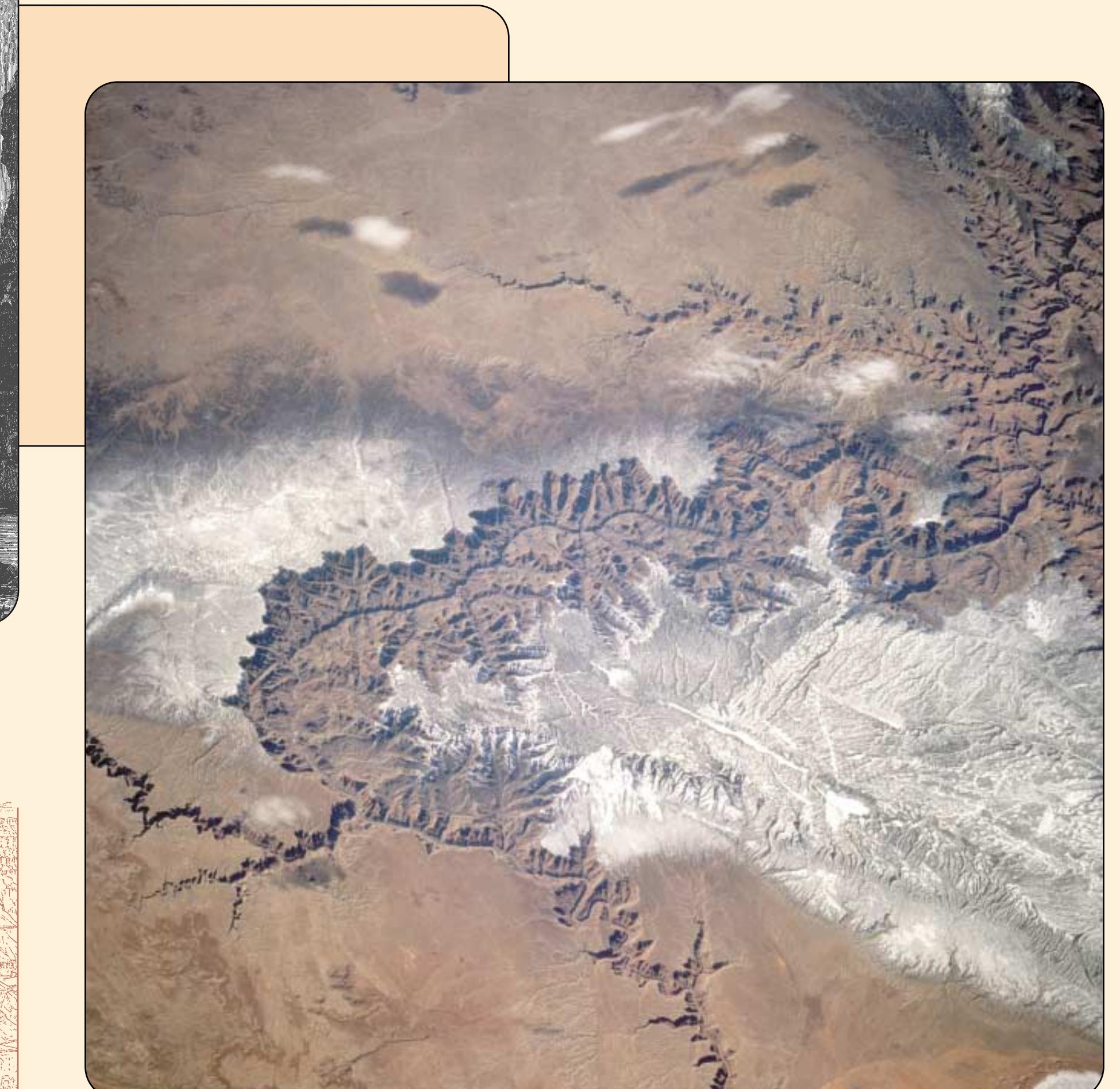


Figure 3. Aerial view looking northwest towards Shumino Creek and Powell Plateau. Faults are not shown because of perspective problems in this view. Only geologic units older than the Late Proterozoic are shown as a general guide to this view. Units shown are: Paleozoic rocks; Kabib Formation (Pk), Hermit Formation (Ph), Cocomino Sandstone (Pc), Hermit Formation (Ph), Esplanade Sandstone (Ps), Wescogame, Manakacha, and Watamongi Formations, undivided (MPw), Surprise Formation (Mf), Redwall Limestone (Mr), Muav Limestone (Cm), Bright Angel Shale (Csa), and Tropius Sandstone (Cs). Proterozoic rocks: unmetamorphosed dikes and sills (Y), Shumino Quartzite (Ys), Hakatai Shale (Yr), Bass Formation (Yb), and Vishnu Schist (Xv). Photograph by G.H. Billingsley.



