

Nixon's energy message holds few surprises

President Nixon's long awaited energy message last week contained few surprises and produced an equally predictable set of reactions, with industry spokesmen generally applauding the President's moves to meet the economic exigencies of the "energy crisis," while conservationists and Democratic Congressmen doubted the long-range effectiveness of his plans.

By executive fiat, the President removed the 14-year-old quotas on oil imports and established in their stead a system of licenses and fees allowing essentially unlimited imports at higher tariff rates. To balance the tendency of this move creating a greater dependence on foreign oil sources, he authorized the Interior Department to triple offshore drilling leases by 1979. This order allows drilling for the first time beyond the 200-meter depth in the Gulf of Mexico and beyond the Channel Islands of California.

As a further incentive to domestic exploration, the President proposed that Congress establish a tax credit of 7 percent for "dry holes" and 12 percent for "wet holes" to investors attempting to open up new oil and gas fields. To avoid the possible necessity of bringing the increased oil imports into this country through Canada and the Bahamas, the President also recommended to Congress the immediate licensing of offshore, deepwater ports, capable of handling the next generation of supertankers.

Noting that an artificially low price on natural gas had caused a one-third increase in its use since 1966, depleting known reserves by one-fifth since that time, the President proposed legislation removing the ceiling on gas prices at the well so that rates might better reflect dwindling reserves.

The only oil industry criticism of the message came from independent operators who feared increased imports would help only large companies who can afford the costs and risks involved. Congress seems disposed to retaining natural gas price ceilings and to putting responsibility for offshore ports into the hands of an environmental agency rather than to the Interior Department. Conservationists expressed general appall over the whole message: "a giant step backward for mankind," said David Brower, president of Friends of the Earth.

The message grew largely from the work of James E. Akins, head of the State Department's Offices of Fuels and Energy, who reportedly wrote the first draft. In an article under his own name in the current issue of FOREIGN AFFAIRS, Akins stressed the need to pursue

solutions to the energy crisis "on a variety of fronts." Looming in the background of both messages is Akins' implicit assumption that energy rates will soon rise steeply and that war in the Middle East could still vitally threaten America's oil supply.

Looking to the future, the President called for increased use of cheap, plentiful coal, more research to develop alternative sources of energy, and more rapid utilization of existing nuclear technology. His proposals for meeting these goals, however, came in for some of the strongest criticism directed at the speech.

To encourage expanded coal use, the President urged states to adopt a go-slow policy in implementing secondary sulfur oxide standards. (As specified by the Clean Air Act of 1970, "primary" standards for sulfur oxide levels in the atmosphere are set to ensure safety and health by 1975; "secondary" standards, set to provide "general welfare," have no deadline.) In a rare display of agreement, coal industry and labor spokesmen blasted the Administration for insufficient funding of research and development into ways of burning coal cleanly. "Words won't develop coal," United Mine Workers President Arnold Miller said.

Similar reactions greeted the President's proposals dealing with development of solar energy, controlled fusion and geothermal resources.

The President's message, more than anything else, responds to a simple economic fact—gas and oil now account for more than three-quarters of the nation's energy, and present exploitation is not keeping pace with accelerating demand. As Secretary of the Treasury George Schultz told newsmen in a briefing on the energy message, "We are not in a crisis at the moment, but we could work ourselves into one." As incidents of fuel shortages and brownouts mount, however, Congress seems less inclined to share his confidence. □

The fragile jungle: Pressure of civilization

Vast, impenetrable, mysterious, the world's great jungles are also surprisingly delicate, according to a new study published by the Smithsonian Press. Entitled *Tropical Forest Ecosystems in Africa and South America: A Comparative Study* the book deals mainly with details of plant and animal studies in the Amazon and Congo basins, but some of the authors also tell how new intrusions of people and technology could irreparably damage these most verdant regions of earth.

Contrary to popular opinion, jungle soil is not particularly rich. One of the



Betty J. Meggers

The Amazon: Verdant but vulnerable.

authors, F. R. Fosberg of the Smithsonian Institution, tells how heavy rains quickly leach nutrients from surface layers of earth, resulting in poor fertility. As a result, plants themselves hold 70 percent of the total mineral nutrient supply of the system. They must also develop deep root systems to reach nutrients accumulated in lower soil layers. When jungle is cleared, erosion starts immediately and proceeds rapidly, leaving exposed soil to harden into "ironstone." Once destroyed over a large area, the rain forests can seldom flourish there again.

Primitive tribes evolved customs that minimized their effect on the fragile ecosystem, adds another Smithsonian author, Betty J. Meggers; but introduction of new technology and medical support, not accompanied by population control, could produce disastrous effects. Nutrient-poor soil produces vegetation deficient in food essentials, and the Amazonian dwellers have traditionally had to compete for the widely dispersed and readily depleted protein of wild animals. Out of this struggle grew the "barbaric" practices of infanticide, headhunting and various sexual taboos that held tribal populations within bounds set by their environment. Population of much of the Amazon basin remains at less than one person per four square kilometers.

