AERONAUTICS

Instruments for Jets

➤ SIMPLE INSTRUMENTS that will enable the pilots of jet transport planes to land quickly and surely under grizzly weather conditions hold the key to acceptance of the modern high-speed jet aircraft in America.

This is the opinion of Dr. Sidney I. Brody, medical liaison officer for the Navy's Bureau of Aeronautics. Comdr. Brody told delegates to the Aero Medical Association meeting in Washington that present instruments tax the pilot almost to his full capacity.

He must read quickly six basic instruments to visualize the position of his airplane when heavy weather obscures the landing field and horizon. He must add to these instrument readings the radio signals and instructions that pour into his ears.

Should an emergency arise during the critical landing or take-off period, the pilot would be completely overloaded with things to remember. While trying to compensate for engine failure, for instance, he might forget to check the attitude of his plane and smash a wing into the landing strip.

New, simple instruments are also needed because jet planes cannot be "stacked up" at the landing site while awaiting landing instructions. They burn fuel so greedily that they must be landed as soon as possible after reaching their destinations. Often they will have to land in bad weather.

Dr. Brody said all-weather flight from the military aspect is even more important. The successful air defense of this country rests upon the rapid launching and landing of fighter planes under all conditions.

Simpler instruments for fighter pilots also are required due to the terrific speed at which things can happen in combat maneuvers. The modern fighter contains a battery of 200 dials, switches and controls for the pilot to monitor. While engaging the enemy, the fighter pilot may not have time to read even the basic instruments that tell him what his airplane is doing. Too easily he can become confused, with fatal consequences.

Dr. Brody reported that the Office of Naval Research and the Bureau of Aeronautics are developing new instruments that will present the pilot a quick, simple picture of his plane under all conditions. When perfected they will revolutionize instrument flying, Dr. Brody predicted.

Science News Letter, April 10, 1954

CHEMISTRY

Atom Mining for Iron

➤ WHAT AMOUNTS to a new mining method for obtaining iron was described to chemists interested in improving water resources who attended the American Chemical Society meeting in Kansas City, Mo.

The iron is found in waste water from industrial plants that use acid to clean the surface of steel products. The method is ion exchange, once a laboratory procedure but now increasingly used in industrial installations.

The yield of iron from this process, which proceeds atom by atom, is measured by the pound.

A variety of plastic resins is available that will draw this iron out of the waste water solution trickling through the ion exchange apparatus. A particular kind of resin, known as a quaternary type anion exchanger, was reported by A. C. Reents and F. H. Kahler of the Illinois Water Treatment Co., Rockford, Ill.

This resin can be made to take iron out of hydrochloric acid solution and, at the same time, recover the hydrochloric acid. A double purpose is thus accomplished, saving useful materials in a form not too expensive to use over again and preventing harmful wastes from polluting water supplies.

Sulfuric acid, a more common material than hydrochloric for cleaning or "pickling" steel, is recovered by a different type of ion exchange resin in a process described to the meeting by A. M. Franklin and E. B. Tooper of the National Aluminate Corp., Chicago.

Metal finishing operations, especially chromium plating, also using ion exchange procedures, were described by R. F. Ledford and J. C. Hesler of the Industrial Filter and Pump Mfg. Co., Chicago. They discussed the cost of ion exchange treatments, with their refund in the shape of recovered metal, in comparison with other methods of waste disposal.

Science News Letter, April 10, 1954

CHEMISTRY

New Plastics Can Be Hard or Flexible

➤ NEW PLASTIC materials of several kinds were reported at the meeting of the American Chemical Society in Kansas City, Mo. They are for improvement of surface finishes for paper, cardboard, metal foils and plastic films, and for adhesives with which these materials may be built up into laminated forms similar to plywood.

Epoxy resins, invented by Dr. S. O. Greenlee of S. C. Johnson & Son, Inc., Racine, Wis., that can be catalyzed into hard, glassy materials or warmed with linseed oil acids to give more flexible coatings are among the new plastics. They lend themselves to combination with polyamide resins to form new classes of plastics.

Use of these coatings on magazine covers, cardboard boxes and wall paper was forecast by M. M. Renfrew, H. A. Wittcoff, D. E. Floyd and D. W. Glaser of General Mills, Minneapolis.

A process for forming polysulfone resins that make synthetic rubber more resistant to impact was explained by W. W. Crouch and J. E. Wicklatz of the Phillips Petroleum Co., Bartlesville, Okla.

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