AERONAUTICS

Giant Plane, Eight-Jet Bomber, Nears Completion

➤ WHILE NO details are being released by the U. S. Air Force relative to its new heavy bomber, the XB-52, powered with eight jet engines, except an unrevealing photograph, it is a product of the Boeing Aircraft Company and appears to be a companion ship of the Boeing B-47, a six-jet-engined bomber which made its first flight late in 1947.

It was this B-47 that in 1948 made a dash of nearly 2,300 miles from Moses Lake Air Force Base in the state of Washington to Andrews Field near Washington, D. C. in less than four hours at an average speed of 607.8 miles per hour.

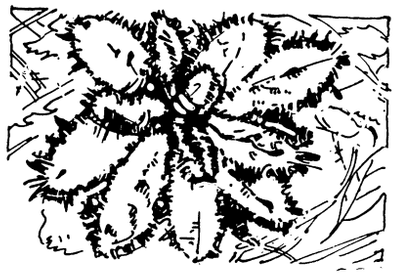
The new XB-52, like the B-47, has its jet engines suspended under the wings. Twin engines are used, the two in each pair being side by side. They are so placed that they divide the wing into three nearly equal sections.

The XB-52 resembles in many respects the Boeing B-50 series of bombers. These, however, are powered with four conventional engines driving propellers and the engines are mounted above the wings. They are about 99 feet in length and have a wingspan of 141 feet. Their normal loaded combat weight is 140,000 pounds and they have a maximum speed of 400 miles an hour. The XB-52 is expected to be in the 600-miles-per-hour class.

Science News Letter, January 12, 1952

BOTANY

NATURE RAMBLINGS



Winter Rosettes

➤ PLANTS HAVE a double problem to face in regions, misnamed "temperate," where there is an alternation between a tropic summer and an arctic winter.

During the growing season their task is to become as tall as possible, reaching upward toward the sun for the vital rays indispensable to food-making. During the winter their job is to keep away from exposure to sleet and frost and from the arid cold winds and too sudden thaws.

The winter task is by far the more difficult, and annual plants sidestep it altogether by dying and entrusting the future of their several species to weatherproof seeds. Tougher woody plants either shed their leaves or reduce them to mere needles, and store next year's vegetative parts inside buds protected with a jacket of varnished scales. Perennial herbs simply hide underground.

A fourth solution of the winter problem is presented by the so-called winter rosette plants, such as the dandelion, mullein and wild lettuce. These plants are usually biennials, starting from seed during the summer, wintering over as flat circles of leaves on the ground. In spring they enjoy a considerable start over their annual neighbors, which have to begin from seeds, and over the perennials, which have to come up from beneath the ground.

In spite of frosts and snows, persistently green even after hard freezes, at most making a slight concession to the cold by taking on a purplish tinge, the little round mats of leaves may be seen everywhere although taller plants have long since withered and died.

The formation of these little leaf-circles is a favorite trick of biennial plants, for their life is not an easy one. A biennial must make at least a large part of its vegetative growth after germinating in late spring or early summer, and have enough food stored up over winter to go into the seedmaking business early the following year.

Within the limitations imposed by circumstances, these flat mats are very satisfactory. They can stay on the job of making food until the very last possible moment; they elbow all other competing plants out of their circle; they squat low, so that the lightest snowfall protects them against drying out in the severe winter winds. And in the spring they can begin to do business at the old stand the moment the snow melts away.

Science News Letter, January 12, 1952

ASTRONOMY

Moon Is Truly Inconstant

➤ THE MOON lives up astronomically to its reputation of being inconstant. But an electronic "brain" with its terrific speed for handling involved calculations is helping astronomers keep exact track of the moon's irregular movements.

Thanks to an electronic calculating machine, future positions of the moon among the stars are being figured with greater accuracy than has ever before been possible, Dr. W. J. Eckert of the Watson Scientific Computing Laboratory of the International Business Machines Corporations and Dr. Edgar W. Woolard of the U. S. Naval Observatory reported to members of the American Astronomical Society meeting in Cleveland.

Today the moon furnishes the most accurate methods of measuring large distances, such as those across major oceans. The exact position of the moon is needed more and more in astronomy and surveying.

Up to this time, in calculating the position of the moon, astronomers have used tables constructed from formulae developed several decades ago by the late Dr. E. W. Brown of Yale University. Dr. Brown's original formulae which represents the moon's longitude, latitude and distance from the earth contain over 1650 terms. The lunar tables were worked out 30 years ago by Dr. Brown and the late H. B. Hedrick, then at Yale.

Exact values for the theoretical coordinates were computed from the theoretical equations by Dr. Eckert, Miss Rebecca B. Jones and H. K. Clark, using I.B.M.'s Selective Sequence Electronic Calculator.

When Dr. Woolard examined in detail one set of positions calculated with the electronic brain, and compared these with figures computed with the lunar tables at the Nautical Almanac Office, he discovered significant differences. Study indicated that certain simplifications introduced in constructing the original tables did result in slight inaccuracies. Also through some oversight in constructing the tables, certain figures had been used once too often.

Science News Letter, January 12, 1952