

TECHNOLOGY

Predict New Power System

Magnetohydrodynamics is expected to contribute greatly to increasing operating efficiency of power generators currently being used.

TEN of the nation's large electric power companies have teamed up with a research laboratory in a program that could result in a 25% increase in operating efficiency.

The aim is the elimination of most of the turbine-generators in the conventional power generation cycle and the substitution of a new power system based on the scientific principle of magnetohydrodynamics (MHD).

In a conventional plant, a solid coil of wire, or armature, passes through a magnetic field to produce electricity. In an MHD generator, a super-heated, ionized gas is substituted for the armature, eliminating much of the heavy and costly equipment of a conventional system.

The ten-company utility group, which will cooperate in the research with the Avco Corporation, will be represented by American Electric Power Service Corp. as agent. The group includes Appalachian Power Co., Roanoke, Va.; Central Illinois Light Co., Peoria, Ill.; The Dayton Power and Light Co., Dayton, Ohio; Illinois Power Co., Decatur, Ill.; Indiana & Michigan Electric Co., Fort Wayne, Ind.; Indianapolis Power and Light Co., Indianapolis, Ind.; Kansas City Power & Light Co., Kansas

City, Mo.; Louisville Gas and Electric Co., Louisville, Ky.; Ohio Power Company, Canton, Ohio, and Union Electric Co., St. Louis, Mo.

A small experimental laboratory device utilizing the MHD principle is currently operating successfully at the Avco-Everett Research Laboratory in Everett, Mass. It has attained more than 10,000 watts power output.

Preliminary investigations indicate that a system using the MHD generator can be 25% more efficient than existing power generation systems, while considerably simpler in concept. It is also indicated that capital costs of an MHD plant will be competitive with costs of a conventional plant.

At present, two types of power plants are being studied in conjunction with MHD generators. One would use a coal-fired furnace to heat and ionize the gas entering the magnetic field of the MHD generator. The other would use a nuclear reactor for the same purpose.

The announcement swiftly followed recent reports that General Electric Company has generated 1,000 watts for five seconds in a magnetohydrodynamic power plant

that might power radio transmitters on the moon, and a report by a Republic Aviation Corporation scientist that direct conversion of controlled thermonuclear power to electricity is believed practical (SNL, Sept. 5, p. 152).

GENERAL SCIENCE

Procedures Will Test Scientist-Grant Relations

DO GOVERNMENT research grants take doctors and other scientists away from private practice and other vitally needed public services

The answer to this question and others will take shape soon due to procedures developed by Arthur S. Flemming, Secretary of Health, Education and Welfare, and Surgeon General Leroy E. Burney of the U. S. Public Health Service in Washington, D. C.

Last August, President Eisenhower signed a bill appropriating \$400,000,000 to the National Institutes of Health, which administers the Federal Government's grants in the fields of medicine and health.

Many thousands of scientists who received Government grants within the past ten years will be asked whether or not they were in private enterprise before they received their grant and what they did when the grant expired. In this manner, the Government hopes to be able to determine whether or not doctors, teachers and other trained persons are leaving their public service duties to do research or whether these same people would be in research despite lack of grants.

The answer may be that these researchers are being diverted away from other valuable work. In addition, there are areas of specialization comprised of too few workers now, and to draw one of these away for research might be undesirable.

In addition, individual departments of private institutions will be assessed to determine whether or not Government grants overshadow or even discourage private foundations from offering grants.

Only approximately one-half of all applications received by the National Institutes of Health are approved in any one year. An even lesser number of these actually receive grants due to lack of funds.

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METEOROLOGY

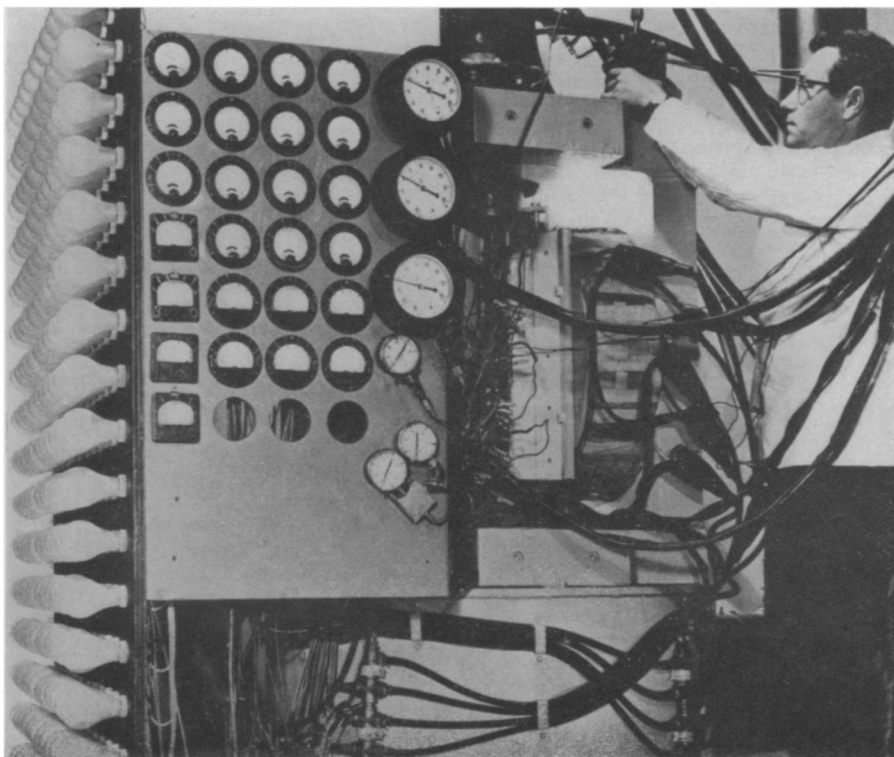
Photos From Rockets Show Earth's Cloud Cover

See Front Cover

PHOTOGRAPHS taken from high-flying rockets are giving weathermen a new and revealing look at the earth's cloud cover and, thereby, clues to its weather.

At the American Rocket Society meeting in Washington, four General Electric Company scientists reported on the rocket photographs, the potentialities of which are exciting meteorologists. One of the most recent of these is shown in the photograph on the cover of this week's SCIENCE NEWS LETTER.

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MHD GENERATOR—A technician at the Avco-Everett Research Laboratory, Everett, Mass., adjust the experimental magnetohydrodynamic (MHD) electric power generator capable of more than 10,000 watts output.