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been bred in captivity from an original 18 survivors. Lions reproduce so readily in captivity that some zoos now prescribe birth control pills. And new techniques such as embryo transfer and artificial insemination are proving effective. In August 1981, an ordinary Holstein cow gave birth to a rare Asian gaur at New York's Bronx Zoo after a fertilized egg was implanted in the cow's womb.

Nevertheless, by the end of this century an estimated one million species of plants and animals will face extinction. The expense of maintaining even one animal in captivity is high, and often an entire herd is needed to ensure successful breeding. Better communication among zoos has helped spread the responsibility. But zoo experts now face the weighty task of choosing which of the earth's dwindling species will be saved and which will disappear.

Europe's Oil

"On or Off? Oil and Gas Survey" by Roy Eales, in *The Economist* (June 12, 1982), P.O. Box 2700, Woburn, Mass. 01888.

Enough oil and gas lie offshore to make Western Europe self-sufficient for the next 20 years. Will it happen? Eales, a reporter for *The Economist*, sees two big obstacles: oil companies and governments.

In 1973, Western Europe depended on OPEC for almost all its oil. By 1981, one-quarter of its oil and all of its gas came from indigenous wells, mostly in the North Sea sectors apportioned to England and Norway. But development of known reserves has slowed lately, partly because of feuds between oil companies and European governments over taxes. Before 1980, host governments were so eager to increase production that few oil companies paid taxes at all. Today in England, the companies pay taxes at an average rate of 85 percent, according to Esso Petroleum's reckoning. In Norway, the rate is 81 to 84 percent. Combined with today's lower oil prices, these taxes have made the oil companies think twice before sinking up to \$1.5 billion into an oil field that may yield no profits for 15 years.

"Oilmen," says Eales, "are never knowingly happy." While they complain about high levies and threaten to pack for Africa, South America, or China, they are still pushing—especially in England and Norway—for more exploration licenses. For them, the advantages of operating in "a politically stable area" are strong. But Europe's governments are dragging their heels, keeping taxes discouragingly high and moving slowly to open new fields, partly to allow their economies to absorb the shock of oil prosperity.

Both England and Norway are better off because of their new-found resources (Britain enjoyed a \$6.7 billion surplus in its balance of payments for 1981 versus a 1974 deficit of \$1.25 billion). Yet both suffer from high unemployment and a weakened manufacturing base because of oil-induced high exchange rates and cheaper imports. These governments have another reason to stall: Today's low oil and gas prices

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will net them comparatively little in taxes and royalties.

If faster energy development poses problems for both oil companies and governments, the worst prospect of all, says Eales, is for Europe to remain dependent on OPEC and be caught "flat-footed, yet again."

How Safe is Nuclear Power?

"Radiation Pollution and Cancer: Comparative Risks and Proof" by Bernard L. Cohen, in *Cato Journal* (Spring 1982), Publications Dept., 224 Second St. S.E., Washington, D.C. 20003.

Since the accident at Three Mile Island in 1979, Americans have been more worried than ever about the safety of nuclear power plants. Cohen, a physicist at the University of Pittsburgh, belittles many of the alleged risks.

Radiation occurs naturally—in outer space, on earth (e.g., in uranium), and in the human body (in the form of potassium). Human exposure to it varies widely. In Colorado, with its high altitude and heavy uranium deposits, the average exposure is 50 percent greater than the national average; in Florida, it is 20 percent lower. A person who lives in a brick house receives 20 percent less radiation than does a neighbor in a wood house. One medical X-ray can increase a person's annual exposure by 25 percent.

Scientists have ample evidence for assessing the risks posed by high-level radiation—the early human guinea pigs for radiation therapy and the survivors of Hiroshima and Nagasaki, for example. But people who live near nuclear power plants receive a dose only one millirem higher than normal (100 millirems) each year. Tests with laboratory animals suggest that, at such low levels, any added health risk will be disproportionately small. "Nature provides mechanisms for repair of radiation damage," writes Cohen; "a given dose of radiation is generally much less carcinogenic when spread out in time."

The greatest public fear concerning nuclear power focuses on reactor meltdowns. The Nuclear Regulatory Commission (NRC) anticipates one reactor meltdown per 20,000 plant-years. (Commercial nuclear plants have now been in operation for 1,000 plant-years.) In most meltdowns, says Cohen, "no fatalities are expected." In the worst possible case—the collapse of a containment building—the NRC projects 48,000 deaths. But such a disaster is likely to occur only once in 100,000 meltdowns. The average death toll from a meltdown is estimated at 400 (the Union of Concerned Scientists, which opposes nuclear power, calculates 5,000). By contrast, notes Cohen, 5,000 people die each year from pollution caused by coal-fired plants.

If nuclear energy is so safe—there has not been a single fatal accident for over 15 years—why are Americans so worried? According to Cohen, a handful of scientists who predict doom have better luck attracting media attention than do their critics. "The price we are paying for this breakdown in communication," he writes, "is enormous."