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B. Billingsley and Hamon (1998)  
C. Wernicke and others (1997)  
D. New mapping by George Billingsley, 1997



Panorama from Point Sublime, looking west. From original drawing by W.H. Holmes. From U.S. Geological Survey Second Annual Report (1880-1881).

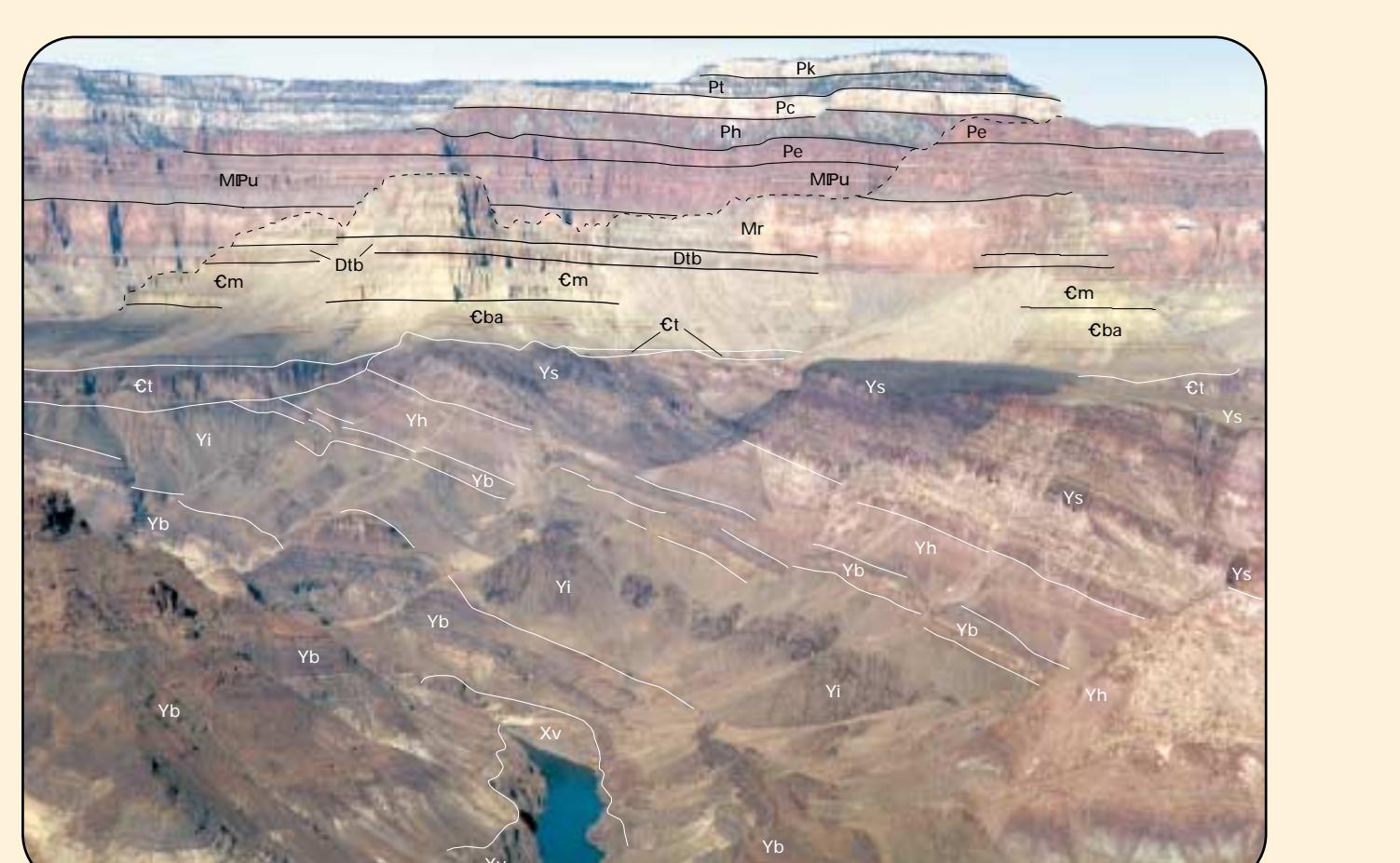


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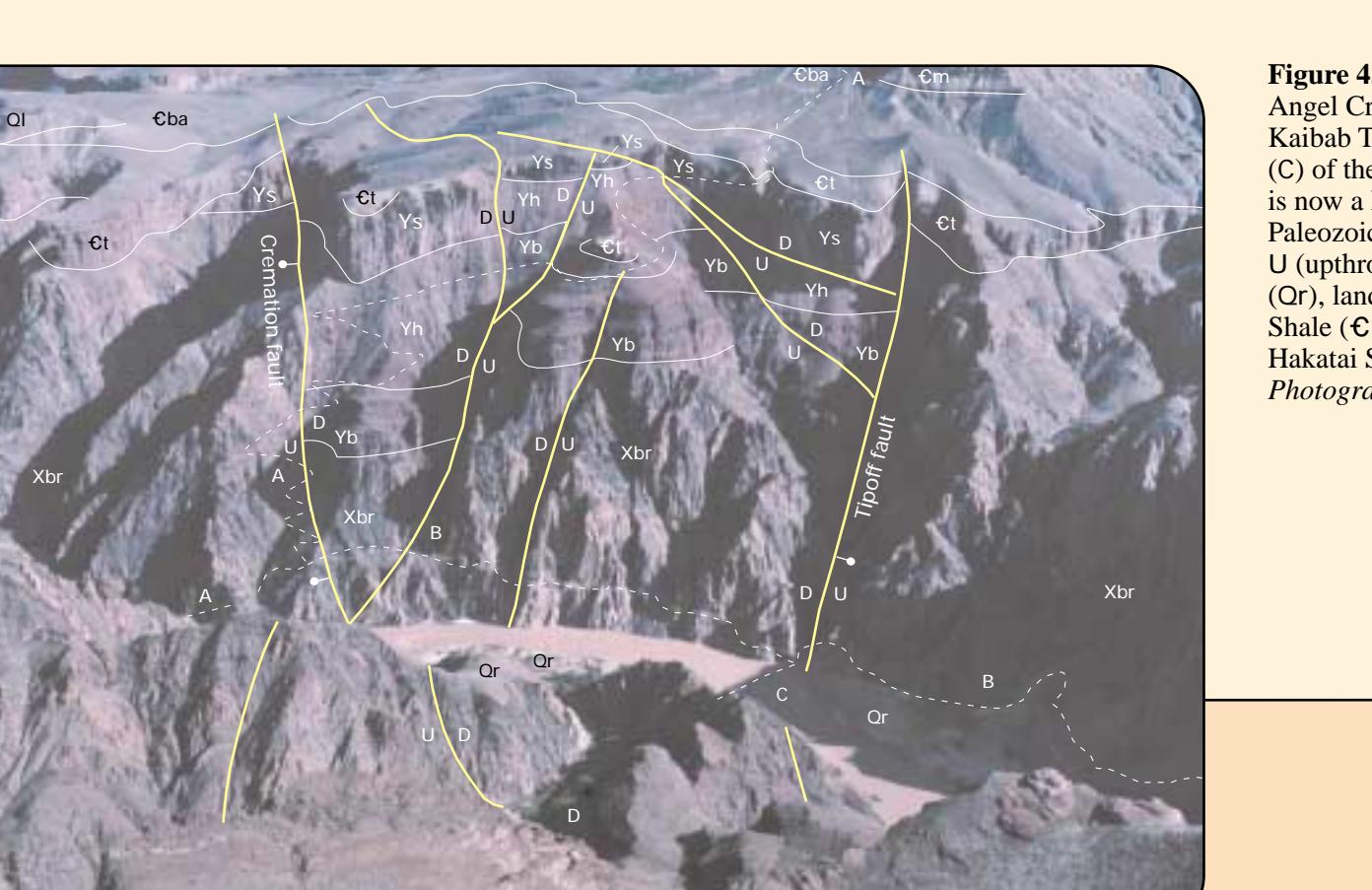


Figure 4. Aerial view looking southeast towards the mouth of Bright Angel Creek, Bright Angel Campground (D), lower part of south Kaibab Plateau (A), Bright Angel Trail (B), and lower bridge crossing (C) of the Colorado River. View is from the south. The area that is now a Paleozoic basin between the Cremation and Tipoff faults; Paleozoic rocks are exposed in the Kaibab Plateau, shown by U (upthrown) and D (downthrown). Colorado River gravel deposits (Cr), landslides deposits (Q), Muav Limestone (Cm), Bright Angel Shale (Yr), Shumino Quartzite (Ys), Hakatai Shale (Yr), Bass Formation (Yb), and Vishnu Schist (Xv). Photograph by G.H. Billingsley.

