The snake has a pear-shaped nose that guides it along and assures its passage over rough land. The nose is flexible enough to guide the snake over rocks.

Special elliptical explosive cartridges, used with the snake, were placed in the trough at intervals of about two and a half feet. They were exploded by an impact fuze which was detonated by machine-gun fire from the propelling tank.

These snakes were used mostly at night in order that they would not be destroyed by the enemy. They were assembled in the field, carefully camouflaged with grass and protected with sandbags, and pushed forward in the hours of darkness when the pushing tanks would be difficult to see. The snakes moved forward at a rate of about two miles an hour.

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AERONAUTICS

Long-Range Research For Aerodynamics

➤ A LONG-RANGE research program has been started by the Army Air Technical Service Command at Wright Field, looking forward to both peacetime flying and air warfare of the future. It will be in such fields as the aerodynamics of supersonic speed, means of aiding the human body to stand the forces of such speeds, development of propulsive forces capable of supersonic flight and pilotless aircraft, the push-button warfare forecast for the future.

Devices to control robot bombs and other guided missiles from ground installations comprise another project in the present program. Still another is research to bring about a change in the "molecular structure of suspended moisture in icing clouds" so that this moisture, gathering on an airplane, can be turned into snow and thus add to safety and speed of flight.

Radio and radar equipment for traffic and landing will be included. Radio control mechanisms for pilotless planes, rockets and guided missiles, will receive special attention.

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It is roughly estimated that 10% of American *crops* are destroyed by insects.

The drying and curing of rubber by *electronic heating* is six times faster than conventional processes, and turns out better products because heat is generated uniformly throughout the material.

ENGINEERING

Naval Vessels Preserved

Scientific methods include dehumidification and the use of film preservatives. Will be ready for quick return to duty.

➤ SCIENTIFIC METHODS will preserve naval ships on an inactive list, yet allow them at any time to make a quick return to duty, the American Society of Civil Engineers was told by Rear Admiral John J. Manning.

Preservation procedure now being followed, he told the engineers, "would insure beyond question that inactive vessels will be susceptible of quick recommissioning when necessary."

The modern techniques for preservation of ships include dehumidification, protection with film preservatives and plastics and other similar measures, he stated. The imperative necessity of maintaining inactive vessels in a much higher degree of preservation than was possible heretofore, he declared, was demonstrated by our experience in attempting to recommission hastily the World War I vessels which were loaned to Great Britain.

Admiral Manning explained that the Navy now plans to divide its postwar fleet into three basic groups. First would be an active fleet, manned about 70% of war complement; a reserve fleet, manned at 30% of war complement and rotated periodically with the active fleet; and, third, an inactive fleet, to be fully decommissioned and placed in a state of preservation such that it can be reactivated when necessary. In addition, he said, a considerable number of obsolete combat vessels, surplus auxiliaries and landing craft will be disposed of.

Waste Land Reclamation

➤ THE RECLAMATION of millions of waste acres, particularly in 17 arid or semi-arid western states, offers the opportunity to provide much-needed, fertile fields for the production of food required to keep pace with growing world needs, Kenneth W. Markwell of the U. S. Bureau of Reclamation declared at the same meeting.

There is a great need for rebuilding the soil, bringing under cultivation new

BEFORE AND AFTER—At the left the "Snake" is in position for clearing a path through a jungle mine field. Right: results of detonation of the "Snake." Official U. S. Army photographs.

acres that can be farmed economically, harnessing rivers for power, flood control and navigation, and in addition "utilizing to best advantage every drop of water in the West."

In contending that reclamation of the West is essential for a better-fed and healthier America, Mr. Markwell asserted that "conservative estimates based upon studies made by the U. S. Department of Agriculture forecast the necessity for bringing about 40,000,000 new acres of land under cultivation by 1960 to replace marginal and sub-marginal land to meet the needs of a growing population and to supply normal export markets."

He advised civil engineers to "Go West" because of the opportunities in their profession.

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MEDICINE

Facial Hemiatrophy Cause

Disease in which one side of the face withers is believed due to inborn weakness of the nervous system. No cure is known.

