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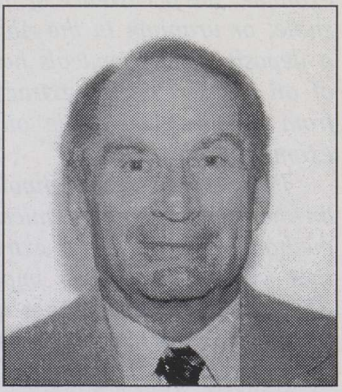
EDITOR'S PAGE

OIL SHALE IN THE 21st CENTURY



Over the past 55 years, oil shale has been exploited only in countries with a centrally controlled or wartime economy (i.e., China, Germany, Sweden, etc.). Attempts to develop an economically viable oil shale industry have been mostly unsuccessful because the costs of mining and processing oil shale have simply been too high to compete with petroleum.*

Oil shale operations in the United States are dormant. Oil shale symposia held yearly under the auspices of the Colorado School of Mines and the University of Kentucky have been discontinued. Federal funding for oil shale research has all but ceased. Despite today's unfavourable position of oil shale among the fossil fuels, several factors brighten its future. First, the price of crude oil will increase as world supplies inevitably decline. This may provide renewed opportunities for the commercialization of oil shale in the next century. Second, a large volume of technical information has been developed and published, especially since World War II, which should aid significantly in the future development of oil shale. Third, the oil shale resource is too large to ignore.

We now have a better idea of the geology of some major deposits in the world including their organic and mineral composition. Considerable information on the mineability, benefication, and retorting characteristics of different kinds of oil shale has also been published. The price of competing fuels including methane and synthetic fuels made from coal, the development of newer cost-effective methods of producing energy from oil shale, and the costs of dealing with environmental issues, will determine whether oil shale will enter the energy market in a significant way in the 21st century.

The world resources of oil shale are enormous. Duncan and Swanson (1965) estimated a total world resource of $2 \cdot 10^{15}$ barrels (about $1.4 \cdot 10^{14}$ metric tons) of in-place shale oil, of which as much as one percent

* *In Estonia, oil shale has been mined and processed for over 70 years already. At present our Republic is one of the biggest shale oil producers of the world. In the independent pre-war Estonia oil shale processing had become a typical solid fuel improving industry. To ensure its profitability, protective custom duties were enacted, and this policy guaranteed an independent national power economy.*

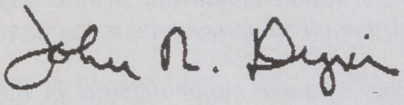
may be recoverable under present conditions. This resource, still largely untouched, surpasses the known reserves of crude oil in the Persian Gulf states.*

New technologies that can recover the energy from oil shale in one form or another and leave the mineral matter in the ground, will no doubt be important in the future because of growing public concern for the environment. Experimental processes that include in situ retorting of oil shale to recover combustible gases and liquids have been tested with some success. Many oil shales contain potentially valuable by-products that can be exploited with the extractable hydrocarbons including industrial minerals and metals. For example, the occurrence of nahcolite commingled with high-grade Colorado oil shale, or uranium in the Alum Shale of Sweden, can add significant value to a deposit. Petrochemicals having high unit value can also enhance the value of oil shale. Phenols extracted from Estonian kukersite and additives made from Green River shale oil to increase the life of road asphalt are such examples.

The challenge for technologists in future years will be to continue research on the physical and chemical properties of oil shale and to develop improved methods of mining and extraction of useful products from oil shale in ways that will minimize their impact on the environment. It anticipated that OIL SHALE will continue as a leading publication in disseminating the results of oil shale research well into the 21st century.

** Duncan, D. C., Swanson, V. E. Organic-rich shale of the United States and world land areas: U. S. Geological Survey Circular 523, 1965.*

April 28, 1995



Dr. John R. Dyni, Member of the ***OIL SHALE*** *Editorial Board*

Dr. John R. Dyni received his doctorate in geology from the University of Colorado, USA in 1981. He was employed as a civilian engineering geologist by the US Army Engineers from 1955-1957 and as a geologist by the US Geological Survey from 1958 to 1993. During his employment with the Geological Survey, Dr. Dyni has studied deposits of coal, oil and gas, phosphate rock, oil shale and sodium carbonate minerals in western United States and he has published numerous papers on the economic geology of these commodities. Dr. Dyni is currently volunteering as Geologist Emeritus with the US Geological Survey and serves as the commodity specialist on oil shale and sodium carbonate minerals.