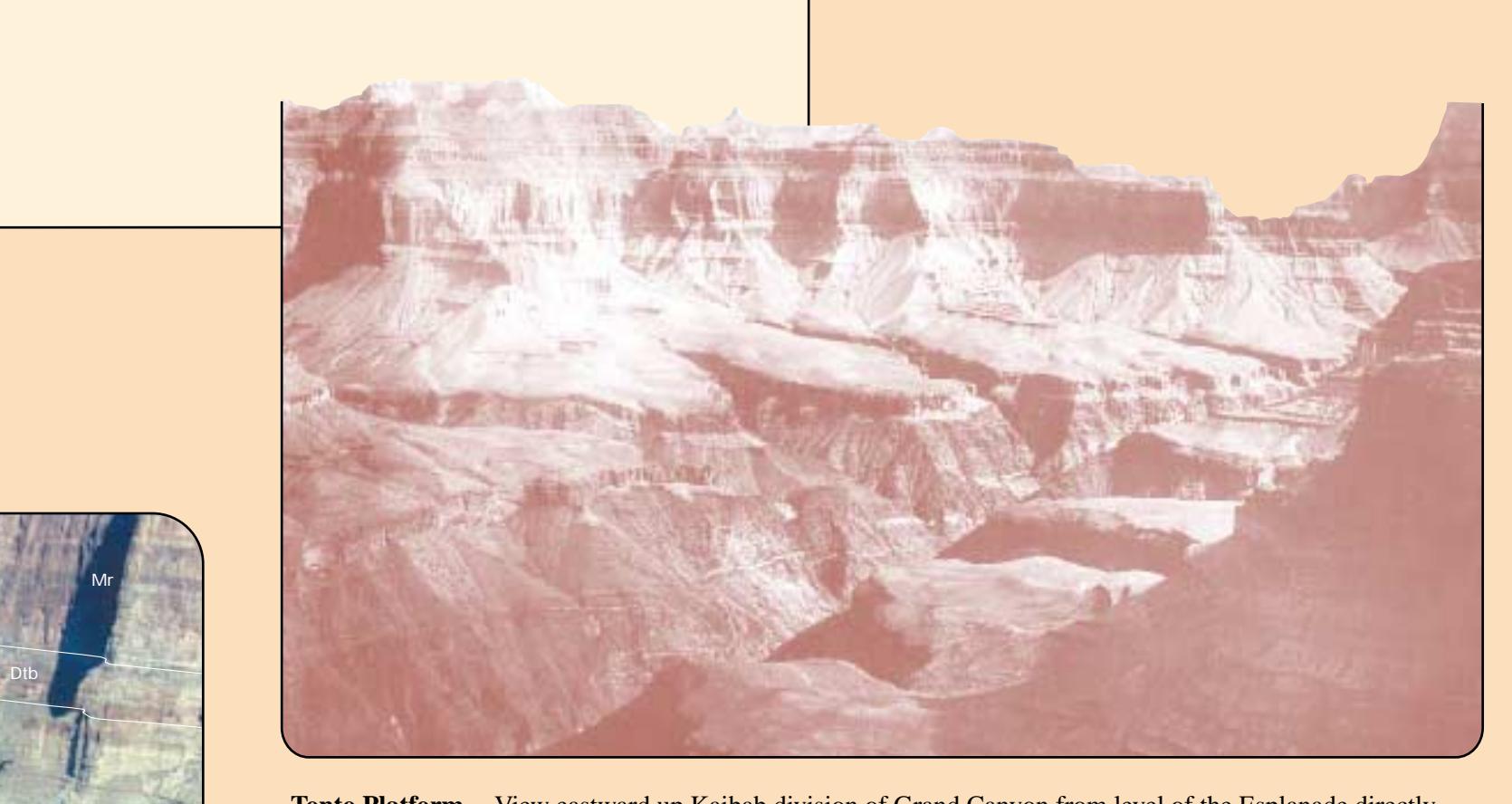


Figure 5. Aerial view looking northwest towards Thunder Spring and Thunder River, which joins Tropius Creek just below photo. Surprise Valley landslide (G) is one of the largest landslides in the map area. Redwall Limestone (Mr), Muav Limestone (Cm), Bright Angel Shale (Csa), and Shumino Quartzite (Ys). The red-brown member of the Bright Angel Shale (rb) overlies the Shumino Quartzite and is a tongue of sandstone lithologically similar to the Tropius Sandstone. Photograph by G.H. Billingsley.

