

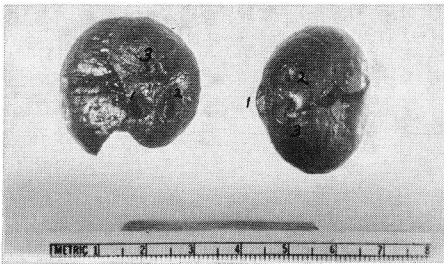
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Fossil Palm Fruits and Seeds*

Fossil palm fruits and seeds have been found in many parts of the world, the largest number in the Eocene London clay beds. Over 300 different species, chiefly flowering plants including palms, have been found, the most common being *Nipa burtinii*. The fossil material suggests an affinity with flora of Indo-Malaysian character.

The famous Eocene Clarno nut beds of Wheeler County, north central Oregon, near Clarno on the John Day River, are the source of a relatively small number of fossil palm seeds. The fossil record there goes back to the Cretaceous period. In 1958 a fossil palm nut, together with an ammonite, included in a concretion, was found near Mitchell, in Wheeler County. It was identified as being of the genus *Attalea*, dating from the early Cretaceous. Volcanic tuff, outcropping through the John Day shale, is the matrix in which fossil seeds and fruits are embedded. Mr. Thomas J.

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1. Two fossil cocosoid palm fruits from Mangonui, North Island, New Zealand. In the specimen to the left, all three germination pores (1-3) in the endocarp had been compressed into one plane at the time of fossilization. Also, irregular deep cracks in the brittle jet-black fossils are present. Longitudinal ridges and furrows are seen in the specimen to the left.



2. Portion of a fossil *Nypa* fruit from the Eocene of Texas, about one-half natural size. Photograph is courtesy of Dr. Chester A. Arnold who described the fossil in *Palaeobotanist* 1: 73-74, 1952. The specimen measured $11 \times 10 \times 4.5$ cm. There are three distinct ridges leading to an encircling groove, in the center of which is a prominent apical umbo.

Bones of Vancouver, Washington, assembled an important collection of fossil seeds from the Clarno area, part of which he donated to the Smithsonian Institution. Other parts of the United States which have yielded fossil palm specimens are Bastrop County, Texas, and Grenada County, northeastern Mississippi.

Fossil palm seeds have been found in North Island, New Zealand. Ocean currents may have carried the seeds from one continent to another.

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Carnauba Wax Used to Hide Pieta Scars

Dr. Dennis Johnson has forwarded an Associated Press item from the *Los Angeles Times* for September 14, 1972, in which it was noted that wax from *Copernicia prunifera* (see articles on this