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the LEDGER

Economic Education Newsletter

Natural Resources Aren't Naturally Forever --

Q. The United States is the world's largest energy producer. How can we have an energy shortage?

A. Because people want more fuel than we can easily supply. Over the years, Americans have become more dependent on their cars and on appliances to control their environment and do work. Since the end of World War II, the United States has more than tripled its consumption of oil, while consumption of electricity is now more than six times greater than it was in 1945.

Q. But why haven't we faced this problem until now?

A. Until recently our supplies of all forms of energy had been adequate for our needs. But our production of energy has not grown as rapidly as our consumption of it; in fact, our domestic oil production reached its peak in 1970, and since then has declined slightly. (See the graph on page 4.) For several years, imports were able to make up the difference, but presently we are not able to import as much oil as we need.

Q. Because of the Arab oil embargo?

A. Only in part. Even before the Arab oil embargo the United States was facing a serious energy shortage. Last summer there were spot shortages of gasoline around the country, and this was several months before the Arab

nations stopped sending oil to us. Their oil embargo has just made a bad situation worse. Even now that the embargo has been lifted, we are still not able to import all the oil we need.

Q. Why can't we just increase our imports from other nations?

A. Most other oil producing nations are selling us as much oil right now as they can. Our three main sources of foreign oil, Canada, Venezuela and Nigeria, can't increase their production very much at the present time. Even if they could increase their imports to us by a substantial margin, the United States does not have enough refineries to process all that crude oil.

Q. Why hasn't our domestic production of crude oil increased much since 1970?

A. Profit incentive was a big factor. The major oil corporations, with operations all over the world, found they could make more money developing foreign sources of oil than increasing domestic production. Also, many of our oil fields were producing as much oil as they could economically and with today's technology. Finally, areas of our country in which new oil fields could be found posed environmental problems; the North Slope of Alaska and the continental shelves off both coasts contain extensive oil

fields, but it will cost a lot more money to produce that oil and the dangers to the environment are great.

Q. Why are we hearing far more about the oil shortage than about the other energy shortages?

A. For two basic reasons. First, oil supplies 45 percent of America's total energy needs and that percentage has been increasing. Second, oil is our most versatile energy source, and its various forms are widely used in producing the energy which the individual consumer is most likely to use — residual oil to generate electricity, distillate oil to heat homes and, most noticeable of all, gasoline to run our cars.

Natural gas provides about 33 percent of our energy needs and that percentage has also been gradually increasing. Coal provides another 20 percent and that percentage has been decreasing. These three products — oil, natural gas and coal — are all used to generate electricity. Hydroelectric projects and nuclear power generate electricity, but these sources provide only about two percent of America's total energy, and this percentage has remained relatively stable over the years.

Q. But doesn't the United States have the largest reserves of coal in the world?

Continued on page 4

New England Update

Councils and Centers for Economic Education

CONNECTICUT

The Greater Hartford Council on Economic Education is planning a June 3 field trip to the Canton (CT) Museum to study methods of earning a living in 18th and 19th century America. Over 100 teachers participated in a field trip March 18 to the Connecticut Life Insurance Company where they talked with company representatives about the role of insurance in the U.S. economy. A conference dealing with the energy crisis and its impact on the Connecticut area was held Jan. 28. At a smaller follow-up meeting about 20 teachers met to discuss opportunities for teaching inherent in the energy crisis.

MAINE

The Maine Council on Economic Education sponsored a one-day workshop on the topic of "Labor" March 23 at the Maine Teachers' Association in the Augusta Civic Center.

MASSACHUSETTS

"Education group promotes economic facts of life" was the title of an article describing the work of the Economic Education Council of Massachusetts in the March, 1974 issue of *Industry* magazine, published by Associated Industries of Massachusetts. The objective for 1974 for the Council is to train 825 teachers, according to the article.

