

## Energy Sources . . .

**SCIENTISTS FROM WARSAW TECHNICAL UNIVERSITY** have successfully tested a methanol-gasoline mixture as car fuel, the Polish news agency PAP reported.

It said that tests were carried out on Polish-made cars without any alterations in engine construction.

They tested a 20 percent mixture of methanol and a specially-purified gasoline. The scientists found it had the same energy value as traditional gas and caused no greater wear on the engine. Therefore, the report continued, this type of fuel could be introduced with no reservations.

The scientists reported on their tests at an international symposium on coal gasification and liquefaction held in Katowice.

**AN ELECTRIC CAR** designed in New Zealand could be in production by the end of next year. The first commercial users of it are expected to be electricity meter readers. It is planned for use in driving around hospital grounds, railway stations and warehouses.

Its inventors are a solar heating system manufacturer and two specialists, Kay Edgecumbe and Colin Horsfall, who have four years experience in building electric vehicles.

Claimed to cost less than a conventional car, their vehicle will be a two-seater powered by two electric motors and six conventional lead acid batteries. The body is of aluminum, and each engine will drive one rear wheel.

**RESEARCHERS** at the Musashi Engineering University of Tokyo say they have developed a pollution-free car that uses liquid hydrogen.

Prof. Shoichi Furuhashi of the International Combustion Engine Department of the university said the new car could become commercially feasible if the tank containers to hold liquid hydrogen could be mass produced. The tank container in the test vehicle held 60 liters of liquid hydrogen and cost \$7,500. This amount of liquid hydrogen covered only 300 kilometers which means the vehicle's mileage is about 11.8 miles per gallon. In contrast, an economy passenger car in Japan gets about 23 miles to the gallon of gasoline in heavy traffic.

**THE KOREA NATIONAL HOUSING Corporation (KNHC)** will install solar energy collectors in its new apartments.

Ministry of Construction officials said the KNHC will install the devices in flats in 37 cities in the country. The move is in line with the government's policy of developing solar energy and reducing dependency on fossil fuels.

mid 1980s, a ten-fold increase in less than a decade.

Brazil's rapidly expanding alcohol industry is now facing a series of perplexing production, marketing, ecological and political problems as it attempts to cope with massive production increases for an industry that only several years ago produced no more than a few million liters annually.

Brazil now spends more than \$4.5 billion a year for crude, which accounts for about 80 percent of its oil needs, and this uses up one-third of the country's export earnings. Substituting alcohol for gasoline relieves the epidemic dollar drain; however, a liter of alcohol brings a better price on the world market.

The former Minister of Mines and Energy, Shigeake Ueki, who is now president of Petrobras, told the unimpressed National Association of Automobile Manufacturers that alcohol should be given preference as an export because of its high international price. He estimated the market as 400 billion liters annually.

Jose Melo Telos, president of the National Council of Scientific and Technological Development, said he thought "alcohol is more important as a raw material for industry than it is as a fuel."

But for now the alcohol is needed at home for cars, trucks and buses.

To give more support to the creation of cane plantations and distilleries, the government has changed its financial ground rules so as to make loans available for used equipment as well as new and "turnkey" operations.

GEORGE HAWRYLYSHYN

## Venezuela's eco-chief says he will develop the Amazon area

**CARACAS**—Venezuela's new Environment Minister, Dr. Carlos Febres Pobeda, brings to his job an acute awareness of the ecological dangers threatening his country, of the agents responsible and of the critical ecological state of his home territory in the Andes.

The Environment Ministry—now two years old—is charged with managing 15 basic programs: forest reserves, parks, water basins and water supplies, aqueducts, sewage treatment, fire and flood control, environmental education and, he says, "the boldest task of all, a master land-use plan for the nation."

Dr. Febres, a lawyer and university professor says he will revitalize, with certain modifications, programs begun in the early 1970s to develop the Territorio Amazonas, more than 175,000 square kilometers of largely virgin forest in the south.

"It's quite clear: Conservation does not imply not felling trees, but rather knowing when and how to cut them," Dr. Febres says. "Conservation is the better administration of resources for the benefit of man. We do not attack the use, but rather the abuse, of natural resources."

The former governor of Merida State and an ex-deputy and senator, Dr. Febres earned a reputation for sound administration as president of the Corporation of the Andes, a regional

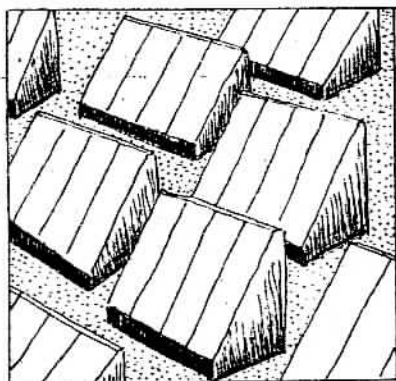
development body. In his 60 years, he says he has seen alarming ecological deterioration in the Andes: deforestation of the paramos for dairy farming, mountains eroded by bad farming methods, the poisoning of mountain rivers by runoff weed and pest killers, and by sewage and industrial pollution.

Dr. Febres plans to clean up Merida City's four rivers, beginning with sewers to collect wastes and culminating in riverside parks.

A government project to open a copper and zinc mine in Bailadores has been halted in view of environmental and social risks. The project called for removal of a village, part processing of ore and construction of a railroad to Maracaibo to ship out the minerals.

