try would seem to assure adequate future supply. Ultimately production costs may warrant some attention in the interest of maintaining the domestic share of the world's production capacity, but the critical period is some years hence and the subject deserves observation rather than direct attention during the next 5 or 10 years. The rapid projected world demand may result in over-capacity of production plants in the early 1970's. In spite of this, shipping and distribution problems may cause deficits in certain geographic areas.

Oil Shale

It has been repeatedly demonstrated that liquid and gaseous fuel products may be derived from oil shale. But there remains uncertainty as to whether the present technology and concepts are basically those that will ultimately be employed commercially, and a wide diversity of opinion as to when a combination of circumstances will encourage and demand large-scale domestic commercial exploitation of oil shale. (Present concern attaches almost entirely to the shales of the Green River formation and the production of liquid fuels substitutable for those commonly derived from petroleum).

Despite the technologic and economic uncertainties, the issues that immediately beset the embryonic shale-oil industry center initially on legal, social, and environmental issues. The fact that much of the oil shale is in public ownership complicated by unsettled disputes over the validity of private claims (to sodium and aluminum minerals in addition to the shale) and the absence of a perfected leasing system that would insure protection of the public's interest, tends to depress active development but not exhaustive, and largely unproductive, debate.

Aside from the legalistic issues, the emergence of a significant commercial shale-oil industry would be more apparent in the presence of further advancements in extraction and processing technology. Specially, the practical employment of in-situ extraction processes has been only partially explored, the extent to which conventional mining costs might be reduced is speculative, the present retorting concepts have certain shortcomings, the real significance of the mineral substance associated in the oil shale is wholly unknown, and, the disposal of waste products that might issue in the exploitation of oil shale under presently conceived processes or those that might be discovered in the future is seen as an impending environmental problem. Paradoxically, much of the uncertainty that complicates the legalistic and economic aspects of oil shale stems from these technologic gaps.

The commercial development of oil shale depends not only on developing an economic process to compete with petroleum but also is vulnerable to the development of a technology to liquefy coal or to the increased availability of oil produced from the Athabasca tar sand deposit in Alberta, Canada.

The environmental problem resulting from the large scale processing of oil shale and the generation of 1 to 2 million tons of solid waste per day will have to be solved before oil shale operations begin on any scale. Associated with the solid waste generation are also air and water pollution, damage to vegetation and other ecological factors. The problem of adequate water supply as well as its unpolluted disposal is involved. This subject requires intensive study and has a high priority for attention.

Peat

While peat is significant as a fuel in certain areas of the world, it cannot, in the foreseeable future, compete as a significant source of energy in the United States. Virtually all peat consumed in the United States is used for agricultural and horticultural purposes, and the demand for these purposes is expected to grow. Domestic resources are large and widely distributed, but about 90 percent of the total reserve occurs in four states. Locally, the prospect of increasing employment and introducing new businesses periodically encourages efforts to employ peat for generating electric power, beneficiating (iron) ores, producing chemical raw materials, or expanding the agricultural output. Except in the latter instance, such attempts have not, and are not likely to be, successful.

Perlite

The term identifies a form of amorphous aluminum silicate of igneous origin that, upon expansion, finds a variety of industrial and construction applications. No immediate raw material source problem is seen and growth in consumption is likely to be proportional to the rate of building construction. Except for cer-