

Citation metadata

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Date: May 20, 1988
From: Science(Vol. 240, Issue 4855)
Publisher: American Association for the Advancement of Science
Document Type: Book review
Length: 678 words

Main content

Article Preview :

Paleokarst

Caves have attracted humankind since time immemorial. In the Cretaceous reefs of Mount Carmel, Israel, caves were the refuge of humans when ice covered much of Europe. In biblical times the prophet Elijah hid in the same caves from the king of Israel. Paleolithic and later art is still preserved in the caves of France, where humans survived during the Ice Age. This book delves further into history: its chapters span the time between the Precambrian and Cretaceous. A good reason exists why paleokarst is of current interest. Caves form significant reservoirs of oil and gas. In a recent oil-exploration venture in the Park City Basin of Kansas, fluids and rods vanished in the Ordovician Arbuckle formation. Several years earlier a similar event occurred in the correlative Prdovician Knox Group of Ohio and in a cave in Cretaceous strata 6 kilometers below Lake Maracaibo in Venezuela. Where caves are vast, exploration may be unsuccessful and fluid and drillrods vanish.

Caves are part of a karst system. The term...

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Source Citation

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Friedman, Gerald M. "Paleokarst." *Science*, vol. 240, no. 4855, 1988, p. 1071+. Accessed 7 Nov. 2020.

Gale Document Number: GALE|A6734261

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Ordovician Knox Paleokarst Unconformity, Appalachians. William J. Mussman, Isabel P. Montanez, J. Fred Read. Pages 211-228.
Surface and Subsurface Paleokarst, Silurian Lockport, and Peebles Dolomites, Western Ohio. Charles F. Kahle. Pages 229-255.
Madison Limestone (Mississippian) Paleokarst: A Geologic Synthesis. Paleokarst and Related Pelagic Sediments in the Jurassic of the Subbetic Zone, Southern Spain. Juan-Antonio Vera, P. A. Ruiz-Ortiz, M. Garcia-Hernandez, J. M. Molina. Pages 364-384. Most paleokarst exposures are usually level with or are negative features in the landscape. If the material filling ancient caves or dolines is strong enough, paleokarst features can be preserved as positive features protruding above the general level of the land surface. An

example of this is the pyroclastic dyke at Wombeyan, NSW, Australia described by Osborne (1993) (Figure 2). Figure 2. Volcaniclastic paleokarst dyke, Wombeyan Caves, NSW, Australia, protruding above surface of surrounding marble bedrock. The concept of 'paleokarst', or ancient buried landscape, is applied increasingly to soluble rock horizons of all ages from Precambrian to Mesozoic. However, such interpretations are hasty, and made on very few, unreliable features. In all probability 'paleokarst' does not exist because any primary morphology initially enclosed inside soluble rocks could not have been preserved for millions or even hundreds of millions of years. Rather, it would have been reshaped by later karst activity, even if deeply buried.