



**"SHOOTING STAR"**—The Army has contracted for an improved version of the Lockheed P-80 jet fighter shown in this Army Air Forces photograph.

## DENTISTRY

## Live Teeth Grafted in Cats

Fourteen cats have tooth germ grafting. Tooth banks for human teeth are predicted, but knowledge of bones and blood vessels is needed.

► POSSIBILITY of tooth banks being developed at some future date, from which "live" teeth could be obtained as replacements for those that have to be extracted, is seen in studies made by Dr. Harry H. Shapiro of Columbia University.

The first step in this direction has been taken with cats. A developing tooth or "germ" has been removed from a donor cat and grafted into the socket of a host cat from which a tooth had just been removed. The procedure has been carried out in 14 cats. Hosts were older than donors, ranging in age from six months to one year.

X-ray examinations were made before and after the operations and were continued throughout the development of the tooth germ. The germ, not to be confused with the kind that causes disease, is not more than a few millimeters in diameter and its intact removal is a delicate operation.

In cases where the donor tooth was not injured during transplantation, it

developed and grew normally. This was true whether the transplant was the same kind of tooth as the one removed from the host or another kind, as when an incisor was substituted for a canine.

Cats were chosen for the work because the growth cycle of teeth in cats is most like that in humans, and proceeds rapidly so that results could be determined fairly soon. Kittens, like human babies, are born without teeth, acquire a first or "baby" set which they lose and then get a second permanent set. And cats reach maturity in nine months.

Before the results can be applied to humans, much more will have to be learned of bone regeneration, blood vessel regeneration and developing tooth structure. Dr. Shapiro himself will not make any predictions on the future possibilities for humans. Some time ago he received a letter from a Californian placing an order for several transplants, "preferably molars." This is the kind of thing he wants to discourage and prevent.

Dr. Shapiro started his tooth transplants in 1940. Sharing his work was his wife, Dr. Bernice L. MacLean, who died last year. Two of the cats with transplanted teeth were shown at a meeting of the American Association of Anatomists at Cornell Medical College.

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## AERONAUTICS

## New Edition of Army P-80 "Shooting Star" On Way

► A NEW EDITION of the Army's jet-propelled P-80 "Shooting Star", to be known as the P-80B, is on the way.

The Army Air Forces have awarded the manufacturer of the P-80, Lockheed Aircraft Corporation of Burbank, Calif., a contract for a stronger plane of the P-80 type with greater firepower.

New features for the P-80B include:

Thicker skin and stronger bulkheads with a sturdier base for armament.

Stainless steel around the engine for greater fireproofing.

Water injection in the J-33 turbo-jet engine to increase take-off and climb performance.

Natural aluminum finish to get away from the chipped paint which mars the P-80 after it has flown through a rain-storm.

Enclosed radio masts and antenna wires to reduce the drag of the equipment at high speeds.

Refrigeration system to give more comfortable cockpit temperatures at all times.

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## PHYSICS

## X-Ray Application Made With Electron Microscope

► THE PRINCIPLE of the electron microscope is applied in the production of X-rays for the purposes of spectrographic analysis in a setup designed by one of the leading workers in the field, Dr. James Hillier of the Radio Corporation of America, to which firm he has assigned his patent, No. 2,418,029. A beam of electrons is focussed in the customary way on the object to be analyzed. Striking it, the electrons cause the emission of X-rays. A beam of these, screened through a pair of slits, strikes a crystal, which scatters them in characteristic diffraction pattern and permits a photographic record to be made.

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