



**GOOD MEDICINE**—Men with a leg in a cast exercise on chin bars. Even bed patients are expected to use special apparatus to keep them fit while getting well.

back, raising chest toward head. Keep hips on bed. 2 Relax. 3. Repeat. 4. Relax.

**Lung Conditioner:** Lie on back, hands on hips. 1. Inhale (chest breathing) in four counts, taking a deeper breath each count. 2. Exhale in four counts. Try to empty lungs on last count, and tighten buttocks.

Every morning and afternoon the physical training specialist would come to the ward and put you through this series twice. At first you would do each one only two or three times; later you would work up to ten or fifteen repetitions. In four or five days you would add a few exercises which take a bit more effort, but still without putting a strain on the abdominal muscles. And after two weeks, you would be using these muscles, avoiding sudden strains, but giving them a good workout in easy stages.

#### AERONAUTICS

## Travels 400 Miles an Hour

► LATEST in Grumman's line of fighting "cats," the newly developed Bearcat, sister ship to the Wildcat, Hellcat and Tigercat, is said to be superior to either the Wildcat or Hellcat in both speed and maneuverability.

Although lighter by about a ton and a half than the Hellcat, the Bearcat, designated as the F8F, has the typical Grum-

man clipped wing tips, stubby fuselage and low-winged outward appearance of the Hellcat. Powered by a single-stage Pratt-Whitney radial engine, developing more than 2800 horsepower with water injection, the F8F is armed with four .50-caliber machine guns and is equipped with racks to carry rockets and bombs.

It is not only weakened muscles that benefit from physical training; there are other mental and physical results which can be just as important. Physical condition has a lot to do with mental health, and the outlook of both normal and neuropsychiatric patients is much improved by this program.

More unexpected are the effects in transverse myelitis cases, paralyzed from the waist down; the Navy reports that, in addition to strengthening the arm and trunk muscles to the point where these patients can get around without help, regular exercise prevents two conditions which had always troubled them—the formation of bladder or kidney stones, and decalcification of the bones of the legs and feet.

*Science News Letter, November 10, 1945*

Manufactured by the Grumman Aircraft Engineering Corporation at Bethpage, Long Island, N. Y., the Bearcat is believed to be the fastest carrier-based, propeller-driven fighter in the world at sea level, making over 400 miles an hour in level flight. Extreme range of 1,500 miles under ferry conditions and a rate of climb of nearly a mile a minute are claimed.

While Grumman was concentrating on carrier-based fighters, the Republic Aviation Corporation at Farmingdale, Long Island, had an experimental Army fighter flying at speeds in excess of 500 miles an hour as early as August, 1944. Of a long line of P-47 Thunderbolts, the XP-47J dispelled the fallacy that propeller-driver, reciprocating-engined aircraft could not reach a level flight speed of 500 miles an hour.

The Pratt-Whitney radial engine was equipped with a propeller-driven cooling fan in the motor cowling, in addition to the air intake ports. The exhaust of the turbo-supercharger, jetting into the air beneath the plane, just forward of the tail assembly, is said to have added 400 horsepower to the normal thrust of the engine.

Production of the XP-47J series would have required complete retooling of the Republic plant, so only one 47J was constructed, but certain features and engineering improvements of the experimental plane were incorporated into later models of the Thunderbolt.

*Science News Letter, November 10, 1945*

The *myrtle warbler* receives its name from its favorite foods; the wax berries of the myrtle.

The succulent stalk by which the popular *cashew nuts* are attached to the cashew tree yields flesh and juices used in the manufacture of preserves, wines, liquors and ice cream.

by  
**W. H. GEORGE**

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