ching and initial fault-controlled subsidence commenced during early-middle Eocene time (or perhaps earlier), and had ceased by early Miocene time. Since middle Miocene time, there has been thermally-controlled subsidence due to conductive cooling of the lithosphere, and post-lower Miocene sediments have been deposited across the basin with little or no internal deformation.

Assuming the pre-stretched thickness of the crust to be 22 mi (35 km), the thickness of the crust in the Makassar basin is about 12 mi (19 km) at the basin margin, and it decreases to about 9 mi (15 km) in the abyssal plain. Evaluation of the degree of hydrocarbon maturation indicates that the pre-lower Miocene sediments have reached sufficient temperatures for hydrocarbon generation, assuming an initial heat flow of 1.6 HFU with crustal contribution of 0.8 HFU, and thermal conductivity of $5 \times 10^{-3}$ cal/cm.s.°C.

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Energy Requirements of South Pacific and the Role of Renewables

(No abstract)

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Assessment of Reservoir Potential of Bali Geothermal Field, Indonesia

A large volume, two-phase reservoir, with a capacity of about 19 $mi^3$ (80 $km^3$), underlies the Donau (lake) Bratan Caldera on the island of Bali. Recent resistivity modeling indicates that the reservoir is at a depth of about 3,300 ft (1,000 m). If the reservoir rock porosity is assumed to be 8%, the saturation to be 32.5% and the temperature to be 245°C, the total energy stored in the reservoir is about $2 \times 10^{12}$ MJ. This means that a promising geothermal field awaits development on Bali.

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Rio Zulia Field, Colombia

The Rio Zulia field in northeastern Colombia lies within the southernmost part of the oil-rich Maracaibo basin. The field measures 3.4 by 0.9 mi (5.5 by 1.5 km) and is located on a faulted anticline whose southeastern flank is cut by an east-directed thrust fault. Cumulative production during the 20 years since Chevron discovered it in March 1962 is 125 million bbl. The oil is brown, paraffinic, and has a gravity of 41.5° API. Maximum production of 35,000 BOPD was reached in 1966; present production is about 4,000 BOPD.

Almost all the production has come from the Eocene Mirador Formation, a loosely consolidated fine to coarse-grained, noncalcareous sandstone with irregularly distributed clay and siltstone interbeds. The sandstone is part of the Eocene delta built out to the northeast over the Lake Maracaibo region. The Mirador of the Rio Zulia area belongs to the back-delta fluvial system.

STEPHENS, J., and P. SMITH, U.S. BORAX, Spokane, Washington

Quartz Hill, Alaska

The Quartz Hill molybdenum deposit, located 44 mi (70 km) east of Ketchikan, Alaska, contains one of the world's largest concentrations of molybdenite. It is related to a Miocene intrusive complex referred to as the Quartz Hill stock. This deposit was discovered in 1974 by U.S. BORAX geologists as a result of a comprehensive reconnaissance geochemical rock and stream sediment sampling program designed to explore the western margin of the Coast Range batholithic complex on the mainland portion of southeastern Alaska.

The country rocks of the area, orthogneisses and paragneisses, are intruded by the Quartz Hill stock which represents at least five phases of igneous activity. The main rock type within the Quartz Hill stock is a quartz monzonite which has been intruded by steeply dipping bodies of porphyritic quartz latite, and late quartz monzonite. These rocks are chemically and mineralogically similar and consist of quartz, K-feldspar, sodic plagioclase, and minor biotite, with many of the textures suggesting isothermal "quench" textures. These intrusive felsic rocks have been subsequently intruded by regional dikes of felsic and intermediate composition.

The Quartz Hill orebody occurs entirely within the Quartz Hill composite stock. The orebody forms a large, tabular to slightly convex downward shape and is at or near the surface. Molybdenite is the only mineral of economic importance. The ore body is approximately 9,200 ft (2,800 m) long by 4,900 ft (1,500 m) wide and extends from the surface to a depth of 1,215 to 1,640 ft (370 to 500 m). Reserve calculations have projected approximately 2.5 billion tons grading 0.125% $MoS_2$.

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A Comparison of Gold Mineralization at Jerritt Canyon, Nevada, with Other Disseminated Gold Deposits of Basin and Range Province

The discovery of the gold deposits in the Jerritt Canyon area, containing in excesses of 2.25 million oz (70 million g) of recoverable gold, is one of the most significant precious metal developments in the last decade. The Bell Mine at Jerritt Canyon began production on July 4, 1981, and is currently producing in excess of 193,000 oz (6 million g) of gold per year from ore with an average grade of 0.24 oz per MT (7.4 g per MT).

Disseminated sub-micron gold is hosted within oxidized and unoxidized portions of Upper Ordovician and Lower Silurian limestones, dolomites, and calcarenites that have been locally extensively silicified and subjected to low pH hydrous alteration. Hydrocarbons have been locally remobilized and oxidized and may have played an important role in gold precipitation. Structural control of mineralization is manifested by the location of higher grade gold along northeasterly trending normal faults at the intersection of favorable host lithologies.

Jerritt Canyon is the most recently developed of a group of similar deposits within the Basin and Range province that collectively contain recoverable reserves in excesses of 16 million oz (500 million g) of gold. Similarities and differences between Jerritt Canyon and the other deposits are reviewed in terms of geologic setting, geochemistry, host-rock characteristics, structural controls, and ore reserves.

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Indonesia's Role in World Energy Markets in the 80s

Recent trends in consumption showed that world demand for petroleum peaked in 1979-80. However, as industrialized nations emerge from the current economic recession, and as