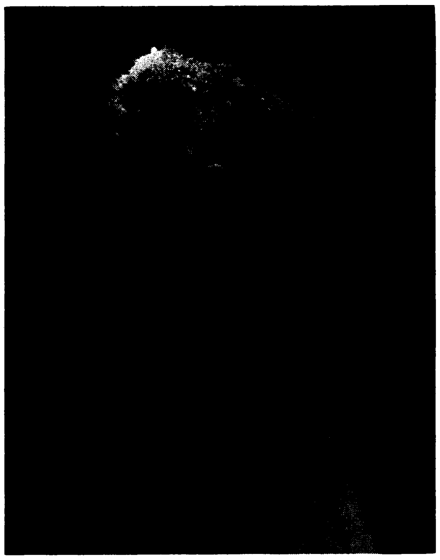

POLLINATION—Bumblebee is taking pollen from the stamens of a Datura, in this closeup photograph by Lynwood M. Chace. Nature's purpose is accomplished by the bee carrying pollen from one flower to another.

its mate, and the two fuse into one.

Immediately this cell divides again, and the two resultant cells do likewise, and so on for thousands upon thousands of divisions, with changes in arrangement and structure that finally produce the seed.

The process just described may be called the normal one. It is what has to happen for every fertile seed produced by ordinary pollination. There are, however, departures from the normal, which may frustrate the whole procedure, especially when efforts are being made by plant breeders to use strange pollen for the production of hybrids. Some of these troubles were traced to their causes by the researches of Prof. Buchholz.

One common cause of failure is the failure of the pollen tube to grow long enough. Either through weakness on its own part or because of chemical hostility encountered in the tissues of the style, a tube may stop growing. If it does, of course its usefulness is at any end. One way of evading this difficulty is by cutting off part of the style and letting the pollen-tube get started that much closer to its goal. This is a hint that practical plant breeders have found useful with plants more valued than jimsonweeds.

Another source of trouble, and one much more difficult to get around, is a more marked chemical incompatibility between pollen-tube and style tissue which results in the bursting of the pollen-tube and the loss of the fertilizing nucleus. This seems to call for a chemical reconditioning of the stylar tissue—something much more easily talked about than done.

At last, once the pollen-tubes have accomplished thier mission and the new crop of seeds is assured, there is no further need for the outer flower structures. The style withers and drops off, the flaunting corolla fades and is discarded. Down in their nursery at the base of the pistil the young seeds will grow and slowly ripen, until autumn opens the pod and the winds shake them out—to repeat the cycle another year.

Science News Letter, September 7, 1946

AERONAUTICS

Jet Future for Aircraft

➤ JET POWER for all future American high-performance aircraft was predicted with the announcement that the Army Air Forces has given the green light to General Electric's Aircraft Gas Turbine Division to manufacture all present designs of jets and speed development of new and more powerful designs.

R. G. Standerwick, chief engineer for General Electric, forecasts that high-speed gas turbines may largely replace conventional airplane engines "in the next 10 years."

He predicted that jet engines propelling commercial planes at 500 to 600 miles per hour will be forthcoming, and for the future jet-propelled aircraft may speed at 1,500 miles per hour to altitudes as high as 15 miles with engines of as great as 10,000 horsepower.

Pointing out that the speed danger zone lies between 600 and 740 miles per hour, the jet engineer declared that an intensive program is underway by government and industry to send speeds above that of sound.

Although gas turbines require oxygen to operate, Mr. Standerwick said altitudes of 60,000 to 80,000 feet, where there is still some oxygen, might be reached.

Once jet speeds have broken through the wall of sound's speed, he pointed out, ram jet, the "flying stovepipe," might replace gas turbines.

"Then," he concluded, "if we are to fly higher and faster, we will depend upon rocket planes, which will break through the earth's atmosphere—100 miles up—at speeds between 3,000 and 4,000 miles an hour, which are not physiologically unreasonable."

Science News Letter, September 7, 1946

WILDLIFE

Lovely Trumpeter Swan Saved from Extinction

➤ THE TRUMPETER swan, largest migratory waterfowl of North America, has probably been saved from extinction.

Only 73 of these magnificent birds remained in the United States in 1935. Today at least 301 of these swans are to be found in this country, it was discovered through a survey conducted by the U. S. Fish and Wildlife Service, active in their restoration.

Science News Letter, September 7, 1946