

inger, assistant professor of physics, and Carol G. Montgomery, associate professor of physics. The scientists are planning to use the new accelerator to study four major problems:

1. A study of new products produced by nuclear transmutations which convert one element into another.

2. How a fast electron behaves near the nucleus of an atom, and how an electron gets out of the nucleus.

3. Production of powerful X-rays by stopping fast electrons suddenly.

4. How are fast electrons absorbed in matter.

*Science News Letter, February 28, 1948*

#### AERONAUTICS

## Guide V-2 Rocket's Flight

➤ A NAZI-BUILT V-2 rocket with an American-made control system is the first of the much-heralded guided missiles.

The V-2 was successfully maneuvered in flight for the first time at the White Sands, N. Mex., Proving Ground. Signals radioed from the ground sent the rocket to the right and left and up and down.

Control is achieved by a device which receives the radio signals and activates the gyroscope which steers the rocket.

As developed thus far, the guided V-2 is still a far cry from the guided missiles which have been proclaimed to be the weapons of the future. But this flight marked the first known success at controlling any portion of a rocket flight from the ground. Months ago, the same system was sent on a "dry run" flight, in which radio signals were received and

sent back by the equipment in the rocket. On that flight, the rocket was not guided in its path, but the radio system was tested. The present flight was made possible by the successful testing which assured that the radio signals would be received by the equipment aboard the rocket.

Rocket experts of the Armed Forces emphasize that the V-2 flight was only a first step toward a guided missile. But they point out that the simple maneuvers are an important control development. The supersonic-speed rocket cannot be made to perform the dives and turns of a small airplane.

Whether or not the controlled V-2 will stand up as the first American guided missile is a problem for historians. Cloaked in secrecy are other missiles, some of which may be guided.

*Science News Letter, February 28, 1948*

#### NUCLEAR PHYSICS

## A. E. C. Offers Fellowships

➤ THE urgent need for men and women equipped to fight radiation danger and to man expanding atomic energy programs has led the U. S. Atomic Energy Commission to establish fellowships for training qualified persons in atomic medicine and biology.

Selection of candidates and administration of the program will be carried out by the National Research Council, with the A. E. C. financing the program, establishing operating policies and training goals. For the first year of the program approximately \$1,000,000 has been budgeted.

The program is expected to continue for about five years. About 75 fellows each year will be physicians and doctors of philosophy in the biological sciences. Their fellowships will be for two years. In addition, the program calls for 100 fellows who are graduates of colleges or universities but without advanced de-

grees, to take one year of training in health physics.

Because the A. E. C. wants its fellows spread widely over the country, selection of universities for fellowship training will depend in part on geographical location. Fellows will have a certain amount of latitude, however, in selection of institutions for their training.

The A. E. C. will have plenty of jobs in its own installations for the men and women after their training, Dr. Shields Warren, A. E. C. interim director for medicine and biology, stated. However, fellows will not have to agree to work for the Commission.

Health and safety of atomic energy workers can be maintained, he declared, with the trained personnel for this work now on hand. But expansion of the atomic energy program will require more of these specially trained workers. And a considerable number of research

fields which should be explored cannot be at present because of the shortage of personnel.

Very important for the future world food situation, Dr. Warren and his associate, Dr. John Z. Bowers, pointed out, is the matter of using radioactive substances for improved utilization of now scarce fertilizer materials. Preliminary investigations indicate, for example, that it may not be as necessary to lime soil as has been believed. Further studies, with tagged atoms, of the uptake by plants of different types of substances may lead to better uses of fertilizers.

Finding how long an insecticide spray will hang onto a leaf may be determined

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by tagging some of the spray's atoms with radioactive isotopes. This might save the orchardist or farmer from spraying as often as he now does, or might show the need for more frequent spraying to save his crop.

Radioactive tracers, or tagged atoms, may not necessarily open up new fields,

Dr. Warren explained, but may help advance science by giving an easier method of working in older fields. As an example of this, he gave the ease with which phosphorus can be determined by the tracer technic compared with the extremely difficult and slow processes of chemical analysis for this element.

*Science News Letter, February 28, 1948*

## PSYCHIATRY

## Check Stammer by Shock

Girl patient can talk and even sing for the first time in 13 years after treatment with electric shock. Her condition believed to have been neurotic.

➤ A YOUNG girl who stammered so badly that she could speak only in occasional monosyllables was enabled to talk freely and even to sing as a result of treatment with electric shock at the Owen Clinic, Huntington, W. Va.

The girl, whose name is not disclosed by her physicians, has stammered since she was seven years old. She is now 20.

