

METEOROLOGY

"Moon" Not Forecast Aid

➤ OBSERVATIONS of cloud cover and other weather events seen from earth-circling satellites will probably not revolutionize weather forecasting in the near future, as some scientists have foreseen.

Two warnings that expecting immediate improvement in weather prediction accuracy as a result of satellite observations is overly optimistic are sounded in two meteorological journals.

The three scientists reporting their views agree the greatest improvement in forecasting is likely to result not directly from seeing the weather over the whole earth but from gaining an understanding of the global relations of weather systems.

As an example, Dr. Arnold H. Glaser of Allied Research Associates, Inc., Boston, points out that a storm affecting New York's weather two days from now could be brewing today in the Gulf of Mexico. This storm's strength and destination may be controlled by events in the Caribbean, and these events in turn may be influenced by earlier occurrences in the Southern Hemisphere.

Thus, Dr. Glaser concludes, "any attempt to trace back a meteorological chain of events leads rather promptly to events occurring over parts of the globe where regular observations are not easily available."

Weather forecasts for regions where the surrounding weather is known and can be studied and analyzed, such as the central Midwest, are considerably more accurate than predictions for the eastern seaboard. Sudden weather changes along the East Coast are often not forecast simply because meteorologists do not have sufficient observations from over the Atlantic Ocean.

Drs. William K. Widger Jr. and C. N. Touart of the Air Force Cambridge Research Center, Cambridge, Mass., after a thorough analysis of using satellite observations in weather analysis and forecasting, conclude that present-day prediction methods and the data to be expected from a satellite are not compatible.

They urge a research program, to be started immediately, aimed at tailoring the satellite data so they can be used by today's forecasters. As a start, they suggest that several high-altitude airplanes of photo-reconnaissance types be flown for several years to gather observations and photographs of cloud masses as seen from above.

Dr. Glaser's report appears in *Weatherwise* (Dec., 1957), and that of Drs. Widger and Touart in the *Bulletin of the American Meteorological Society* (Nov., 1957). Both are current publications of the American Meteorological Society.

Science News Letter, February 1, 1958

PHYSICS

Reds Try Taming H-Power

➤ RUSSIA is making substantial progress towards harnessing the H-bomb or controlling thermonuclear reactions.

This is well-known to Western scientists, particularly those involved in the Anglo-American fusion experiments. (See p. 67.)

Alexander Topchiev, secretary of the Soviet Academy of Sciences, has said recent Russian experiments in controlling thermonuclear reactions had moved the Soviet effort nearer to the building of "a reactor capable of working on heavy and super-heavy hydrogen (deuterium and tritium), and not on uranium fuel."

Although little is actually known of what the Russians are doing to harness the H-bomb, what is known has convinced Western scientists that Soviet scientists are doing original and highly expert work.

Three leading Russian nuclear scientists directly at work on fusion are Igor Kurchatov, Mikhail Leontovich and Lev Artsimovich.

It was Kurchatov who, in April 1956, startled and shook both British and American scientists by openly and frankly discussing fusion at Harwell in England. At this time, research on fusion in both Western countries was wrapped in tight security blankets.

Kurchatov, who is Russia's top atomic energy man, deliberately lectured on So-

viet experiments on fusion reactions, revealing for the first time the methods used.

It is also known that the Russians are working with high energy impulse discharges much the same as Western scientists, and have obtained temperatures in excess of 1,000,000 degrees centigrade. If they had obtained this in 1956, as Kurchatov disclosed they already had, it is believed that by now they must have reached temperatures of 5,000,000 degrees centigrade or higher.

Science News Letter, February 1, 1958

GENETICS

Skin Grafts Help Predict Offspring Before Mating

➤ SKIN GRAFT reactions between two animals may be useful in predicting characteristics of their offspring before mating takes place, John E. Berry, Kansas State College, Manhattan, has found.

The extent of the graft reactions is governed by antigens in the skin. These are protein compounds which are controlled by genes, and these, in turn, are factors concerned with the transmission and development of hereditary characteristics.

Animals that are close relatives have more antigens in common and therefore show less reaction. Those not closely related, hav-

ing few antigens in common, show a greater reaction, the researcher believes.

The intensity of the reaction, then, gives an estimate of the genetic similarity between the two individual animals being tested. If the grafting technique proves successful, it can be used by animal breeders to guide them in more accurate selection of the animals they will breed.

The intensity of the graft reaction is measured by comparing the changes in the white blood cell counts in blood samples collected before and after the grafting is done.

If the animals are closely related, there will be little change in the cell counts. If not closely related, a greater number of certain white cells will be present.

Science News Letter, February 1, 1958

NUTRITION

Improvement in Diet Helps Mental Patients

➤ THE RESPONSE of mental patients to an abundance of well-liked foods is striking, Dr. Hayden H. Donahue and Phoebe A. Fowler of the State of Oklahoma Department of Mental Health, Norman, reported to a symposium on nutrition and behavior.

Since inaugurating an adequate dietary standard at the State Mental Hospital, they found, fights in the dining room are extremely rare whereas formerly they occurred during almost every meal. Night cries and screaming have also diminished. Dry skin, red, swollen joints, dull and lifeless hair are not as great problems as formerly.

The emotional significance of food is deeply rooted, they explain. Eating represents the child's first contact with the reality of the external world. Similarly, eating can and should become one of the important forces in the treatment and resocialization of mental patients.

Food consumption in the hospital was improved by the elimination of greatly disliked and monotonous foods. Dried black figs were one of these foods. They are no longer being purchased. Oatmeal had been served every morning with syrup for years, as far back as menus can be located.

These foods were eliminated in spite of the fact they are nutritious because they cannot "contribute nutrients to a diet when they end in the garbage can."

The form in which foods are served can be very important to the mental patient. One old man was so impressed when he was given a whole banana that he was moved to tears as he remarked that he did not know that bananas still grew.

"Every meal," the scientists say, "should be recognized as an opportunity for the socialization of the patient. Every personal contact with the patient should represent a positive step in his rehabilitation."

Science News Letter, February 1, 1958

Titanium engine parts can be welded in a plastic bubble that holds argon gas.

Malaria infects some 250,000,000 persons each year.