Economics for American History Teachers and Economics Through Children's Literature are the two courses offered this spring at the American International College Center for Economic Education. The Center is also involved in developing curriculum kits from a variety of economic education materials. The kits are mailed to 50 area

teachers on a rotating basis. When the teacher has used the kit, he or she mails it back to the Center and the kit is sent to another teacher.

Seven sections of a course in Economic Education are being taught through the Center for Economic Education, Boston University. Teachers from Needham, Belmont, Malden, Melrose, Danvers and Beverly are enrolled.

In cooperation with the Center for Economic Education at Clark University, four high school classes in the Worcester area are using The New Community Game, a simulation game developed by Richard Wurster, a graduate student at Clark. In the game, students pool their savings, move to an island and build a

community, taking into consideration such things as their goals, resources and economic constraints.

RHODE ISLAND

The Rhode Island Council on Economic Education and Center for Economic Education at Rhode Island College reports enormous interest in consumer economics. They are running two consumer economics courses — one for the Lincoln and Cumberland combined school districts and one in Providence. The Rhode Island Council was the object of a three-page article in the *Providence Sunday Journal's* section "Rhode Island's Magazine of Business, Finance, Industry," March 10, 1974.

Readers are invited to use The Ledger as a forum to share news about their experiences in economic education. Write: Mary Jane Coyle, Editor, The Ledger, Public Services, Federal Reserve Bank of Boston, 30 Pearl Street, Boston 02106 or call: (617) 426-7100 X474.

Datelines - Economic Education

May 10, Career Education Conference, Yale Motor Inn, Wallingford, CT. Connecticut Joint Council on Economic Education. Contact: Edward Hamblin, Box U-32, Univ. of Conn., Storrs 06268.

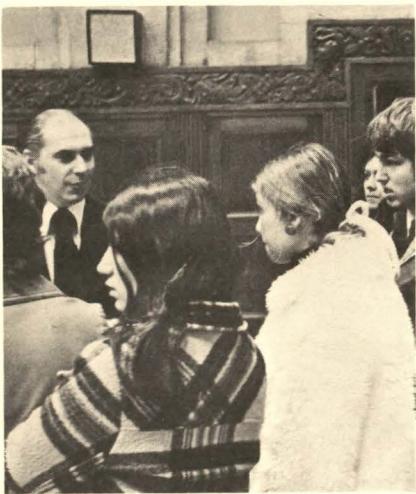
May, (exact day undecided), All-day conference, Economics for the Classroom Teacher, Center for Economic Education, American International College. Contact: Robert Hemond, AIC, Springfield 01109.

May 20, Awards Program, Greater Hartford Council on Economic Education honors economic education leaders in business, labor and education.

June 17-July 5, Workshop, Maine Council on Economic Education, Univ. of Maine, Orono. Principles of economics, consumer education and career education. Class filled.

July 29-August 9, Workshop, economic and career education for teachers of grades 1-8, Univ. of N.H., New Hampshire Council on Economic Education, scholarship aid available. Contact: Lawrence Cole, Whittemore School of Business and Economics, Univ. of N.H., Durham 03824.

August 12-23, Workshop, Economic Understandings in Career Education, Univ. of Conn., partial scholarships available, deadline May 1. Contact: Edward Hamblin, Box U-32, Univ. of Conn., Storrs 06268.



Students from Quincy High School listen to an explanation of banking given by Jack Dugan, assistant vice president at South Shore National Bank in Quincy (MA).

The Innovative Classroom

QUINCY PROJECT LINC MEANS LEARNING IN COMMUNITY

Students in Quincy, Massachusetts are participating in a structured approach to learning outside the classroom called Project LINC (Learning in Community). Over 200 students have already taken part in the two-year old, federally funded program.

Project LINC is carefully described by its authors as "neither a series of field trips nor a form of open campus." It is based on an understanding that some learning can be better accomplished in the community rather than in the classroom.