Successive waves of colonialists changed many of the old practices, resulting in a higher birthrate, but they also introduced a variety of new diseases, including smallpox, yellow fever and malaria, that, says Meggers, ironically may have saved the Amazon jungle in this century.

Now the situation is changing. A giant highway is being constructed from the old rubber capital of Belem to Brazil's capital of Brasilia, destroying a 20-kilometer-wide strip of jungle along its path. Mechanized farming equipment makes modern clearing and cultivation possible over wide areas, where once only a few small plots of soil were farmed and abandoned after two or three plantings. Population growth rates, meanwhile, have risen to the world's highest levels throughout

Central and South America, creating new pressures to clear the jungle.

If such efforts are to be productive, writes Harald Sioli of the Max Planck Institute for Limnology they must take into account the inherent diversity and weakness of jungle ecology. In the Amazon basin, this would involve restricting short-lived agriculture to the richer low-land soils and devoting the much larger upland areas to forest agriculture. The region, however, could apparently never be able to successfully support a large population.

The effect of large-scale destruction of the world's jungle can hardly be calculated, for they play a vital role in many of the world's natural cycles, including climate and production of oxygen. Even given that understanding, present political systems could hardly meet the task of preserving the jungles as a vital natural resource. "The prospect," writes Fosberg, "is discouraging indeed." □

Prenatal sex hormones and sexual development

Sex hormones secreted by pregnant women play an important but not fully understood role in the prenatal and future development of their children. Researchers have found, for instance, that sex hormones influence physical, mental and intellectual development (SN: 1/8/72, p. 8). But because few pregnant women are actually subjected to excesses of male or female hormones, studies of their influences on humans have been relatively rare.

Pregnant diabetic women, however, are deficient in production and utilization of estrogen and progesterone (female sex hormones). To overcome this deficiency and to help with the hazardous pregnancy of the diabetic, the Joslin Clinic in Boston has been prescribing a synthetic estrogen (diethylstilbestrol) and more recently a naturally occurring substance (estradiol) to pregnant diabetics. Irvin D. Yalom, Richard Green and Norman Fisk of Stanford University have taken advantage of this situation to study the psychosexual development of male offspring of these women.

Forty such boys were given physical examinations and were interviewed on subjects such as onset of puberty, leisure activity, future goals, nocturnal emissions and aggression and assertiveness. The subjects were also observed throwing balls, swinging bats and running. The researchers conclude, in the April *ARCHIVES OF GENERAL PSYCHIATRY*, that the sons of hormone-treated diabetic mothers were "less aggressive, less assertive, [and] had less athletic skill and grace" than control groups of boys of the same age. □



Outlined by its walls, ancient Chan Chan spreads over 10 square miles of Peru.

Of Kings and Skeletons

Taycanamo arrived, the legend says, on a raft. He appeared one day perhaps 800 years ago on the coast of what is now Peru and announced that he had been sent to rule by a great lord in a distant land. The legend says.

Of course Taycanamo may have been but a myth. After all, his coming is only a tale recorded by the Spanish conquerors of the Inca conquerors (whose traditions were kept largely by mouth) of the people of Chimor. But whatever its origins, the ancient kingdom of Chimor was a powerful and sophisticated presence on the Peruvian coastal desert, governed from a rich and mighty capital that was the largest pre-Columbian city in South America: Chan Chan.

As many as 50,000 people may have inhabited Chan Chan, and more than 2,000 other archaeological sites have been found in the Moche Valley that encloses Chimor. Chan Chan, however, was more than just big numbers. Four years of probing by more than 100 researchers have revealed that the sprawling city was the heart of a surprisingly elaborate civilization.

The mere mapping of the 10-square-mile city from aerial photos took six architects and draftsmen almost two years—some walls towered 25 feet above the unexcavated land—but it pointed up many patterns and unusual features. More than 125 curious, rectangular pits, for example, puzzled archaeologists until excavation revealed them to be vast, walk-in water wells, the first found in coastal Peru.

A shocking find was the discovery, apparently in the burial mound of one of the almost god-like kings who claimed descent from Taycanamo, of 200 to 300 young, female skeletons, "stacked like cordwood" but showing no marks of violence. The director of the Chan Chan project, Michael E. Moseley of Harvard University, and co-director Carol J. Mackey of San



Photos: Harvard

Workmen unearth an early storehouse.

Fernando State College in California believe that the women were poisoned or put to sleep and buried with the king to accompany him in his afterlife. Human sacrifice was known in the early New World but was not suspected on such a vast scale. Each of the 10 kings (nine if Taycanamo was only a myth) in the line that ended with the Inca onslaught in the late 15th century apparently had his own large burial compound, some of which, Moseley says, may contain as many as 1,000 skeletons.

Clues point to surprisingly highly developed agriculture among the Chimu, including the use of fertilizer, crop rotation and huge irrigation canals, one of which stretched more than 50 miles to bring water from another valley. Metalworking, advanced weaving and fishing were among the affairs of Chan Chan. □