AERONAUTICS

Super-Fast Lengthy Flights

Long-range flights at supersonic speeds may require development of atomic fuel. Skyrocket plane piloted faster and higher than ever recorded before.

➤ LONG-RANGE AIRPLANE flights at speeds far greater than that of sound, such as a short flight recently made by the Douglas Skyrocket piloted plane, will require power plants and fuels not now in use. Perhaps they will await the development of atomic power.

Rocket power was used to send the Skyrocket through space at a speed of about 1,200 miles per hour, since the speed is said to be nearly twice that of sound which, at the altitude at which the plane flew, is about 660 miles per hour. Rocket power was used also in the X-1, which is credited as being the first piloted plane to break the so-called sonic barrier, a condition encountered at the speed of sound.

Rocket engines, reaction engines they are called, can give plenty of power. But the planes equipped with them can not carry enough fuel to remain in the air for an extended period. They have to carry not only fuel but oxygen for combustion.

The rocket engine is a type of jet engine. But it does not obtain the necessary oxygen for combustion from the air. It carries its own supply, usually in what is called a monofuel. This is a mixture of a high-energy fuel and a chemical that releases oxygen for combustion. For this reason the rocket can speed to high altitudes into the thin atmosphere that contains too little oxygen for ordinary engines.

This Navy sonic research plane, the Douglas Skyrocket, in recent tests made in California, attained the highest speed and altitude ever recorded by a piloted aircraft. The actual speed and altitude are not revealed. However, it traveled faster and at a higher altitude than achieved by the Air Force's X-1, which reached a speed of over 1,000 miles an hour and rose to an altitude of 63,000 feet.

The Skyrocket that made the new records is unlike the standard Skyrocket that holds the world's official speed record of nearly 671 miles per hour near sea level where the speed of sound is approximately 760 miles per hour. The plane is a sweptback winged affair, which first flew in 1948, with combined jet and rocket power. This plane had the jet engines removed to make room for rocket fuel. It was carried aloft under the belly of a B-29 and released at 35,000 feet.

It was then on its own, and its rocket power took it to an altitude thought by some to be about 70,000 feet. There it leveled off and spurted to a speed estimated by some to be between 1,200 and 1,300 miles per hour. With rocket power exhausted, it glided to the earth. Its flight on its own was close to 15 minutes.

Science News Letter, July 14, 1951

MEDICINE

Home Poisons May Kill

➤ MORE THAN 600 children die each year because they accidentally swallowed poison of some kind. Many more swallow poison and recover after proper treatment. But these survivors may be left with permanent disabilities, Dr. Jay M. Arena of Duke University School of Medicine warns.

Dr. Arena blames careless parents for many of the accidental poisonings of children. In a report to the American Medical Association meeting in Atlantic City he stated:

"Poisons contained in household agents are responsible for most of the deaths and disabilities. If all drugs and household agents that contain poison were made inaccessible to children, such poisonings could be almost entirely prevented."

Lye, he explained, is one of the most common causes of poisoning in childhood. During the first 18 years of the Duke Hospital, more than 136 children were treated for stricture of the esophagus caused by swallowing lye. Many of these cases were due to sodium hydroxide in washing powders, drainpipe cleaners or certain paint removers.

Among other causes of childhood poisonings listed by Dr. Arena are the following:

Strong acid: Hydrochloric acid is present in some metal-cleaning fluids. Even lactic acid when taken in large amounts occasionally has caused poisoning in children.

Kerosene: The fluid often is left carelessly about the home in a soft drink bottle, and thirsty toddlers do not hestitate to sample it.

Iodine: Children may be attracted by its rich color and pungent odor. An unstable adolescent or preadolescent may take iodine in a dramatic attempt at suicide because usually it is the most available bottle with a "poison" label.

Other home products which frequently contain poisonous ingredients include moth balls and moth flakes; roach, ant and rat poisons; insecticides, paints and dyes. Some cosmetics also contain arsenical preparations.

First aid treatment will depend entirely on the nature of the poison. The label of some containers lists specific antidotes. Medical aid should be summoned immediately.

Science News Letter, July 14, 1951

INVENTION

Bone Char for Refining Sugar Made Reusable

➤ THE PROCESS of refining cane sugar, in which great quantities of bone char are used for decolorizing, is decreased in cost by methods of regeneration of the char so that it can be used over and over again. An improved process to accomplish this purpose brought patent 2,557,948 to Victor R. Deitz of the National Bureau of Standards, Washington, D. C. The patent is assigned to the government as represented by the Department of Commerce.

This new process greatly decreases the amount of water now used to wash the char to remove inorganic impurities. It consists of treating the char with a solution of an ammonium salt of an organic acid. This replaces inorganic ions adsorbed in the sugar-clarifying process with volatile ions which can be driven off by heat.

Science News Letter, July 14, 1951

INVENTION

Oxygen-Containing Fuel For Gas-Turbine Engines

➤ GAS TURBINE engines in airplanes may become more widely used with a so-called monofuel which contains, in addition to the combustible material, an oxygen-releasing chemical which supplies the necessary oxygen for combustion. Present fuels used in rockets contain sufficent oxygen to assure combustion.

This newly patented monofuel can be used in rockets, or in other situations where a self-sufficient fuel is desired, but it is recommended particularly for gas turbine engines to permit them to operate without dependence on the atmosphere for oxygen.

The propellant comprises a mixture of approximately 80% to 90% by weight of a methane known to chemists as tetronitromethane as an oxidizing agent, less than 1% of an inhibitor to control the rate of combustion such as tetraethyl lead, and the balance an unsaturated organic liquid fuel such as benzene.

Inventor is John A. Hannum, Detroit, Mich. Patent 2,559,071 was issued to him. Patent rights have been assigned to Borg-Warner Corporation of Chicago.

Science News Letter, July 14, 1951