

## Basic Study of Crystals Now Under Way by UO Researchers

Eugene—A basic study of crystals now beginning at the University of Oregon, using a powerful light and a large magnet, may help scientists improve the delicate devices used in space communications.

Dr. James C. Kemp, assistant professor of physics, will conduct the study with a new \$40,419 grant from the U.S. Air Force Office of Aerospace Research.

Under study will be colored crystals, which have both the ability to absorb light and become magnetized while in a

magnetic field. Because of this latter property, these crystals can also absorb microwaves.

Although these properties have been studied separately, Dr. Kemp will beam a strong light and microwaves on the crystals simultaneously to study their combined effect on the crystals' energy states.

**Relatively New Approach**

This is a relatively new research approach, Dr. Kemp indicated, and similar experiments have been conducted elsewhere only during the past three years.

The magnetic field necessary for the experiments will be provided by a new high-power electromagnet with magnetic faces which are 12 inches in diameter. The magnet and its power source were recently purchased by the university through an \$11,000 gift from the Tektronix Foundation of Portland.

Some of the experiments will be done under extremely low temperatures, achieved through the use of liquid helium. The low temperatures will slow down the reactions within the crystals for more detailed observation.

Colored crystals contain optical energy levels or states which come into play successively as they are exposed to increasingly stronger light. In the absence of light, the energy levels are in the "ground state." However, this ground state can be split into sub-levels of energy when the crystal is placed in a magnetic field.

**In Space Communication**

Although his project is presently aimed at basic knowledge of crystals, the study of these energy levels is of importance in space communications, Dr. Kemp pointed out, because the energy is used by communication devices called masers and lasers, both invented within the last decade.

Masers use the transitions between the sublevels of the ground state in magnetic crystals and similar substances as a source of energy to generate or amplify microwaves. The device is used as a preamplifier to detect weak radio waves from satellites and stars.

The laser generates or amplifies light, using the transitions between the optical levels of magnetic crystals for an energy source. It will be potentially useful in space communications, Dr. Kemp said.

These devices may be improved, he indicated, when more is known about the basic structure of magnetic crystals.

## Family Life Education Cuts Marriage Problems

Eugene—When a good program of family life education is carried out by the public schools of a community over a considerable period of time "that community has fewer than average problems of high school marriage and sexual delinquency."

This is the opinion of Curtis E. Avery, professor of education at the University of Oregon and director of the E. C. Brown Trust, writing in the current issue of The Family Life Coordinator, a Brown Trust publication.

The trust is a non-profit educational foundation established to promote the objectives of family life education in Oregon. It is administered by the university.

### Relationship Noted

In writing of the reduction in social problems among teenagers, Avery commented that "it would be unscientific to say that family life education is the direct and sole cause of this happy fact, but somehow it seems inescapable that there is a relationship."

These opinions on the benefits of such education are based, Avery writes, on "an accumulation of ideas and experiences" gained from the Oregon Developmental Center Project in Family Life Education. This project, begun in

1951 under Brown Trust sponsorship, is designed to orient teachers to the basic principles of family life education and conduct experiments in teaching techniques and methods.

Family life education need not be a special course in the curriculum in order to be successful, Avery pointed out, and it is frequently integrated into other subject matter, particularly in the lower grades.

## 1955 Larceny Case Dismissed by Court

Charges of larceny in a dwelling were dismissed yesterday in Jackson county circuit court against Darwin Coda Powers, of O'Brien.

Reasons for the district attorney's motion for dismissal were that the action commenced in 1955 and should have been completed previously to fully "accord the defendant his constitutional rights." Prosecution would defeat the cause of justice, the motion said.

Powers had been charged with taking a pistol from the Star Ranger station in the Applegate March 13, 1955.

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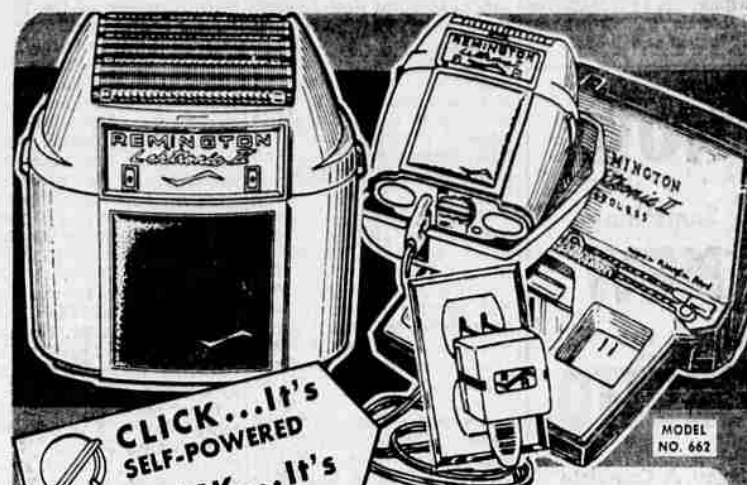
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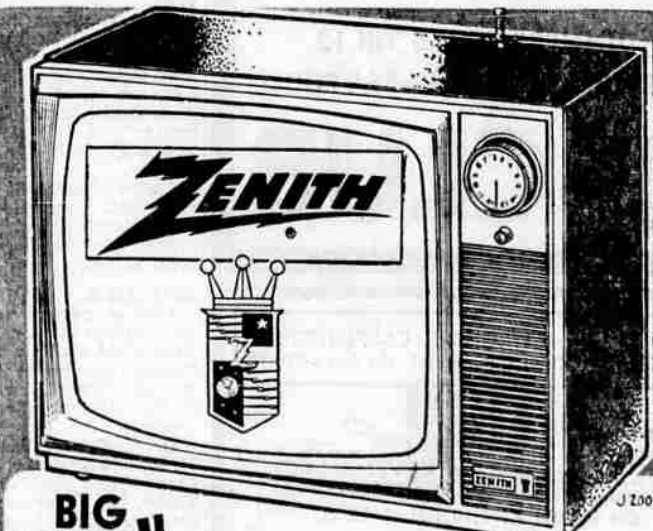
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