

ELECTRONICS

"Fly" Unbuilt Planes

Analogue computer, now checking airplane designs, could have, if it had existed then, told first pilot to break sound barrier that his plane would not disintegrate.

► NOW AN electronic "brain" can "fly" unbuilt airplanes. The brain will tell engineers in advance whether the aeronautical design of a new plane is sound. If faulty, the design can be re-worked and checked by the brain until the best design has been obtained.

The analogue computer's component parts, existing as separate entities in 1946, helped Boeing get the B-52 Stratofortress and the B-47 Stratojet into the sky for the Air Force.

Without the computer, some of the Air Force's new missiles would still be in design stages today, said Edward R. Baugh, manager of Boeing's electronic devices.

The electronic device, if it had existed then, could have predicted in advance that the experimental Bell XS-1 was not going to disintegrate when Maj. Charles E. Yeager, then an Air Force captain, rammed the tiny plane through the sonic barrier on his history-making flight Oct. 17, 1947.

This prediction might have comforted Maj. Yeager somewhat. He knew an English plane had disintegrated in an apparent attempt to crack the sonic barrier. The pilot was killed.

The electronic analogue computer was displayed at the Eastern Joint Computer Conference in Washington sponsored by the American Institute of Electrical Engineers, the Institute of Radio Engineers and the Association for Computing Machinery.

Models of an airborne digital computer

have been flight tested in a C-47 aircraft. W. B. Hebenstreit, an official of Hughes Research and Development Laboratories, said the pint-sized computers have been used to control the airplane automatically through an autopilot. The flight was smooth and accurate.

The digital computer was linked to the autopilot through a coupler. The coupler took the output from the computer and supplied heading-angle corrections to the autopilot. Flight tests included automatic dead-reckoning and programmed flight over a selected course.

Although it occupies only two cubic feet of space, as compared to models that often fill a substantial part of a large room, the little computer works rapidly. Its computing speed and capacity are about half that of its big brothers.

The Burroughs Corporation revealed two new devices: a high-speed smudge-free printer and a "word punch" that prepares tape for digital computers.

The printer is the "answer end" of a laboratory computer. Tiny hot pins jab out of a holder to melt a carbon coating to the answer tape. The pins form any of 16 characters, splicing them off at 30 characters a second.

The word punch is a desk-size device with which an office girl can prepare a tape for digital computers. It is believed that the new device will cut errors 60%.

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FORESTRY

Christmas Tree Farms

► THE BEST part of Christmas for many farmers is the profit they make growing Christmas trees on their poorest land. The estimated total retail value of the Christmas tree industry this year is \$50,000,000.

The United States uses about 30,000,000 trees each Christmas, nearly a third of them imported from Canada. Of the trees cut in this country, small farms yield 44%.

Most of the trees, a little over 90%, come from natural timber cuttings. The remainder are grown on "Christmas tree farms," a profitable sideline farmers all over the country are discovering.

Poor land is best for this kind of tree farming, since it slows tree growth to yield a denser, more attractive tree. A tree that grows slowly has its branches close together, giving it a compact appearance.

By the middle of last month, most Christmas trees had been cut, sorted and

graded and started for the markets. To keep the tree in good condition longer, cutting is timed to come after the first frost. Cutting age is usually 10 to 25 years.

The most popular trees for Christmas use are balsam fir and Douglas fir, which together account for 57% of all the trees. Other popular varieties are black spruce, eastern red cedar and white spruce. Balsam fir is grown in the Midwest and East and Douglas fir in the West.

Spruce and fir trees have short, upright needles on their branches and twigs. Each needle is attached to the twig individually, unlike pine trees which have several needles joined together.

Christmas tree plantations have been spreading over the nation for 30 years. Foresters estimate that farmers can grow, at a total cost of 25 to 28 cents, a tree that will sell for 50 cents. This profit, coupled with

the use of poor land, makes the trees an attractive sideline.

In order to give their trees the cone-shape preferred by most buyers, plantation owners shape their trees each year with pruning shears. This pruning also serves to make the trees more compact.

Foresters recommend that Christmas trees be kept in water in a cool place and sprinkled with water frequently before they are put up for decoration.

When the needles of a tree start falling, it is time to throw it away. This indicates the tree has dried out and become a serious fire hazard.

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VIROLOGY

Diamond-Shaped Crystal In Germs Discovered

► DISCOVERY OF diamond-shaped crystals in the spores of a bacillus that makes certain insects sick is giving scientists a new mystery.

Whether these crystals contain a virus or a phage, or whether their formation is a genetic characteristic related to formation of an insect poison are problems now awaiting solution, Dr. C. L. Hannay of Science Service Laboratory, London, Ont., Canada, points out in *Nature* (Nov. 28).

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MEDICINE

Inhale Vitamin Instead Of Getting "Shots"

► PERNICIOUS ANEMIA patients can now take their vitamin B-12 by inhaling it, like steam or nose drops, instead of getting "shots" of the vitamin into their muscles.

This new method for giving vitamin treatment was announced by Dr. Raymond W. Monto of the Henry Ford Hospital, Detroit, at a regional meeting of the American College of Physicians held at the University of Michigan.

Vitamin B-12 effectively controls pernicious anemia, but frequently these patients have a stomach defect which prevents them from absorbing the vitamin if they take it in tablets like pills. Therefore it has become routine to inject the vitamin hypodermically into the muscles.

"Injection of vitamin B-12 requires a physician, and since the therapy [treatment], in order to be effective, must be continuous, the routine is often tiresome and expensive for the patient," Dr. Monto reported.

The need was for an "effective, economical and safe mode of treatment for pernicious anemia," the doctor said.

The method has been developed. It is the simple inhalation of vitamin B-12 in crystalline form through the nose, much like steam or nose drops. The sufferer of pernicious anemia may now side-step the needle and inhale the vitamin after prescription.

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