When students were working on bank-related concepts, for example, a LINC "Pak" or plan was prepared to tie classroom learning to an on-site visit to a local bank. Before visiting the bank, students read materials relative to banking, reviewed terminology peculiar to banks and learned the functions of banks and the banking system. In addition, each student developed a hypothesis about the site to be visited as well as questions and

Multi-Media

Grade level code: Capital letters (E-J-H-C) after each item indicate grade levels for which the materials are most appropriate: E—elementary school, J—junior high school, H—high school, C—college.

The Energy Crisis — Aids to Study, (E-J-H), 23 pages, annotated bibliography prepared by the educational division of the Massachusetts Audubon Society. Write: Hatheway Environmental Educational Institute, Lincoln, MA 01773, sixty cents.

Energy Crisis Materials — An Annotated List of Resources for Teachers, (E-J-H), 6 pages, prepared November, 1973 and now being up-dated, free, Information Center on Instruction and Professional Development, National Education Association, 1201 16th Ave. NW, Room 705, Washington, D.C. 20036.

Mr. Banker (H-C), a simulation game published by the Federal Reserve Bank of Minneapolis. Players assume roles of bankers and grant — or refuse — loans. Up to 30 players. Available on loan free from the Public Information Center, Federal Reserve Bank of Boston, 30 Pearl Street, Boston 02106.

criteria to test his hypothesis while at the site.

Generally five to six students at a time go on-site and interview personnel at the site. After the visit, the students who visited the site prepare an oral presentation to tell their class what they learned. These post-visit presentations are often accompanied by slide shows and charts.

Sites which have been visited include Pneumatic Scale, Inc., Norfolk Superior Court and Quincy City Hall.

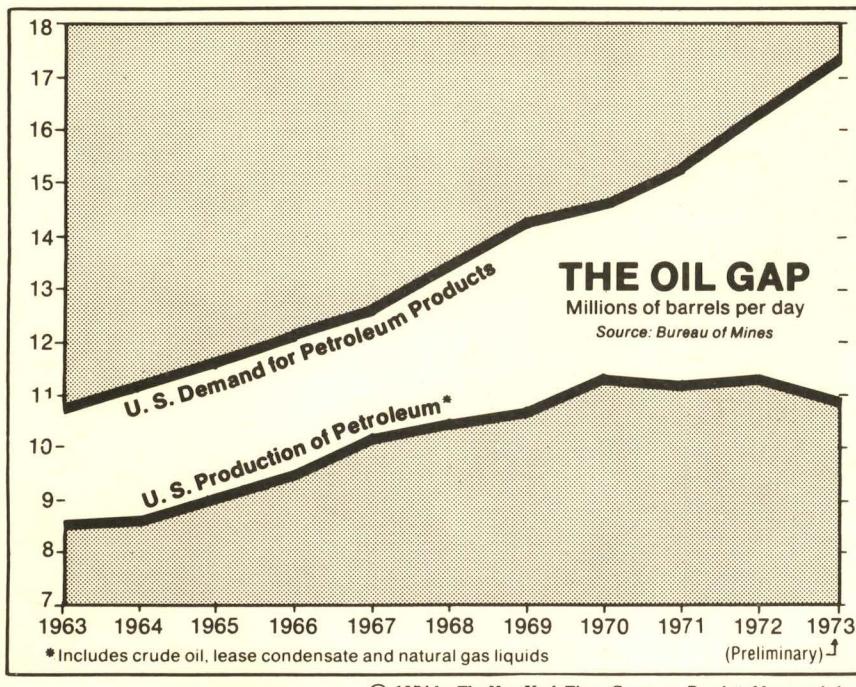
A ten-minute film has been developed to show parents and interested community members what Project LINC is all about.

The Bumpity Bus (E), a 26-week educational television program produced by the Rhode Island Council on Economic Education at Rhode Island College. Designed to teach children from seven to eleven years old basic economic concepts. Eight to ten elementary school students are taken on a simulated field trip and then involved in a question and answer period. Sixteen black and white video tapes are available, each tape containing one program. Rental: \$20 plus postage per tape. Purchase: \$200 per tape. Contact: John Sapinsley, Rhode Island College, Providence, RI 02908.