She had graduated from high school in spite of her severe handicap and had been able to maintain a "B" average. She also had many girl friends and enjoyed going to movies and dancing. She had few boy friends, however. She studied business subjects in high school, not because she had particular interest in commerce, but because she thought it offered her the best chance of becoming independent economically.

Treatment at the clinic was started in the usual orthodox manner. She was encouraged to relax and given continuous warm baths and helped to relax with music. But speaking continued to be a very painful experience although some improvement was noticed.

Then, because the girl was in a great hurry to learn to talk and be able to get a job, the electric shock treatment was tried. There was little change until the fourth treatment, after which the improvement was remarkable. She was given 13 treatments, the last one resulting in a mild convulsion of the type known to physicians as "petit mal." The improvement after that one was even more dramatic than after the others. She was now able to speak normally except that following a visit from her family her stammer which had been negligible became greatly accentuated.

It was found that the girl's chief interest was in nursing and she is now working as a nurse's aide. She works

almost entirely with mental patients and is extraordinarily patient with them.

Drs. Thelma V. Owen and Marguerite G. Stemmermann, in reporting the case to the *American Journal of Psychiatry*, (Dec.), say that the remarkable and immediate improvement of the girl when the electric shock treatment released her inner tension, as well as her relapse when contact with her family was trying for her, indicates that the stammering, at least in her case, was due to a neurotic condition.

*Science News Letter, February 28, 1948*

## MEDICINE

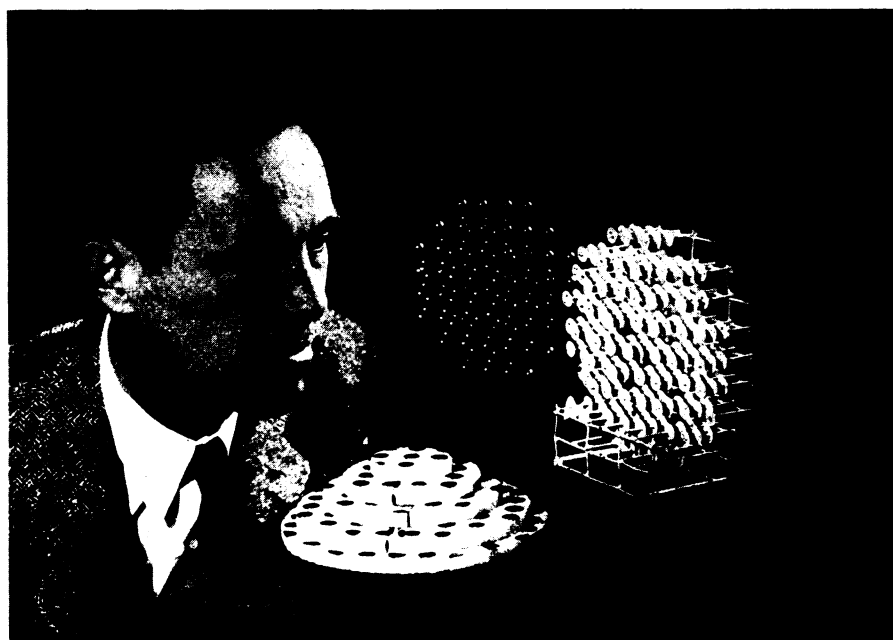
## Artery Cutting Operation Relieves Severe Headache

➤ AN artery cutting operation that gives relief in almost nine out of 10 (87%) of severe headaches is reported by Dr. Walter G. Haynes of Birmingham in the *Journal of the American Medical Association* (Feb. 21).

The headache is a one-sided, paroxysmal pain that radiates into the eye and sometimes is associated with reddening and tearing of the eye. The temporal artery that runs up the side of the head in front of the ear is tender at the time of the headache. Injection of a local anesthetic, procaine, around the artery relieves the headache. The pain is so severe as to be incapacitating. Some patients had attacks two and three times a week.

Cutting out a piece of artery relieves the pain immediately and apparently permanently. In some cases nerve is also torn loose. Nerve fibers crossing the artery are, Dr. Haynes believes, responsible for carrying the pain to the head. In some cases the middle meningeal artery is cut as well as the temporal artery.

The operation when done by a trained



**NEW TYPE METAL LENS**—It will be used for focussing radio waves in radio relay systems in the way an optical lens focusses light. It is theoretically capable of handling from 50 to 100 television channels or tens of thousands of simultaneous telephone messages, in the proposed radio relay link the Bell System is planning between New York and Chicago. Shown with three different small-scale models of the lens is Dr. Winston E. Kock who developed them.