HILARY BRANCH  
LILI STEINHEIL

## \* Colombia installs world's biggest solar water heater



**BOGOTA**—Colombia's UN-supported appropriate technology foundation, Las Gaviotas, is installing the world's largest solar water heater at a 544-apartment complex in the city of Medellin. It costs \$300,000. Financed by the government housing bank, the complex will be inaugurated in September.

The heater is made of 3,000 square meters of burnt-out fluorescent tubing—a labor-intensive, low-capital product based on non-biodegradable material that would otherwise end up in city dumps. It heats water to 100 degrees Centigrade as it circulates through parallel lines of tubes connected by sealing rubber.

Las Gaviotas also mass produces a \$480 solar water heater system for six-person households.

Under study at Gaviotas' headquarters in the eastern plains, or "llanos," are solar water sterilizers, solar-powered iceboxes and solar-powered water pumps. Solar-powered equipment is viewed as a promising energy alternative in oil-hungry Colombia because of its location near the equator.

Founded in 1970, the non-profit foundation was singled out as the developing world's leading example of appropriate technology by the United Nations Development Program during last year's Buenos Aires conference on technical cooperation in the Third World. UNDP provided \$1 million for equipment, the Dutch government \$200,000 for building a factory on the llanos. Fifty Colombian scientists and technicians and some 100 farmers work at Gaviotas' 20,000-acre experimental settlement.

The llanos factory is mass producing cheap, durable agricultural and construction equipment that is easy to operate and maintain, with an emphasis on machinery driven by sun, wind and water.

PENNY LERNOUX

## In Latin America . . .

**IN BRAZIL**, the people of Guarulhos, led by their mayor, have revived protests against putting the new Sao Paulo airport in their municipality.

Mayor Nefi Tales said an airport in the Guarulhos suburb of Comica would turn the area into "a hell" for 70,000 residents, and he criticized the federal government for making a unilateral decision on the airport without consulting the people or local authorities.

Sao Paulo, the fastest growing city in South America with a regional population of 10 million, has two airports but both are working at capacity without expansion possibilities, so the city desperately needs a new airport. Now the Mayor of Guarulhos is saying that feasibility studies on the new airport were drawn too many years ago; since then many more people have settled in the area.

**THE VENEZUELAN GUAYANA** Corporation has announced the start-up of its Uverito pulp project, which will plant 180 million pines in the arid plains of Venezuela's South Eastern region.

**IN CHILE**, about 125 pilot whales ran aground on Navarion Island near Cape Horn. The whales, ranging from two to six meters in length, were found over a twenty-kilometer area.

A zoologist from Chile's Patagonia Institute said such an "ecological disaster has never before occurred in Chile in such magnitude." He said, however, that it is usual for members of this species to run aground.

Local experts suggested that the unusually large number of beached pilot whales this time might be due to middle ear problems caused by parasites or to a "collective suicide."

Discovery of the whales was made in March, but was not reported for a number of weeks.

**BRAZIL HAS BEEN GRANTED** two loans totalling \$157 million for water and sewage supply services.

A World Bank loan of \$100 million will be part of a \$303 million project to improve water services for a total of 5.3 million people. The balance will come from Brazil's National Housing Bank.

A \$57 million Inter-American Development Bank loan will help build an irrigation system in the agriculturally rich San Francisco Valley, site of an ambitious program to increase crop yields by 7 percent annually. The valley is estimated to have 6.7 million acres of irrigable land.

The Inter-American bank loan will supply 59 percent of the \$96.7 million project. The balance will be raised locally.

## World Environment Report<sup>1</sup>

### Colombia instala el calentador solar de agua más grande del mundo

Bogotá- Gaviotas, la fundación para la tecnología apropiada apoyada por las Naciones Unidas, instala el mayor calentador solar de agua en el mundo en un complejo de 544 apartamentos en la ciudad de Medellín, cuesta US\$ 300.000. Financiado por el banco de la vivienda gubernamental el complejo se inaugurará en septiembre.

El calentador está hecho de 3.000 metros cuadrados de tubos fluorescentes quemados. Esta es una labor intensa con un producto de baja inversión de capital de un material no biodegradable que terminaría en los basureros de la ciudad. Calienta el agua a 100°C circulando por líneas paralelas de tubos conectados mediante sellado de caucho.

Las Gaviotas también produce un sistema de calentador de agua a US\$ 480 para viviendas de 6 personas.

En las instalaciones de Las Gaviotas en los llanos orientales se están estudiando esterilizadores de agua, neveras y bombas de agua que funcionen con energía solar. Los equipos que funcionen con energía solar se consideran

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<sup>1</sup> Lernoux Penny, World Environmental Report Vol. 5. No. 13-Junio 4, 1979

como una alternativa prometedora al hambre de petróleo en Colombia, porque es un país que está cerca del Ecuador.

Fundada en 1970, la fundación sin ánimo de lucro fue destacada como un ejemplo líder en el mundo en desarrollo en tecnología apropiada por el Programa de Desarrollo de las Naciones Unidas, durante la conferencia del año pasado en Buenos Aires sobre cooperación técnica en el Tercer Mundo. El PNUD suministró US \$1 millón para equipo, el gobierno de Holanda US\$200.000 para la construcción de una fábrica en Los Llanos. Cincuenta científicos y técnicos y unos 100 trabajadores laboran en Gaviotas la plantación de 20.000 acres.