

PSYCHOLOGY

Planning Ability Impaired

Worry-relieving operation in mental patients has been found to affect the intelligence. If this surgery was done universally it would end all progress.

➤ MENTAL patients who undergo a surgical operation designed to cut out worry and relieve depression suffer a loss of their ability to thread their way through a printed maze, such as those commonly used in children's puzzles.

That the fairly common operation, called lobotomy, impairs this kind of ability to look ahead to the end of a road before making a turn, was discovered through study of 55 patients at the Kaneohe Hospital for the Insane on Oahu Island in Hawaii. Details are reported by Drs. Stanley D. Porteus and Henry N. Peters in *Genetic Psychology Monographs*.

Doctors have thought previously that the operation did not damage intelligence, because testing with other kinds of mental tests had failed to show up any impairment. The present study indicates that 81.8% scored lower on the maze test than they did before the operation. This, Dr. Porteus points out, does not represent the total loss in this type of intelligence because it is not known just how high the patients would have scored before they became ill.

Ordinarily, normal persons improve a great deal with practice on this maze test—so much so that it cannot be used for repeated testing. Tests on a group of criminals made for comparison with the patients showed that this improvement from practice lasts as long as four and a half years. This makes the lowering of scores of the operated patients all the more striking.

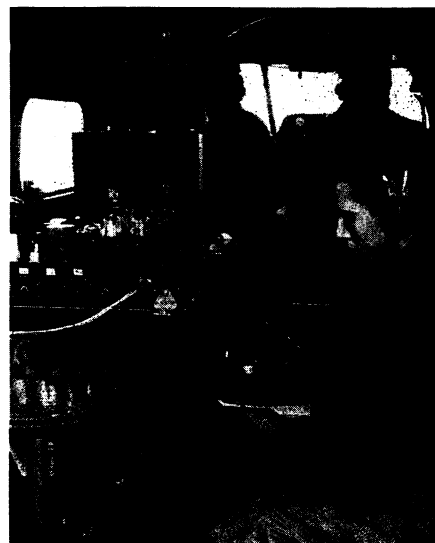
After a lapse of time, the patients gradually regain their losses, especially those whose mental disease symptoms have improved most. This fits in with what psychologists would expect, if the work of the severed nerve connections between the frontal lobes and other parts of the brain was gradually taken over by other nervous pathways.

Dr. Porteus believes these findings important not only from the point of view of how the operation affects the intelligence, but also as throwing light on the function of the frontal lobes of the brain. He now believes they are concerned chiefly with the ability to plan ahead, or foresight, apparently tested by the maze.

"There is a marked diminution in planfulness, and after varying intervals of time many of the patients recover this planfulness to a greater or lesser degree; some, however, hardly improve at all or the improvement is masked by the return of the psychotic behavior.

"Undoubtedly, because of these early and severe deficits, if everyone in the world were to be simultaneously lobotomized it would spell the end of all progress. Industry, except at the simplest levels, would cease. A population of 'cheerful drones' could hardly carry on the complex business of modern living. It is doubtful indeed whether human survival would be possible except at the most primitive levels and in the most favorable environment."

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AUTOMATIC PILOT—This new, light-weight, all-electric pilot, normally mounted between the pilot and co-pilot, keeps the plane automatically on the radio beam. It was recently developed by the G-E Marine and Aeronautics Engineering Division for the Navy Bureau of Aeronautics.

cancer comes from the National Cancer Institute of the U. S. Public Health Service, Washington. For the first time in its 10-year history, the National Cancer Advisory Council has been asked for and has granted funds for cancer-fighting across the seas.

The sum of \$13,380 goes to Dr. A. Lacassagne at the Pasteur Institute in Paris. It will be used to create new organic chemicals, some of them tagged with atoms of radioactive elements, and to study their cancer-causing action and their effects on the sex and other endocrine glands. A relation between breast cancer and sex hormones, now being turned to use in hormone treatment of hopeless cancer patients, was long ago studied by Dr. Lacassagne. He is now, it appears, going to search further into the fundamentals of this relation.

