

# Forecasts by Computer

➤ LOCAL WEATHER forecasts throughout the United States are now being made on the basis of improved wind and temperature predictions calculated by a giant computer.

The computer is using the most sophisticated model of the atmosphere yet devised for routine calculation to make the improved forecasts. The mathematical model of the atmosphere computes predictions for seven levels from the surface up to 53,000 feet, compared to only three levels for the previous forecast model.

The improved predictions are of particular benefit to jet pilots. The complex combination of equations was developed by Dr. Frederick G. Shuman, director of the U.S. Weather Bureau's National Meteorological Center in Suitland, Md. The Center is the central forecasting facility of the Environmental Science Services Administration, U.S. Department of Commerce.

The NMC uses computers to prepare general weather predictions for the entire Northern Hemisphere. Local

weather forecasts are based on the large-scale predictions.

The seven-level forecast model, which was under development for six years, was actually ready for routine operation some time ago. It could not be used until a computer powerful enough to handle the complex model—and still meet forecast deadlines—was available at NMC.

The new model of the atmosphere consists of six equations representing the fundamental physical laws of motion, continuity, thermodynamic energy and state. It is programmed for the Weather Bureau's CDC-6600 computer, which is continuously supplied with the latest weather observations from around the world.

In 70 minutes, future weather patterns at the seven levels are computed for as much as 36 hours in advance. The forecasts are completed within five and a half hours after the weather observations are made.

The forecasts are made for sea level and for altitudes of approximately 3,000, 12,000, 20,000, 35,000, 42,000, and 53,000 feet. The 35,000-foot level—the tropopause—is of special interest to aviation because of its strong winds and because clear air turbulence is often encountered near this altitude.

The new forecast model takes into account heat added to the atmosphere by the sun and oceans, which the former model did not.

In the future, when global information on heating, moisture and radiation becomes available, the new weather prediction model could be used to prepare daily weather forecasts as far as a week in advance.

• Science News, 90:14 July 2, 1966

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# WW II 'Shellburst' Film Used to Spot Criminals

➤ A HIGHLY light-sensitive film used during World War II to photograph explosions and tracer bullets at night has been adapted into a tool for catching criminals.

Called Shellburst Panchromatic film by the Eastman Kodak Company, Rochester, N.Y., it has been developed into what the company calls "the fastest film in the world today when exposed in tungsten (artificial) light."

The Rochester police department has already used the film, now called 2475 Recording Film, for surveillance in poor light, "with excellent results," according to Chief William Lombard. Other cities in the United States and Canada have used the film for the identification of persons involved in such crimes as narcotics peddling and gambling, "committed in dimly lighted situations."

A difficulty with previous films has been that between sunset and sunrise, when many such crimes occur, most of the available light both indoors and out is in the red-orange end of the spectrum, to which most high-speed films are less sensitive. The new film, however, is reportedly sensitive to the entire visible spectrum, enabling photos to be taken even by candlelight.

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# How Fast Can You Read?

A noted publisher in Chicago reports there is a simple technique of rapid reading which should enable you to double your reading speed and yet retain much more. Most people do not realize how much they could increase their pleasure, success and income by reading faster and more accurately.

According to this publisher, anyone regardless of his present reading skill, can use this simple technique to improve his reading ability to a remarkable degree. Whether reading stories, books, technical matter, it becomes possible to read sentences at a glance and entire pages in seconds with this method.

To acquaint the readers of this publication with the easy-to-follow rules for developing rapid reading skill, the company has printed full details of its interesting self-training method in a new booklet, "How to Read Faster and Retain More" mailed free to anyone who requests it. No obligation. Send your name, address, and zip code to: Reading, 835 Diversey Parkway, Dept. 264B, Chicago, Ill. 60614. A postcard will do. (Adv)

# Do You Know?

Undetected *diabetes* in the general population is estimated at about one percent.

Brain tissue begins to die in four minutes and the heart stops beating in nine minutes if the human body is without *oxygen*.

A new technique for decorating *aluminum* by hardcoat anodizing can produce designs using as many as seven different colors.

The *teleprinter* that makes telegraph transmission practically instantaneous came into use in the mid-1920s.

Information from Russian spacecraft, especially Zond III, has shown scientists that the back side of the *moon* is quite different from the front side.

