

GENERAL SCIENCE

Storehouse of Facts

Having accurate facts and figures on the properties of minerals, such as those issued by the National Bureau of Standards, may save dollars and time—By Watson Davis

► THE MOST PRECIOUS facts for working scientists and engineers are figures on the properties of materials that have been tested and found to be true.

Such "critically evaluated data" have been worth millions of dollars to defense and industry, although it costs only thousands of dollars to collect, compile and authenticate.

Scientists do not shout about the trouble that they have had because of inadequate facts, but it is known that the recent space probe shot toward Venus apparently overheated because of errors in the heat emission data used in its design. The tables used were wrong. Now the National Aeronautics and Space Administration will probably spend several million dollars to get better thermal emission data.

Another difficulty, due to not knowing enough, was trouble with two chemical plants making boron compounds urgently needed for the rocket program. Erroneous data on the thermodynamics of these compounds caused the shutdown of two chemical plants which cost \$76 million to build.

When synthetic rubber plants were being built it was necessary to over-design their cooling systems at considerable increase in cost because it was not known how much heat the chemical reaction of polymeriza-

tion created. The determination of the properties of hydrocarbons has paid off magnificently. Over three decades, relatively small sums were spent by the American Petroleum Institute, the National Bureau of Standards, the Bureau of Mines and several universities. This research led directly to such technical developments as the shipment of liquefied methane in cargo vessels, improvement of petroleum production efficiency, perfection of many chemical processing and refining techniques and methods that avoided the losses of millions of barrels of light hydrocarbon condensates.

The urgent need for better reference data of this sort has caused the President's Office of Science and Technology to arrange for the National Bureau of Standards and the National Academy of Sciences to beef up their programs for standard reference data and extend them as rapidly as possible in the physical and chemical fields. For many years the National Bureau of Standards has issued standards of many sorts, particularly on light, color, sound. Its wavelength tables have been outstanding.

Numerical determinations made during the course of scientific research in all parts of the globe are evaluated. The new Standard Reference Data Center will search the

world's growing scientific literature, doubling every eight years, and check it and issue it in various forms to the working scientists and technologists.

Experts in universities and research laboratories will be made a part of this new national effort, which may become international in the future.

Two data centers in Western Europe are already informally cooperating. Soviet Russia has a less developed data center and approximately 80% of its information is of American origin.

In the past, the so-called critical data have been issued in the form of bound volumes. These need to be revised constantly and some of the distribution of data will occur in this form. But it is planned to have a special service to those who need particular information. This will probably be provided by great accumulations of facts stored in computers.

• Science News Letter, 84:6 July 6, 1963

TECHNOLOGY

Records for Model Planes Sought on Holiday

► TESTS preparing for attempts to break the world altitude and speed records for radio-controlled model airplanes have been completed.

The altitude record is 7,380 feet, held by Soviet flyers. District of Columbia Radio Control Club flyers believe they have a good chance to break this record by using apparatus made available by the Naval Weapons Test Center, Dahlgren, Va. The apparatus and personnel were available for the real try on July 4.

Because of the holiday, volunteer experts were able to operate radar tracking devices. The flyers were also able to use surplus electrically driven gun-sighting binoculars that let each model plane pilot see to fly his six-foot model at great height.

Practice runs with the gun-sight binoculars proved that the planes can be flown to a height well out of sight of the unaided eye.

The radar tracking device can track the tiny planes with remarkable accuracy when a piece of aluminum foil is attached to the wing. The foil is easily attached and does not materially hinder flight of the models.

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TECHNOLOGY

Army Ordnance Develops Promising Brake Fluid

► THE U.S. PUBLIC may soon be using brake fluids containing a highly effective corrosion inhibitor, far better than any available on the market today.

The compound was developed and tested by Army ordnance researchers at Aberdeen Proving Ground, Aberdeen, Md., and is now being investigated by a major brake fluid producer. Other companies have also indicated an interest, and if it proves satisfactory in these tests also, this substances may be available by next year.

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Fremont Davis

TRIAL RUN—Washington, D. C. Radio Control Club members are testing their model airplanes. Jim Reed is at the spotting scope, Dr. Walter Good, piloting his plane, is at the large black binoculars. Jim Reed, Jr. looks with hand held binoculars and Maynard Hill watches as he gets his plane ready.