

## GENERAL SCIENCE

**Oppenheimer Cites Need For Inspired Science**

► THE LIVING TRADITION of science is like a flame at the top of a candle.

Without the flame, the candle of applied science and technology is dark and useless.

The role of science in liberalizing and enlarging human experience is that of taking what we learn and applying it to mankind, believes Dr. J. Robert Oppenheimer, director of the Institute for Advanced Study at Princeton, N.J.

An atmosphere of enlightened science is a combination of the flame (the search for truth, inspiration of pure science, inventiveness) with the candle itself (the dedication and application of the results of pure science for the benefit of man's life on earth).

The willingness to learn, to face changes and to abandon familiar attitudes is essential, especially in newly developing nations facing problems in losing their bright young scientists to the United States, Dr. Oppenheimer told a panel on the education and training of scientific personnel for national development at the fifth Conference on International Education in Washington, D. C.

The conference was sponsored by the Institute of International Education, in cooperation with 151 national and international organizations.

"Scientists should follow the love of science, the love of life," Dr. Oppenheimer said, "not the love of the dollar."

The West, with its traditional strength in science, should help the newly developing nations inspire and keep alive an environment sympathetic to science and scientific enterprise.

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## GENERAL SCIENCE

**Plug Asked for Drain Of Scientists to U.S.**

► THE DRAINAGE of talented young scientific brains from newly developing countries to the United States is considered an important factor keeping these countries from advancing new techniques and activities.

"The loss of Brazil's young men to the U.S. is the loss of one of our most important raw materials," stated Dr. Zeferino Vaz, president of the State Council of Education and director of the faculty of medicine at the University of Sao Paulo, Brazil.

The connection of vital South American men with U.S. universities where salaries and work conditions are better than those they face at home could be lessened, he told a panel on education and training of scientific personnel for national development at the fifth Conference on International Education in Washington, D.C.

For instance, he suggested conditions could be placed on fellowships granted to foreign students, citing that they return to their own country after their U.S. training. Or the number of U.S. invitations asking

scientists to stay on at the universities could be lessened.

The shortage of specialists, technicians and teachers of basic science is another factor preventing faster advancement in developing countries, Dr. Vaz commented.

Also full professors in South American universities are stagnating progress. These men have reached their own established goals and cannot accept new ideas or changes.

Another factor he cited is the "tragedy of the tropics"—the prevalence of diseases and parasites such as the hookworm, ascariis and malaria which keep 60% of the rural population at a low level of learning and producing.

"With a low capacity of production," he pointed out, "the income tax is low. Therefore the government is poor and cannot spend money on much-needed education and public health."

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## BIOCHEMISTRY

**Cause of Aging Diseases One of Cell Study Aims**

► A FUNDAMENTAL INQUIRY into the role played by water in the cells of the human body is expected to help understanding of:

1. The diseases of old age;
2. The properties of protoplasm, of which all cells are composed;
3. The extent of damage caused by X-rays;
4. The mechanism of anesthesia.

A successful biophysical theory of cellular water can have the broadest significance in understanding life processes, both normal and diseased, explained Dr. Samuel J. Ajl, director of research for Albert Einstein Medical Center, where the research will be done.

"Water is the matrix in which all cellular processes proceed," Dr. Ajl pointed out, adding that this cell water is not inert background material. "Its interactions with proteins, ions and nonelectrolytes may perhaps be called the most significant physical substratum of the phenomenon of life," he said.

Two American research scientists who have worked recently at the University of Uppsala, Sweden, in the Institute of Physiology and Biophysics will direct the staff of the Center's new Laboratory of Cellular Biophysics. They are Drs. Samuel B. Horowitz, 36, and I. Robert Fenichel, 28.

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## TECHNOLOGY

**Mass Memory System Has Instant Recall**

► A NEW COMPUTER mass memory system has split-second recall for more than 5.4 billion characters. Developed by the Radio Corporation of America, the computer is known as RACE (Random Access Computer Equipment), because it has "direct" access to any bit of information without having to search serially through a file.

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**Questions**

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**ARCHAEOLOGY**—What evidence indicates cotton is of American origin? p. 136.

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**MEDICINE**—What antibiotic has an inhibiting action on ascites tumor? p. 134.

**SPACE**—What is the purpose of a giant bird-shaped satellite? p. 141.

**TECHNOLOGY**—How does the San Diego desalination plant convert salt water into fresh water? p. 131.

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