

# technology notes

## NUCLEAR POWER

### Power plant terminated

A major factor in the termination of the contract between the Atomic Energy Commission and the Puerto Rico Water Resources Authority is the AEC's decreased interest in superheat reactors based on the boiling water system.

However, the BONUS power plant planned for installation near Rincón, Puerto Rico, could be converted to desalting seawater as well as producing 50,000 thermal kilowatts of power.

It was thought that superheating steam would make for more efficient use of the intense heat of nuclear fission. But progress in developing large water reactors for producing economic electrical power without superheating equipment has dimmed the enthusiasm for the more complex system.

## PHOTOGRAMMETRY

### Mapping Guatemala's rain forest

Tests conducted recently in the tropical forests of Central America indicate that a radar altimeter developed in Canada can be of value to the developing countries in Africa, Asia and Latin America for surveying their forest resources.

The forestry radar altimeter was developed by the radio and electrical division of Canada's National Research Council. It has been used successfully in Canada for forest surveying by means of low level aerial photographs taken 500 and 2,000 feet.

Precise readings of altitudes above ground level are a prerequisite for extracting quantitative information from aerial photographs. The radar altimeter reading appears in the corner of each photo in the system for convenience and to ensure synchronization.

## STRUCTURAL DYNAMICS

### Wind tunnel tests for bridges

Both England and Canada are using wind tunnels to test bridges, although in different ways for two specific bridges.

In Canada, the tunnels are being used to test the effect of wind on the proposed center span of a new type of bridge that will span the Rivière des Prairies in the north end of Montreal. This will be what is known as a cable-stayed bridge, in which the bridge girder of the center span is supported by steel cables attached to two slender towers.

In England, engineers at the National Physical Laboratory at Teddington are watching and studying in their wind tunnels models of the Wye extension to the Severn bridge. Since this was considered a comparatively simple structure, wind tunnel tests were not made of its design before it was built.

Since it has now been discovered to sway somewhat in the wind, engineers at NPL are using this opportunity to evaluate their testing procedures in wind tunnels.

Only structures that show sufficiently small oscillations in wind tunnel tests are usually built, whether in England, Canada or the United States. This leaves scientists un-

certain how close the severe oscillations measured in model tests correspond to what happens to the real structure.

Evidence so far is that the swaying of the Wye extension could have been predicted before construction if aerodynamical tests had been made then.

## NUCLEAR TECHNOLOGY

### Reactors for space

The most powerful nuclear rocket reactor yet developed, the Phoebus 2A, has been successfully ground tested in a joint trial by the U.S. Atomic Energy Commission and the National Aeronautics and Space Administration.

The Phoebus 2A reactor was operated for 32 minutes, 12 of which were at a power level above 4,000 megawatts. This is greater than that attained in any previous rocket reactor and exceeded the level necessary for NERVA, the nuclear engine for rocket vehicle application.

The aim of the test was to obtain performance data on the reactor components and fuel elements at elevated power levels. The highest level previously achieved for a nuclear rocket reactor was 2,000 megawatts two weeks earlier in another trial of the Phoebus 2A reactor.

## COMPUTER PROGRAMMING

### Designers talk to computers

A new procedure for programming computers, known as Sparta, enables designers with a minimal knowledge of how computers work to talk to them in plain English.

The program was worked out by Leslie Mezei of the University of Toronto to make it easy for artists, architects, engineers and other designers to use computers for creative purposes without the need to acquire first experience in conventional computer programming. The results can be printed or displayed on a TV-type tube.

Mezei, who is in the computer science department, will report the results of his graphic programming package to the International Federation for Information Processing in Edinburgh in early August. The conference, held every third year, will attract some 5,000 computer specialists from 28 countries.

One of the design considerations in developing the graphic programming package was the need for ease of adding new features and specific procedures. The system uses Fortran routines.

## MINING TECHNOLOGY

### Quick work at the assay office

An X-ray spectrograph that can assay an ore sample in 30 seconds has been developed by Philips Electrical Ltd. of Adelaide, South Australia. The machine, which is known as the Auto Assay, can analyze up to six elements present in an ore at once.

The Auto Assay is claimed to be the first X-ray spectrograph to be designed and manufactured in Australia. Units have been exported to Canada and also sold to large mining corporations in Australia.