# THE SMACKOVER'S SIGNIFICANT WALKER CREEK

Dalton J. Woods
Independent
Shreveport, Louisiana

## ABSTRACT

Thirty years ago, the oil industry knew all there was to know about the Smackover Limestone in southern Arkansas, but then came Walker Creek. Now it's Wilcox geology at 11,000 feet, stratigraphic traps across low-relief structural noses, offshore oolite bars and a new frontier for the Wildcatter.

Leave your old ideas behind if you join this search. You won't find a geophysical high or a faulted dome but you might find a 20 million barrel pool.

# THE SAMPLES RETURNED BY APOLLOS 11 AND 12 AND THEIR INTERPRETATION

Elbert A. King, Jr.
Department of Geology
University of Houston
Houston, Texas 77004

## ABSTRACT

Lunar samples returned by Apollos 11 and 12 from Tranquillity Base and the Ocean of Storms can be classified into three major types: (1) mafic holocrystalline rocks, (2) breccias and microbreccias, (3) particulate material. The mafic holocrystalline rocks mostly have familiar volcanic and/or shallow intrusive rock textures. These rocks mostly appear to be a closely related suite, but have a wide range of modal mineralogy. The major minerals are calcic plagioclase, clinopyroxene, olivine and ilmenite. Breccias and microbreccias are predominantly lithified particulate material from the lunar regolith, but other types of breccias may also be present. The microbreccias and particulate material contain lithic fragments that have a much wider range of modal mineralogy than the large rocks. Among the lithic fragments are a small percentage of "anorthosite" and other plagioclase-rich rock fragments that are not represented by the larger specimens. These fragments may have originated from the lunar highlands, and their chemistry is similar to the Surveyor 7 analysis obtained in the lunar highlands near the crater Tycho. Petrographic evidence of shock metamorphism by meteoroid impact is abundant in the particulate material and common in the large rocks. Hypervelocity impact craters occur on the surfaces of most rocks and many small particles. These are commonly excellently preserved with a central approximately hemispherical glass-lined crater surrounded by a zone of spalling and abundant microfractures. Most of the glass particles in the lunar regolith appear to be impact produced from the underlying rock fragments or fine material. The age of the lunar mare materials dated thus far are very old, and many analyses cluster around values of 3.6 and 4.2 b.y. The major and minor element and isotopic chemistry of lunar samples have some striking differences from terrestrial rocks and chondritic meteorites. No lunar samples have been recognized that are similar to tektites in their chemistry or petrography. Planned Apollos 14 through 19 landing sites will offer the opportunity to sample different types of lunar features and should lead to conclusions about the genetic relationships of the lunar mare and highlands, and the chemical heterogeneity of the Moon.