



### Life Everlasting

► THE theme of resurrection, of life renewed and triumphant over death, is customarily thought of as something connected with Eastertide and springtime. Yet it is not inappropriate to think of these things now, as the Yule season closes and the new year begins. For although we still have the worst of the winter's storms to live through there is already a promise of brighter things to come, a prophecy of young leaves and petals bursting from their still-sealed buds.

The midwinter feasts of Christendom are actually older than the Christian events they traditionally commemorate. For in most of the ancient pagan lands, men took a week or two off in midwinter to feast and sing songs in celebration of the return of longer days and the beginning of the sun's return from his long and disheartening winter retreat. Use of green boughs and bright berries, of such things as pine branches and holly, were expressions of man's invincible hopefulness in the face of the most desperate-seeming situations. These things that kept the look of life about them, when everything else in the woods seemed dead, were to our ancestors bright banners of hope in their gropings towards immortality.

With our better knowledge of the actual winter state of trees and shrubs and lesser plants, we are well aware that they

are not dead but sleeping. When new warmth comes back to the cold earth, along with the days that have already begun to lengthen a little, the weeks after spring equinox will make good the promise of the days after winter solstice, and life will break through the long bonds of dormancy.

But even where death has been real and not seeming, as with the fallen leaves and snapped-off branches, there will be an

arising of new life out of the death of the old. All these myriad discarded bits of once-living material, worked over by swarming organisms of decay, leave a richer earth out of which the new generations of leaves and flowers and eventual fruit can draw the most necessary elements of life. Death and decay are indispensable links in the endless chain of living.

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### AERONAUTICS

## Developments in Aviation

► YEARS of work in aviation developments reached the application stage during 1948, the 44th year of the flying age following the December day in 1903 when the Wright Brothers proved that man-carrying, engine-driven, winged aircraft could actually fly.

Some of these developments are in relation to the plane itself, and have to do with such items as speed, range, safety, comfort and size. Others of equal, if not greater importance, are concerned with navigation, take-offs and landings. Aeronautics is fast reaching the stage where all-weather flying will become as general as railroading.

Many speed records were broken during the year, but these are the culmination of years of work of scientists and engineers. They are the results of a pooling of knowledge acquired by governmental and industrial researchers into the fundamentals of aerodynamics.

Among these speed accomplishments was the establishment of a new official world record of practically 671 miles an hour by a U. S. Air Force jet plane, a North American F-86. Far greater speeds were obtained, all unofficial from the international standpoint, several times by the Air Force, Bell Aircraft XS-1, which actually made its first supersonic flight in the fall of 1947.

Important achievements were made in long-range flights also. Long range ability is important in both commercial and military flying, particularly in international and transoceanic flying. A 6,000-mile non-stop test flight made by the Air Force giant bomber, the Consolidated-Vultee B-36, which took off with a gross weight of 300,000 pounds, is noteworthy.

A 3,400-mile non-stop flight of the jet-propelled Northrop Flying Wing bomber was a striking demonstration of the progress made in jet propulsion, and also of the future possibilities of the flying wing type of aircraft. This ship combines speed with long range; it is in the 500-mile-an-hour class, and can carry 15 tons of bombs.

In commercial flying, scheduled flights will be more dependable, certain and safe with new navigation aides installed during the year that will permit flying in weather in which all planes were grounded in the past. The successful application of very high frequency (VHF) radio communication between planes in the air and ground control stations is largely responsible. This type

of static-free communication permits a pilot to hear clearly instructions from the ground, and it is also used in the new so-called omniranges which will furnish the radio beams for pilots to fly in the future. Some of the radio ranges are already using VHF; all will be soon, and the United States will have some 400 of these stations. Their beams will reach every part of the country. They are called omniranges because they send out pilot-guiding beams in all directions, rather than in only four as provided by the radio ranges of the past.

The Civil Aeronautics Administration so-called instrument landing system (ILS) has been widely extended during the year, and hundreds of transports have been equipped with the necessary apparatus to make use of them. CAA installs the necessary airport equipment; plane operators must install their own airborne equipment.

To supplement the ILS, a number of commercial airports now have an improved form of the wartime radar-radio ground controlled approach equipment known as GCA. One radar scanning equipment locates every plane in the air within some 30 to 40 miles of the instrument, even in the worst of weather. Another radar set is used to follow a particular plane about to land, to give the pilot voice instruction by radio. This radar enables the ground operator to see whether the plane is making the proper approach and is directly on the ILS radio beam glide path.

Very important during the year was the study of aviation navigation made by a national committee known as the Radio Technical Commission for Aeronautics. It is made up of experts in aviation, both in navigation and in manufacturing. Its recommendations will soon be in standard use.

Most important of these is the development of what is called a common system for the navigation control of both civil and military planes. Its recommendations include general use of instrument landing systems of the CAA type, the use of GCA where needed, the omniranges now being set up throughout the nation, and special airborne equipment including omnirange receivers, two-way VHF radio voice communication, and another ingenious instrument that tells a pilot in miles the distance from him to the station on which his instrument is tuned.

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A stylized advertisement for a product called "FUN IN THE DARK". It features a starburst graphic with the text "FUN IN THE DARK" and "250 LUMINOUS STARS". Below this, it says "Moon &amp; 4 Planets" and "Have your own Planetarium on the ceiling of your den, bedroom or rumpus room!". It also mentions "STARS" shine with outdoor realism AFTER turning off the lights." and "Cummed and Ready to Put Up". The price is listed as "NOW Only \$1.00 postpaid" and it is "Complete with Chart and Directions". The address is "STARS" • 12,200 BLIX STREET NORTH HOLLYWOOD, CALIF".