

# Atmosphere Studies Supported by Grant

By BARB MOSGRAVE

Research is under way at the University's Ionosphere Research Laboratory to study the properties of the upper atmosphere.

The project, under the direction of Dr. William J. Ross, associate professor of electrical engineering, is supported by a one-year grant of \$90,000 from the National Aeronautics and Space Administration and the Wright Air Development Center.

It is a continuation of research started in 1958 during the International Geophysical Year under the sponsorship of the National Science Foundation.

Presently, Ross and his colleagues are measuring radio waves from Russia's Sputnik III. At this time the satellite has the most suitable radio transmitter and orbital properties for this experiment. However, the United States is expected to launch two satellites specifically designed for this type of experiment within the next year.

Signals from Sputnik III are picked up by sensitive radio receivers and the satellite's signal frequency is compared with a stable reference frequency. The output of the receiver is recorded on magnetic tape.

These tapes are later played back and analyzed and the final results are recorded on charts. Much of the equipment for the experiment has been constructed in the laboratory since no suitable commercial units were available.

The aim of this research is to find out more about the nature of the upper atmosphere from about 200 to 800 miles up. Little is yet known about this region according to Ross. In the past year his measurements of the total number of electrons in the ionosphere have shown surprisingly large daytime values and an unexpectedly large decrease in the number of free electrons at night. Seasonal changes also have been observed.

Ross believes that current theories concerning the formation of ionization at great heights will have to be revised to some extent to account for these observations. However, at least a complete year's data must be analyzed before it can be definitely determined whether these are normal effects or are due to high sunspot activity or possibly to high altitude atomic explosions. In addition to the station at the University, the Ionosphere Research Laboratory operates similar stations at Ohio State University and the University of Virginia. The data from these stations is relayed by telephone to the master recording station at Penn State.

The New England states are Maine, New Hampshire, Vermont, Massachusetts, Rhode Island and Connecticut.



—Collegian Photo by Bill Felix  
PAUL HOFFMAN, director of the special fund for the United Nations, addresses a session of the School Administrators' Conference in Schwab Auditorium.

## Hoffman Advocates Attention to Poverty

By JESSIE JANJIGIAN

"The most significant occurrence of the twentieth century has been the revolt of three-quarters of the world's population against poverty and illness," Paul T. Hoffman, director of the United Nations' Special Fund, said Tuesday.

According to Hoffman, these underprivileged peoples have been awakened from centuries of lethargy and now realize that a better life is possible. Out of their yearnings can come a better world. However, warned Hoffman, if these yearnings are ignored, greater international tensions will occur.

The justification for our aid should not be that by extending economic aid we gain friends and influence people, he said, but that it is in our interest to help these people remain free and independent.

Hoffman emphasized that the dimensions of the problems are widespread. Over one billion people in 100 countries are involved.

In spite of all the programs of aid sponsored by many of the industrialized nations and private agencies, not nearly enough is being done, said Hoffman. "Progress has been dangerously too slow."

Most of these countries have been under-developed because of the under-utilization of human and natural resources. According to Hoffman, there is a great need for all types of training, facilities and studies of their needs and physical resources.

Hoffman said that much more could be done with the money which is now spent if it were channeled to a multi-national organization, such as the United Nations. Because this way will be cheaper and because the under-developed countries prefer this, multi-national aid is better, he said. Hoffman said that

the maximum of self-help should be required of the aided country.

Hoffman said that the present rate of investment in these under-developed countries should be doubled in order to achieve any real progress. Since over one-half of the \$300 billion spent in aid comes from the United States, one-half of the additional amount should also come from the United States. This would amount to \$15 billion in the next decade, said Hoffman.

The developed countries are justified in making this investment not only morally, but also from the point of view that the neglect of resources is indefensible economically. "The only way to insure our own development is to aid these under-developed countries in their development," said Hoffman.

If such a program could be carried out in the next decade, this could be the most significant step forward of the century, according to Hoffman. "The most compelling reason for foreign aid is our security," Hoffman said.

An investment of \$30 billion in the next decade will pay rich dividends and economic advance would be a new offense toward relieving international tension, a step toward peace, he said. Hoffman said that the war against need can be won by the end of the century.

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