➤ ONE OF THE RAREST diseases of man, a "two-faces" malady in which one side of the face withers until it shows little resemblance to the other, is the subject of a new theory by Dr. Robert Wartenberg, neurologist in the University of California Medical School.

Disintegration of tissue, partial baldness and sometimes epilepsy are visited on victims of the disease, which is known as progressive facial hemiatrophy. Only about 500 cases are known to medical science.

The disease, for which no cure is known, is insidious, often progressing for years without the victim realizing its presence. A dimple on the forehead is often the first indication. Gradually it may deepen, with wasting of the side of the face, and bald spots may appear at the hairline.

Nervous disorders frequently accompany the early facial symptoms, but frequently years pass before the victim realizes he is afflicted with an incurable disease which has altered one side of his face almost beyond recognition.

Dr. Wartenberg believes that the disease is the result of an inborn weakness of the nervous system. Some medical men have expressed the opinion that hemiatrophy is caused by other diseases, such as encephalitis or typhoid, which it often follows.

But Dr. Wartenberg says that such diseases and even damage to the brain from serious accident are insufficient explanation for the slow, relentless degeneration found in facial hemiatrophy. The very rarity of the disease also rules out explanations which rely on diseases a great number of people have had. The neurologist suggests that contraction of diseases such as encephalitis may provoke facial hemiatrophy in an already weak nervous system or speed up a case which has already been at work.

Hemiatrophy appears frequently at adolescence, which, like disease, places greater demands on the nervous system.

Dr. Wartenberg suggests that the disease is due to a spontaneous degeneration of the higher brain centers, which regulate the growth of and cement the two halves of the body and which provide nourishment to nerve tissue throughout the body.

Dr. Wartenberg says that the higher centers may be inherently weak, in which case they will usually function satisfactorily if the body is healthy and is not subjected to additional strains of disease or accident.

But under the greater demands of such emergencies as disease, or sometimes adolescence, for more nourishment of the tissues, the inherently weak nervous system breaks down and facial hemiatrophy results.

While his theory is not provable at the present time, Dr. Wartenberg says it seems the most likely from the evidence presently at hand.

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HORTICULTURE

Water-Lily and Violet Among Plant Patents

➤ OUTSTANDING among recent plant patents is No. 666, a beautiful hybrid pink water-lily originated by Perry D. Slocum of Cortland County, N. Y. Its pointed petals are deep rose pink at the base, passing to almost white at the tips. The flowers remain pink for five days after cutting, whereas previously known pink water-lily varieties fade to a dirty white on the second day.

Another beautiful flower, on which plant patent 671 was granted to Frank Rourke of Westfield, Mass., is a hybrid violet, whose long-stemmed blossoms are as big as pansies and of an intense, deep purple. The plant produces strong runners which are important in its propagation, and is claimed to be very winter-hardy.

Other plants on which patents were issued to breeders included a peach tree, an avocado tree, a hybrid tea rose and a carnation.

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BIOCHEMISTRY

Stored Cereal Grains Protected from Spoilage

➤ A CHEMICAL treatment of stored cereal grains and cottonseed to eliminate costly spoilage may soon become a common practice, Dr. Aaron M. Altschul declared at a section meeting of the American Chemical Society at College Station, Texas. This advance, he said, is indicated by recent developments in the study of plant hormones.

Dr. Altschul is a biochemist in the New Orleans southern regional research laboratory of the U. S. Department of Agriculture, where intensive study is being given to methods of preventing deterioration of seeds during storage. It is an important problem because considerable spoilage takes place between harvesting and consumption, particularly in climates of relatively high temperature and humidity.

Although many factors influence biochemical activity in seeds, he said, moisture is by far the most important because it affects seed respiration and the resultant production of heat. Attempts to define safe moisture limits for seed storage have failed because conditions of growth, maturity and harvest also affect the subsequent behavior of seeds.

"The development of our knowledge and use of plant hormones gives us every reason to believe," Dr. Altschul declared, "that biologically active agents will be found which will either hasten the completion of maturation even under adverse weather conditions, or will compensate for incomplete maturation by temporarily inhibiting the biological processes in seeds, so that they may be safely stored without loss of viability or of usefulness as a food or for industry."

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