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## The Urgent Need for Energy Conservation

During the last 6 months, the mass media have devoted considerable attention to the "Energy Crisis." But obvious trauma has not materialized, and from surface evidence one might conclude that we had been treated to another instance of crying wolf. The sad fact is that we are headed for substantial difficulties, even if the Arab countries refrain from boycotting us. We avoided gasoline shortages this summer, but at the cost of insufficient production of heating oil for the coming season. By such patchwork measures we may stave off the moment of truth for a short time, but the trends seem inexorable. Consumption of petroleum and its products continues to rise and currently is 10 percent above consumption last year. Domestic production of oil is decreasing slowly, while total imports are running more than 60 percent above what they were a year ago. Three years ago, imports cost \$3 billion. This year they will amount to about \$9 billion, but the sum does not fully reflect present realities. This spring, Libya received \$2.30 per barrel for its oil. It now gets \$4.90. Other countries have not yet advanced their prices so sharply, but they will increase them. If rising trends in importation and costs continue, the bill next year could exceed \$15 billion.

This year we have been able to pay for imported oil, aided substantially by agricultural exports, but there were unpleasant side effects at the supermarkets. Good crops elsewhere next year could cause world food prices to drop and leave the United States with an unsustainable deficit in balance of payments. Already Libya has talked of refusing to accept dollars in payment for oil. In itself this is not important, for we obtain only a small fraction of our supplies there. However, examples set by Libya have recently been proving highly contagious.

We would help ourselves and many others if we lessened our dependence on foreign petroleum. We could do this in three ways—by increasing domestic production of oil, by substituting coal for oil, and by conservation. By far the most effective action we could take now is conservation. The other steps could be implemented only slowly, and they would create environmental problems. A determined effort at conservation could have an instantaneous effect. An obvious target is the automobile, which is the largest consumer of liquid hydrocarbons. Recently, it has been pointed out that half the consumption of gasoline in autos occurs on trips of 3 miles and less. This winter some citizens are likely to suffer acutely from lack of fuel oil. But if everyone would set his thermostat 2°C lower, 16 percent less heating oil would be burned, and there would be enough for all.

The Nixon Administration is currently engaged in planning a 5-year research and development program for energy, with costs targeted at \$2 billion annually. Up to the present, the government has devoted most of its energy funds to items like the breeder reactor, which might make a small energy contribution 5 or 10 years hence. Moreover, there is a long road from nuclear energy to large amounts of hydrocarbons.

Our civilization is based on hydrocarbons, from which we derive 78 percent of energy consumed. Of this, most is burned in the form of liquid hydrocarbons. This convenient form of energy is essential to agriculture and transportation and will continue to be for at least 20 years. During that interval, we will not be able to function or even exist without petroleum.

It is to be hoped that, in formulating the new program, government planners will give adequate attention to the main chance—hydrocarbons—and to the quick fix—conservation.—PHILIP H. ABELSON

# Science

## The Urgent Need for Energy Conservation

Philip H. Abelson

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