

absorbed heat and transferred it to storage tanks in the basement. Other panels heated air which was pumped through floor registers. Garbage and sewage would fall directly into a fiberglass composting chamber to be decomposed by nature's own microorganisms. The design also called for four windmills to supply electricity for lights.

The Ark had its triumphs. It focused international attention on the possibilities of families applying science on a small scale to gain a measure of self-sufficiency. The passive heat system and the combination greenhouse and fish hatchery worked admirably. The heat collected in the greenhouse was stored in rocks and fish ponds and on sunless days blown through the building. The coldest temperature recorded in the greenhouse was 7°C (44.6°F), and its energy costs were less than half of those for conventional greenhouses. It produced an abundance of tomatoes, lettuce, broccoli and other vegetables for both the residents and the market. The first attempts to raise a species of fish called tilapia failed, but the Ark and its residents later raised thousands of rainbow trout.

The Ark also had its failures. Only one windmill was built and it failed to live up to expectations, the solar panels demanded more sophisticated maintenance than they initially received, salt water seeped from the nearby ocean into the house's fresh ground water supply, and two successive families found the steady stream of visitors and tourists more than they could bear.

"There was an incredible amount of publicity," Phil Wood, PEI's Director of Research for Tourism, Industry and Energy, says, "and there was no way a family could function as a family."

The project passed from the supervision of the New Alchemy Institute to a joint federal and provincial management committee and then to PEI's Institute of Man and Resources, which used it as a laboratory rather than a dwelling place.

It is now empty and up for sale.

It was, Mr. Wood says, "very successful," but, as he points out, demonstration projects have short lives. The Ark contributed to its own demise by laying the foundation for advances in solar techniques. "At this point it is no longer 'state of the art,'" he says. "It's definitely a dinosaur."

Mr. Wood hopes some practical person like an experienced greenhouse operator will buy it and keep its virtues intact.

Testing, Testing

In 1979 the National Research Council commissioned Ontario Research to build a \$1.3 million National Solar Test Facility at Sheridan Park.

It opened in February, 1981, and is one of the most advanced in the world. It has four self-contained, computerized mobile test frames which can make tests indoors and out in the same day. The outdoor tests use the sun. The indoor ones use a sun simulator—a large horn lined with mirrors which reflect light from two 125 kW argon-arc lamps. The simulator is the most powerful single light source in the world. Developed by Vortek Industries Ltd., of Vancouver, B.C., it could light up an entire football stadium. The mirrors provide a uniform illumination very close to natural sunlight.

The facility tested over eighty collectors in its



The Ark