At Hebrew University in Jerusalem, Dr. L. Doljanski will try to discover the chemical nature of substances extracted from living body tissues that promote the growth of cells. And he will study the effects of X-rays, radium, dyes, narcotic drugs and many other known chemicals on the division of cancer and normal cells. A sum of \$10,000, in two grants, has been awarded him to aid these studies.

For the first time, also, National Can-

MEDICINE

Cancer Funds Cross Seas

Grants were made by the U. S. National Cancer Institute for the first time to overseas researchers to promote international attack on the disease.

➤ A NEW kind of international search for important war secrets is on. Radioactive chemicals from the atom pile will be used. But the war will be against that common enemy of mankind, cancer.

The secrets concern the relation between the structure of certain chemicals and their ability to cause cancer and to affect the division of both normal and cancer cells in the body.

News of this international attack on



INTRICATE WEAVING—This machine takes miles of cotton cord from scores of spools and weaves it into a jacket for a fire hose. If laid in a straight line, the cord in a 50-foot section of this jacket would extend 10 miles.

cer Institute funds will go to dental schools. The first signs of cancer in the mouth may often be detected by the dentist when he examines a patient's teeth. The grants to the dental schools will help more dentists learn to recognize cancer in its early, curable stage.

Mice play an essential part in the fight against cancer because in their small bodies and short lifespans scientists learn much that helps human can-

cer patients. One of the world's biggest and most important centers for breeding pedigreed mice was destroyed, with almost 100,000 mice, when the Jackson Memorial Laboratory at Bar Harbor, Me., was burned in a forest fire this fall. For rebuilding the institution and overcoming as fast as possible the bottleneck in cancer research caused by the destruction of the mice, the council has granted \$250,000.

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GENERAL SCIENCE

Industry's Support Needed

Basic research and science education should not be left to government financing for it might mean political control, according to George A. Sloan.

► **INDUSTRY** was challenged to provide major support of scientific research and higher education or suffer the consequences of a decline of the basic new knowledge and manpower upon which its progress is based.

Addressing the New York Academy of Sciences, George A. Sloan, president of the Nutrition Foundation, declared

that if industry does not supply both the push and the money for both basic research and science education, and financing is left to government, "political control may gain a disastrous foothold inside the laboratories where men are and should be simply and sincerely seeking after truth."

Industry's support of scientific investi-

gations will not be closely restricted to the direct interests of industry, Mr. Sloan promised, judging by the experience of the Nutrition Foundation, an organization of large food industries, which spends hundreds of thousands of dollars on fundamental research.

One of the results of this nutrition research has been the appraisal of a new vitamin of the B group that is important in protecting against anemia.

Every discovery of modern science opens many new avenues for continued investigation, Mr. Sloan said, citing "new knowledge which will harness nuclear fission to more productive uses than war."

"Night after night most of us are subjected to the flashings of multitudes of neon signs," he said. "We are apt to consider them as the device of some smart advertising man. We fail to realize that this commercial device is merely the adaptation of scientific studies having to do with the nature of electrical conduction in gases. Had it not been for the basic study of the pressure, volume, temperature relationships of gases, there would be no neon gas available for exploitation.

"The modern vacuum tube is a marvelous device, performing all sorts of services for mankind, contributing in a thousand ways to industrial and social progress. It was perfected by painstaking scientific work in industrial laboratories, but its roots go back to fundamental investigations which were not directed primarily toward commercial application.

"Similarly, our modern systems of mechanical refrigeration owe a great debt to the study of vapor pressure and the long and careful development of the laws of thermodynamics which long preceded the clever adaptations that, in due time, translated these matters into everyday servants."

Science is of political, economic, and social importance due to the fact that it is essential for the prosecution of modern war, Prof. W. A. Noyes, Jr., University of Rochester chemist and past-president of the American Chemical Society, told the Academy.

It is high time that scientists took a greater interest in the cause of peace, Prof. Noyes declared, explaining that UNESCO is the international organization that holds real promise of raising the scientific level throughout the world.

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A railway in Norway now crosses the Arctic Circle,