BRENNER, R. L., and D. K. DAVIES, Dept. Geol., Univ. Missouri, Columbia, Mo.

OXFORDIAN SEDIMENTATION IN WESTERN INTERIOR, USA

Upper Jurassic Oxfordian sediments of Wyoming, Montana, and eastern Idaho were deposited in part of an elongate inland seaway extending southward from the present Arctic. This seaway contained a complex of tectonic elements which influenced significantly the geographic distribution of depositional environments. On the western edge of the Oxfordian seaway (in eastern Idaho), a clastic wedge sequence is developed. Farther east, toward the center of the seaway, complex sequences of marine bars and channels are represented around the edges of the Wind River, Big Horn, and Powder River basins. On the north in Montana, and east in the Black Hills, more typical prodeltaic sequences are developed.

Sediment dispersal directions in this seaway were complex due to the interaction of tides, regional currents, depositional environment, and storms. Of these 4 controlling factors, storms may have had the most profound influence, particularly in marine-bar and channel environments. Evidence for storms may be found in coquinoid sandstones. These sandstones are of 2 distinct geometries: (1) sheetlike lags interbedded with silty shales, representing the deposition of reworked shallow benthos in deeper water areas; and (2) channel-fill lags incised into marine bar sediments, representing scours in a shallow marine environment.

Vertical successions of Oxfordian sediments display an initial transgressive sequence followed by a well-marked regressive sequence.

BROBST, D. A., U.S. Geol. Survey, Denver, Colo.

BEDDED BARITE DEPOSITS IN SEDIMENTARY ENVIRONMENT

Bedded deposits of barite are supplying an increasingly large part of the world's barite production, which is now nearly 4 million tons annually. A fourfold increase in the past 25 years is due chiefly to its use in drilling mud. Bedded deposits will continue to increase in commercial importance because many contain millions of tons of high-grade barite that commonly is fine grained, dark, and fetid. A review of recent studies of the geologic and chemical features of bedded deposits in Arkansas, Nevada, and California suggested that the barite is related more closely to sedimentation and diagnesis in a eugeosynclinal environment than to later (epigenetic) replacement of favorable beds (commonly presumed to be limestone) by hydrothermal solutions. Regardless of origin, economically significant deposits of dark-bedded barite probably have gone unrecognized or unsought in many sequences of sedimentary rocks throughout the world.

BUCHANAN, H., Gulf Research & Development Co., Pittsburgh, Pa., S. S. STREETER, Lamont-Doherty Geol. Observ., Palisades, N.Y., and C. D. GEBELEIN, State Univ. New York, Stony Brook, N.Y.

POSSIBLE LIVING ALGAL-FORAMINIFERAL CONSORTIA IN NODULES FROM MODERN CARBONATE SEDIMENTS OF GREAT BAHAMA BANK

Nodules of filamentous algae have been discovered in a tidal channel crossing an oolite shoal west of Frazers Hog Cay, Bahamas. The nodules range in size from about 1.5 to 3 cm. They have a subspherical form, and are typically concave outward on one side and depressed on the other. At the sampled locality, the nodules completely cover the sea floor, except where marine grasses or stalked algae break the cover. The water depth at the sampled locality is about 7 ft. Average surface current velocities as high as 0.6 knots have been measured in the vicinity.

Mucilaginous algal filaments in the nodules entrap skeletal and nonskeletal sedimentary particles. However, examination of the sediment remaining after digestion of several nodules in sodium hypochlorite revealed that the nodule sediment was enriched in Foraminiferida by an order of magnitude relative to nearby sediments. The foraminiferal fauna is dominated by one or more species of highly irregular milioline forams with very thin porcelaneous walls. These forams are beautifully preserved in the nodules whereas, in other Bahamian sediment samples, similar forms tend to be broken and eroded. In all probability, therefore, the algal nodules are a preferred microhabitat for the milioline forams. Similar presumed algal-foraminiferal consortia (*e.g., Osagia*) are well known in late Paleozoic carbonate rocks.

BUNKER, W. F., Kerr-McGee Corp., Oklahoma City, Okla.

EXPLORATION AND DEVELOPMENT OF URANIUM RESERVES

Nuclear fuel consumption in the United States is dependent on the demand for electrical energy. Domestic electric-power-generating capacity is growing at an annual rate of 7–8%. The nuclear power growth rate will be substantially higher if nuclear energy is to become the major fuel source for electric power generation by the end of this century.

Proved and potential domestic uranium reserves are sufficient to fill the anticipated demand for nuclear fuel through 1980. Beyond that point new reserves must be brought into production at an increasing rate, with new reserves of 175,000 tons required for the period from 1981–1985. New production facilities for these reserves must be committed beginning in 1976. The first discoveries of new uranium reserves in the United States must be made in 1972, and the entire 175,000 tons should be proved before the end of the decade.

The cost of exploration to assure the new reserves required in the 1981–1985 period is estimated to be $315 million or about $79 million annually. This is in addition to the expenditures required to bring over 100,000 tons, now carried as potential reserves, into the proved category. The problem now facing the domestic uranium industry is how to meet the demands of the late 1970s and 1980s through investments which must be made today. The large expenditures required for exploration and expanded production capacity cannot be made from current below-replacement-cost uranium sales. The reserves required to support the needed expansion of the nuclear power industry will be assured when there is sufficient incentive established through long-term purchase agreements at realistic prices.

The annual discovery requirement needed for a 10-year forward reserve quickly reaches 100,000 tons/year beyond 1980. This means that a district equivalent in size to Ambrosia Lake, New Mexico, the largest in the United States, must be discovered every other year. Far more exploration than presently is contemplated must be performed in the vicinity of established districts and increased emphasis must be placed on the discovery of uranium in environments not presently recognized.

Large sums of money for exploration must be com-