

been made possible by an ingeniously contrived device, the hydrogen generator container, designed in the laboratory of the American Can Company's war products division in collaboration with Signal Corps officers.

Adaptable to almost instant use in any field of action where water is available, this generator replaces the former hydrogen tank which, because of its weight and bulk, required trucking.

A companion device to the generator is a new battery can which makes it possible to fill automatically the batteries with acid by packing them in a vacuum, just as foods are packed for safe-keeping. When the can is punctured, acid is drawn by the vacuum into eighteen tiny holes in the battery which is held clear of the sides of the can by fluted partitions.

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## AERONAUTICS

## New Helicopter Has Stabilizing Device

► A NEW HELICOPTER, which incorporates important principles for stability and for precision control, has just been announced by the Bell Aircraft Corporation, where the stability principle was developed and the new flying machine constructed. The company plans to build helicopters for commercial and private flying after the war, but until the war is over the entire production will be for military uses.

The stabilizing device, developed by Arthur M. Young of the Bell Aircraft Corporation, is placed between the mast and the rotor of the helicopter, with the result that the rotor tends to remain in a horizontal plane regardless of the angle with the earth of the fuselage itself. This gives a stability that increases simplicity of controls.

The new Bell machine uses a Franklin air-cooled engine, rated at 160 horsepower, mounted vertically behind the pilot's compartment. It uses a two-bladed rotor with a simplified hub design. The rotor is free-wheeling, as on other helicopters, and when the engine stops the blades run free in autorotation.

Rotor, mast, transmission and engine are mounted integrally, and are set in the fuselage in soft rubber mounts in order to decrease vibration. The span of the rotor is 33 feet. A conventional anti-torque five-foot propeller on the tail is two-bladed, and is made of solid wood, as are the blades of the rotor.

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## NUTRITION

# One Year at Work Needed

► THE PATIENT who has suffered from pellagra or any other vitamin deficiency disease cannot be considered "cured" until he has been steadily at work for one year, Dr. Tom D. Spies, director of the nutrition clinic, Hillman Hospital, Birmingham, Ala., and associate professor at the University of Cincinnati College of Medicine, declared at the University's 125th anniversary celebration.

When these patients are treated only during a short phase of their disease and discharged and allowed to go back to their old environment as soon as they feel well, they break down again. This, Dr. Spies suggested, may have been the basis of the old saying, "Once a pellagriner, always a pellagriner."

At least 400 persons who were essentially invalids have been rehabilitated at the nutrition clinic to the point where they are now doing full-time work, Dr. Spies reported. Of the 400, 30 are in the armed forces, 82 are in agriculture, 97 in domestic service and 191 in industry.

Synthetic vitamins are often life-saving and are needed for critically ill patients. Eventually, however, patients with deficiencies have to have a suitable diet.

"We not only recommend it but see

that they get it," Dr. Spies stated in emphasizing the follow-up treatment of patients after they have recovered.

There were no deaths among the 16,121 patients who visited the nutrition clinic during the calendar years 1942 and 1943, although at the beginning of the studies there the mortality rate in a series of severe uncomplicated cases was 54%.

Persons with malnutrition have a number of deficiency diseases operating simultaneously, Dr. Spies declared. They recover much faster when all the deficiencies are recognized and treated.

Stressing the importance of early diagnosis, before the severe, textbook symptoms develop, he said that he suspects that these conditions often escape detection.

Most dramatic are the responses to specific nutritional treatment of persons with mental disease as a result of vitamin deficiency. Dr. Spies gave as an example of this the case of a man "who had been incarcerated in a custodial institution for the legally insane for 14 months. We were able to have his mind functioning properly within 72 hours after treatment was begun," he stated.

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**POST-WAR FAMILY CAR?**—The stability device incorporated in the Bell Aircraft Corporation's helicopter makes it possible for Arthur M. Young, who developed the new machine, to study its operation as it hovers motionless in gusty air.