

bles of air as the solidified plastic is exposed to the air. The solid plastic piece contains only one part of resin to 100 parts of air.

The new material is claimed to be satisfactory for all types of insulating, ranging

from soft-drink coolers to prefabricated houses and airplanes. It is resistant to fire, moisture, fungus growth and insects. One particular value is that the liquid resin can be shipped in barrels and converted into foam where it is to be used.

Science News Letter, April 16, 1949

#### TELEPHONY

## Toll Telephone Dialing

► NATION-WIDE toll dialing for long-distance telephone calls is promised for the relatively near future. With the addition of new toll dialing networks centering in New York and Chicago, the Bell System is now handling approximately 40% of its long-distance calls by the new automatic switching method.

Present networks enable local station operators to dial calls direct to subscribers' telephones in some 300 cities, the BELL LABORATORIES RECORD states. Ultimate plans are to extend the system throughout the United States and Canada. Additional automatic switching centers are scheduled to be established this year in Boston, Cleveland, and in Oakland, Calif.

The Bell System's program for nationwide toll dialing is based on the development of a new electronic switching equipment which can select possible routes between distant cities, direct switching operations at intermediate points along a route, and complete connections automatically in a matter of seconds, the RECORD declares. When installations are completed, the average speed of all long-distance calls is expected to be about one minute, or about half the time now required.

The system calls for dividing the United States and Canada into 80 numbering plan areas, each to be distinguished by a three-digit code. Each telephone central office within each area will be designated by a three-digit office code. The operator in the local station in which the call is placed

will dial all together 10 digits. The first three will get the proper area, the second three the proper central, and the last four will be the called number.

In calling distant cities, the operator does not actually dial the numbers as the local phone is dialed. Instead, a 10-button key set is used. Each time the operator presses a key, a tone pulse is sent over the regular voice channels to the switching center. This method is twice as fast as using the ordinary dial.

Science News Letter, April 16, 1949

#### AERONAUTICS

### Government Issues Textbook On Airplane Powerplants

► FULL information concerning powerplants for aircraft is given in a government publication just released. It is entitled AIRCRAFT POWERPLANT HANDBOOK, and was prepared by experts of the Civil Aeronautics Administration.

This new publication, a complete revision of an early bulletin, is primarily a textbook for aviation students, mechanics, pilots and engineers, but will prove of value to many others interested in one phase or another of aviation. In its preparation full cooperation was given by the U. S. Air Force, Navy Bureau of Aeronautics and several engine manufacturers.

AIRCRAFT POWERPLANT HANDBOOK is available from the U. S. Superintendent of Docu-

ments, Government Printing Office, Washington, D. C., and not directly from the CAA. Its price is \$1.25, and it is known as CAA Technical Manual No. 107.

Science News Letter, April 16, 1949

## On This Week's Cover

► TRACK-TYPE landing gear featured on the giant Air Force cargo and troop-carrier planes, known as the Fairchild C-82 Packet, permits safe landing on unsurfaced fields. It cuts the ground bearing pressure of the standard landing gear wheel by two thirds.

Science News Letter, April 16, 1949

## SCIENCE NEWS LETTER

VOL. 55 APRIL 16, 1949 No. 16

49,400 copies of this issue printed

The Weekly Summary of Current Science, published every Saturday by SCIENCE SERVICE, Inc., 1719 N. St., N. W., Washington 6, D. C., NORTH 2255. Edited by WATSON DAVIS.

Subscription rates: 1 yr., \$5.50; 2 yrs., \$10.00; 3 yrs., \$14.50; single copy, 15 cents, more than six months old, 25 cents. No charge for foreign postage.

Change of address: Three weeks notice is required. When ordering a change, please state exactly how magazine is now addressed. Your new address should include postal zone number if you have one.

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Printed in U. S. A. Entered as second class matter at the post office at Washington, D. C. under the act of March 3, 1879. Established in mimeographed form March 18, 1922. Title registered as trademark, U. S. and Canadian Patent Offices. Indexed in Readers' Guide to periodical Literature, Abridged Guide, and the Engineering Index.

Member Audit Bureau of Circulation. Advertising Representatives: Howland and Howland, Inc., 393 7th Ave., N.Y.C., Pennsylvania 6-5566 and 360 N. Michigan Ave., Chicago, STAtE 4439.

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