

plane, developed as a type for America's five major air lines, carried a gross load of 53,000 pounds at takeoff. It required less than half of the 2,800-foot runway of Cloverfield to get into the air. Two months of further flight testing will now follow. Seats and special instruments for eight flight observers have been installed in the plane.

New streamlined editions of two of America's most famous trains, New York Central's Twentieth Century Limited and Pennsylvania's Broadway Limited, were recently placed in service between New York and Chicago, cutting the running time by half an hour to 16 hours. The 16 hours now required for the extra fare train trip is the fastest ever run between New York and Chicago by rail.

MAYON, Philippine volcano which recently erupted, has a long reputation as a trouble-maker. It was first heard from in white man's history in 1616, and since then has been "in the papers" at frequent intervals. During the nineteenth century alone it blew off not less than twenty-seven times. Four of these eruptions took toll of human life. The first, just at the turn of the century, killed an unspecified number—"several persons" is all the record states. Then in 1814 came a major disaster, blotting out 1,200 lives. An eruption in 1853 killed 33 persons, and a larger one in 1897 killed 350. During the present century there was another major volcanic disaster in the Philippines, when another crater, Taal, exploded and destroyed many native villages, with a death list of 1,335.

EXPERIMENTS conducted by the U. S. Department of Agriculture indicate that apple trees of the future, breaking precedent with apple trees of to-day, may grow on their own roots. Government experimenters have succeeded in inducing stem cuttings of desirable varieties of apples to send out roots, according to Dr. F. E. Gardner, in charge of nursery stock investigation for the Bureau of Plant Industry. In the past, grafting was necessary because seedlings do not produce true to variety and because cuttings of stem tissues would not take root. Springtime taping of the growing root with black tape right up to the growing tip or enclosing the shoot in a black tube so changes the shoot that it will take root when removed from the tree in the fall. It is only necessary to make the basal cut, Dr. Gardner declares, before planting.

SYNTHETIC abrasives, made in electric furnaces, where hardness and the shape and size of the grains are under rigid control, are replacing natural abrasives rapidly, economists find. Last year, more than 8,000,000 tons of synthetic abrasives, mostly silicon carbide and aluminum oxide, were used by American industry, while less than half of that tonnage of natural abrasives was used, according to U. S. Bureau of Mines figures. The "sand" in sandpaper is now usually carefully-graded crushed garnet. Diamonds, the hardest known crystals, are still used almost exclusively for cutting and polishing other diamonds, and for drilling through rock. No synthetic substitute for diamonds has yet been found.



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