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SCIENCE

Oil and the World's Future

During the period 1960 to 1973 oil became the principal energy source of the developed and many of the less developed countries. Unlimited amounts of inexpensive energy permitted more than a decade of unprecedented rapid annual increases in gross national products (GNP's). This era ended abruptly in 1973 and 1974 with the quadrupling of the price of oil. The world faces a long period of adjustment, including relative economic stagnation and unpleasant developments affecting the world's financial structure. Thus far the United States has been relatively unscathed and has lulled others into inactivity while preparing the way for further price increases by expanding its imports of oil.

After World War II imported oil came to have an increasing role in the energy balances of major countries. The trend accelerated after 1960. From 1960 to 1973, oil imports of many countries rose at fast exponential rates; some of the average annual increases were: France, 12.8 percent; Germany, 13.2; Italy, 12.5; Japan, 18.1; and Spain, 15.1. Between 1960 and 1972, Europe's dependence on energy imports of all kinds grew from 33 to 65 percent; Japan's from 43 to 90 percent.

Annual increases of this magnitude could not be sustained even if the oil producers were complacent. Sooner or later a sharp slowing of rate of expansion was inevitable; the arithmetic of exponentials dictated it. Given full exploitation, the maximum output attainable by the Organization of Petroleum Exporting Countries (OPEC)—and that for only a short period—is of the order of 90 million barrels (13 million tons) a day. In 1973, output was about 30 million barrels a day. Nine years of a 12 percent or 11 years of a 10 percent increase would have brought the Western world to the downhill road with respect to oil.

The 1973–1974 and subsequent price increases for oil will probably prove most deleterious to a group of developing countries having a total population of 900 million and GNP's of $200 and more per capita. Some of these countries, such as Brazil, were rapidly increasing their use of cheap oil and experiencing annual growth of GNP in the neighborhood of 10 percent. During the past 3 years growth has slowed in some and stopped in others, while their total current account deficits have increased from $6 billion in 1973 to $31 billion in 1975. Much of the debt is owed to private investors, including U.S. banks. How long can such deficits be increased before credit worthiness is destroyed? What happens then?

The advanced countries are engaged in tough competition to sell enough goods to pay for their oil. In the competition, France, Italy, and the United Kingdom have not fared well. The two champions have been Germany and Japan. The United States, which has been losing its position in high-technology goods, has stayed in the game by selling agricultural products and military weapons. But even so, this year it has incurred a big deficit in its balance of payments.

All in all, the performance of the United States has been mediocre and its credibility in energy matters is questionable. The highest government officials have made great promises to the world that have proved repeatedly to be only idle words. A conspicuous example was "Project Independence." In addition, there was talk of the impending collapse of the OPEC cartel, statements about the enormous amounts of oil to be discovered and produced by 1985, a goal of reducing oil imports by 1 million barrels per day (in the past year they have increased by more than that). Instead of working for conservation, Congress encouraged consumption by rolling back the price of oil. The United States has engineered an international agreement to share oil in an emergency, but it is the one major country with the smallest ratio of inventory over daily consumption. Legislation was passed to establish a strategic reserve of oil, but not one barrel has been stored. Neither by deed nor by example has the United States provided the world with any alternative but to go nuclear.—PHILIP H. ABELSON