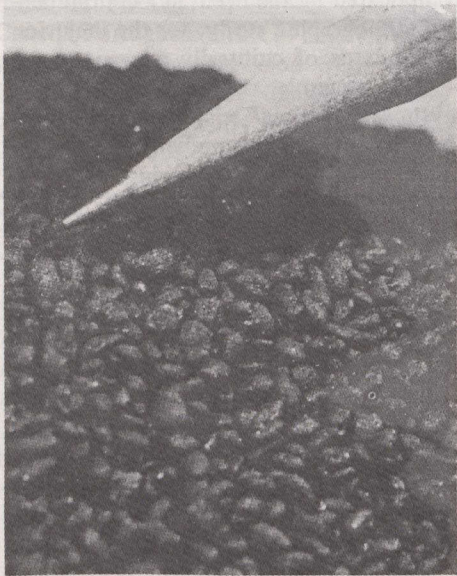


## New process provides energy

The National Research Council has developed an effective way of squeezing extra energy from previously unusable low grade coal, reports Wally Cherwinski in *Science Dimension*.

Because of high concentrations of sulfur, ash or moisture, such material is normally unsuitable as fuel. However, after treatment by a method called "spherical agglomeration" most of the impurities are removed, leaving behind a clean-burning coal product.



Bruce Kane, NRC

*A sample of finely-agglomerated coal.*

In practice, the low grade coal is first pulverized, then mixed with water and a small amount of light oil. Because of their dissimilar surface properties, coal and the impurities behave differently towards the two liquids. The oil is able to "wet" particles of pure coal, causing them to stick together (or "agglomerate") into tiny round pellets which can be recovered using a fine-mesh screen. Meanwhile, the sulfur, ash and other unwanted inorganic materials stay suspended in the water and pass through the screening stage.

Both the degree of mixing and the quantity of oil used in the separation process determine the nature of the coal product. Vigorous agitation with small quantities of oil yields fine, microagglomerates used in coal-fired power stations. Slower mixing with somewhat more oil produces larger pellets suited to rail transportation. With still greater quantities of oil, the product is recovered as a coal-in-

oil paste or slurry, which can be substituted for oil as a fuel in power generating stations.

This "slurry fueling" approach is not new, although use of spherical agglomeration as a purification step in the process has only recently been explored. A test program was begun in 1977 at an oil-fired power station in Chatham, New Brunswick.

In the first year of operation, the Chatham station used a 10 per cent by weight coal/oil mixture, later increasing the proportion to 20 per cent. Operators now plan to extend the range of coal contents to 40 per cent by weight.

Another project involving agglomeration technology is under way at the Cape Breton Development Corporation near Sydney, Nova Scotia. There, water used as a wash liquid in a coal cleaning plant is being treated to remove very fine particles of coal which normally interfere with certain stages of the operation. Not only are extra helpings of usable coal recovered quickly but the treated water is also made clean enough for recirculation through the washing step.

## Aid for Cambodian refugees

A jet carrying \$50,000 worth of food and medical supplies donated by the Canadian Cambodian Refugee Relief Fund arrived in Bangkok recently.

General Henry Telier, director of the Canadian Red Cross, and three private Toronto doctors arrived aboard the mercy flight to study the plight of Cambodian refugees in Thailand.

The shipment, one of the first major contributions by a Canadian organization to Cambodian relief, included rice, soybean milk, drugs and surgical equipment.

Dr. Glenn Bartlett, a Toronto surgeon, said the rice will be delivered to Phnom Penh by the International Red Cross but the rest of the supplies will go straight to refugee camps along the Thai-Cambodian border.

Dr. Jay Keystone, head of tropical diseases at Toronto General Hospital, Dr. Larry Edwards, a stomach specialist at Humber Memorial Hospital and Dr. Bartlett joined General Telier on his tour of the border.

Two hours after the Boeing 747 landed and unloaded its cargo, Paul-Emile Cardinal Léger and 331 refugees boarded the plane for a return trip to Canada. The

75-year-old cardinal, who is also co-chairman of the Canadian Foundation for Refugees, spent a week in Thailand talking to refugees and those looking after them.

The cardinal said: "I came here to see if we can do more. After a week of looking and listening I think it's difficult to do more. It's impossible to settle a human tragedy in a few weeks."

He said he was deeply disturbed by his visit. "It will take not only months, it will take years to find a way to peace that will enable these people to go back to their country."

Cardinal Léger said he did not feel that resettlement of Cambodian refugees was an answer to the continuing problem. "Resettlement is not a good idea unless you believe that Cambodia has ceased to exist."

## Youth exchange program

Up to 25 young Canadians will be offered career-related training in Switzerland in 1980, as part of a new international young worker exchange program announced recently by Employment and Immigration Minister Ron Atkey.

A memorandum of understanding to formally establish the program was signed December 5, on behalf of the Canada Employment and Immigration Commission, by J.D. Love, Chairman, and Dr. Walter Fetscherin, Chargé d'Affaires, Swiss Embassy, on behalf of Switzerland's Federal Office for Industry and Labour.

Applicants must be Canadian citizens, between 18 and 30 years of age, who are post-secondary school graduates. Young men or women selected for this exchange, which will last, on average, for a period of 12 months, will work in the areas of banking, precision instruments and instrumentation in Switzerland.

The Canada/Switzerland exchange program brings to 38 the number of international youth exchange programs that have been developed between Canada and foreign countries. These programs are designed to provide young people, both students and young workers, with training and/or experience abroad. In general, they aim to foster a better understanding and appreciation of other countries and to strengthen cultural and trade relations between Canada and foreign countries.

During 1979, 2,602 Canadians and 1,789 foreigners participated in these international youth exchange programs.