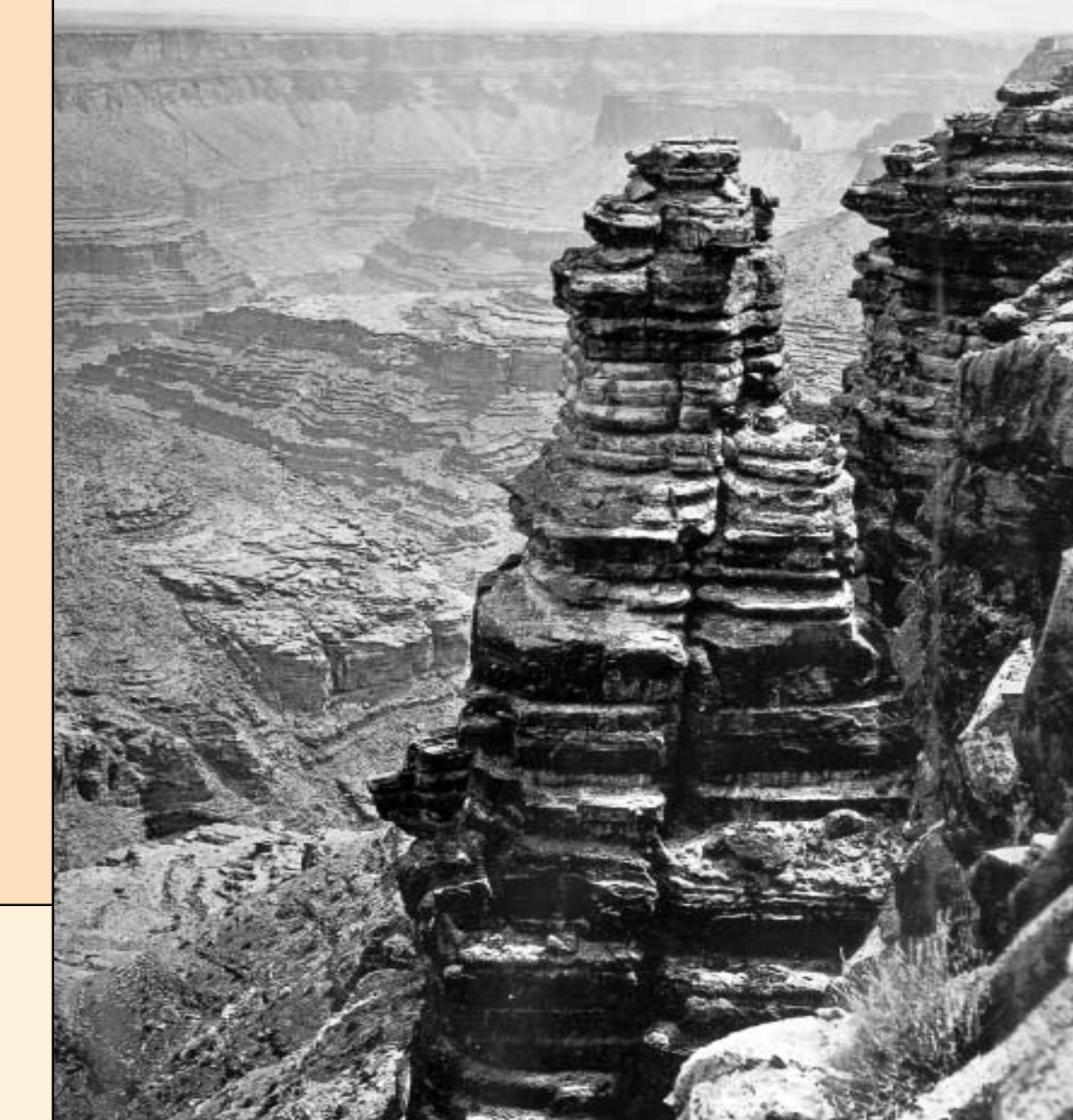
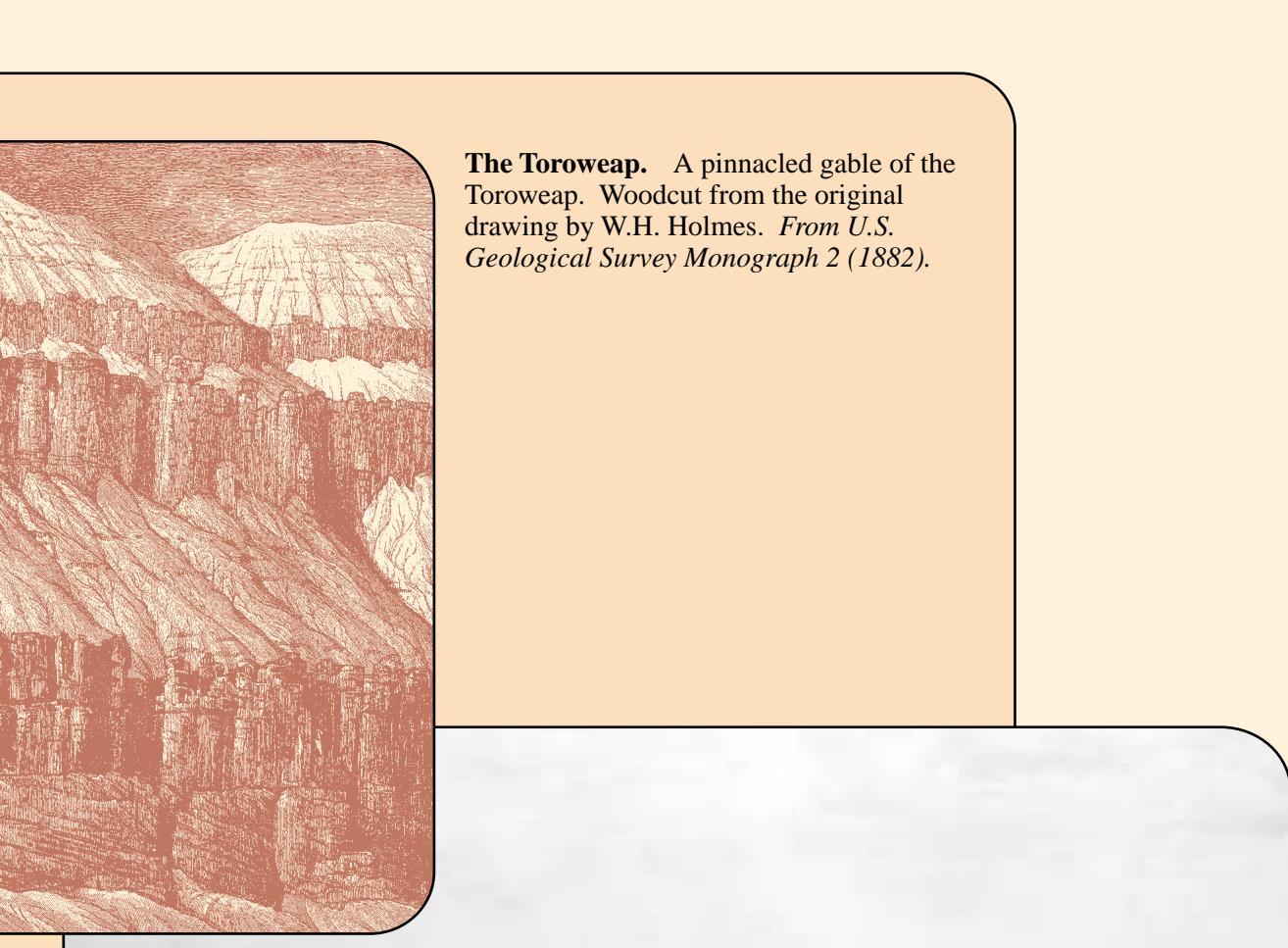


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