The Micro-Society: A Real World in Miniature, (E-J-H-C). In this book written by George Richmond, students earn "soul dollars" through academic achievement and special tasks such as tutoring other students. When playing the micro-society game, they can buy, sell and rent property (often just shelf space) and can construct, buy, sell and rent models of buildings for the property. They thus participate in their own micro-economy. At regular intervals, real goods — cookies, soda, basketballs and other desirable commodities — are auctioned off for soul dollars. 1973, Harper and Row, \$8.95.

Perspective 73 — Economic Highlights (H-C), 9 pages, a discussion of the forces influencing the economy in 1973. Federal Reserve Bank of New York, Public Information Dept. 33 Liberty Street, NYC 10045.

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Resources Continued from page 1

A. Yes, the U.S. has at least one-third the world's supply of coal, but deep mining for the coal is difficult and expensive and strip-mining can devastate the land. Moreover, burning coal produces far more air pollution than oil or natural gas and has been discouraged by recent environmental legislation. Finally, coal is not as versatile as oil — it can't be used to power a car and it is relatively impractical for home heating.

Q. Why haven't the companies involved in natural gas developed more of it?

A. Over the past twenty years natural gas has been our most rapidly growing energy source, in terms of consumption, but production has not kept pace with demand. During the same period, the federal government kept the price of natural gas at a low level, and while this low price has encouraged consumption it has discouraged production. Had the price of natural gas been allowed to rise in the marketplace, there would have been greater incentives for the industry to produce more of it. At the same time, a rising price might have encouraged consumers to be more care-

ful in their use of it. Natural gas is also the cleanest of the fossil fuels and environmental considerations have caused people to favor it over the other main fossil fuels.

Q. In the last few weeks I have had to pay more for home heating oil and for gasoline than I have ever paid before. Are prices for energy going to remain fairly high?

A. Probably. So long as there is a shortage of any item which many people want or need, the price of that item is likely to rise and remain above its previous level. So for the next few years, the likelihood is that energy prices will be much higher than they have been in the past. If the United States, over the next few years, is able to develop abundant new sources of energy so that we again have an energy surplus (as we have had throughout most of our history), then the prices of energy can be expected to fall.

Q. What about entirely new sources of energy: shale oil, nuclear power and solar power?

A. With today's technology, solar power can be used to assist in the heating of homes and hot water and the production of air

conditioning. However, a decade will probably be needed to develop the oil locked in shale rock and to develop nuclear energy into substantial energy sources.

Q. How will the energy shortage make life different?

A. Our decisions about how to use fuels may change as we become conscious that our fossil fuels — like coal, oil and natural gas — are a scarce resource. If gasoline costs more and is harder to get, our large metropolitan areas will be encouraged to develop mass transit systems where none exist and to improve those that are already operating. For a vacation, you may choose a spot close to home or take a bus, train or plane instead of driving and using expensive gasoline. Industry may seek more and efficient ways of using fuel and alternate types of fuel. Architects and builders can design buildings which will provide the same light and heat as today's buildings but will use less energy to do it.

Q. But why should I make sacrifices — like driving less?

A. The key concern here is how we want to allocate — distribute — our fuel resources which are currently limited. If there is not enough energy to run our factories and offices and schools, then many people could lose their jobs. We have to decide which is more desirable: would we rather drive less, use less oil to heat our homes and use electricity more efficiently or would we rather have factories, schools and offices possibly closing with the consequence of high unemployment? The greater good would seem to lie in making certain as many people as possible are employed and earning a living. At the same time, we can expand our search for better energy sources.

Roger Johnson, author of the above article, is a former professor of history at The Johns Hopkins University and Boston College. He is currently involved in research, writing and speaking engagements in his role as public services representative at the Federal Reserve Bank of Boston.