

cult and sometimes not dependable.

X-ray scattering or diffraction, however, is claimed by its discoverers to be both more rapid and more sure than any hitherto employed. The method depends on the fact that when a thin beam of X-rays strikes any substance it is diffracted or scattered, and that each substance has its own characteristic "diffraction pattern." The pattern produced by X-rays passing through a mass of silica particles, for instance, cannot be duplicated by any other substance.

*Science News Letter, August 24, 1935*

#### METEOROLOGY

### Drought Returns to West, Intensified by Heat

RETURN of drought to the West, intensified by another week of simmering heat, has been definitely recognized by U. S. Weather Bureau in its regular weekly weather and crop summary.

"West of the Mississippi River a few areas still enjoy favorable growing conditions, . . . but drought persists over most other sections," the report states. "In the Plains States rain is seriously needed rather generally; pastures have become dry; late crops deteriorated in most places. . . In general, growing conditions now are less favorable than at any time during the summer."

*Science News Letter, August 24, 1935*

#### GENERAL SCIENCE

## Freedom and Organization Both Needed in Research

SCIENCE, to be fruitful, must be free. To make its fruits socially available, science must be organized.

How to reconcile this seeming antithesis receives the attention of Secretary of Agriculture Wallace, in a brief essay in the Department Yearbook, just issued.

"There is really only one rule; namely, that scientific men shall be allowed to follow the truth," says Secretary Wallace. "Science cannot be blueprinted and pushed forward on a schedule. Often scientists should be under no obligation to produce immediate results. Sometimes, on the other hand, they must answer emergency calls. The great thing, in directing science, is not to regiment it; for that would be to kill it.

"We combine organization with freedom in our political life. We are trying to do the same in the economic sphere.

"There is an identical problem in science. Organization is necessary in this field, too. Modern science is cooperative. Scientific men cannot work in isolation

without funds, equipment and communication with fellow workers.

"But the organization of research, particularly in studies that affect economic interests, is difficult. It tempts us to anticipate findings. This temptation we must resist. Otherwise the research is spurious and the research morale declines. Science is either free or dead. In organizing research we must not destroy its nature and leave only a mechanism.

"How to organize research without regimenting the research personnel is a problem that needs further study. From the organization to the regimentation of science, the descent is easy. It is imperative to avoid this calamity.

"The principal thing that distinguishes the progressive from the decadent countries is mental freedom; and in science this quality is indispensable."

*Science News Letter, August 24, 1935*

#### AERONAUTICS

### Stratosphere Glider Being Constructed in Russia

THE FIRST stratosphere glider in the world, claimed to be capable of making over 250 miles an hour in the stratosphere, is being built by the Experimental Institute of the Commissariat of Heavy Industry.

Consisting in part of a balloon such as has been used in past stratosphere ascents, it will have a glider attached to a special frame in the lower part of the gas envelope, instead of the usual spherical gondola. There will be room for two persons in the hermetically sealed cabin of the glider.

When an altitude of about 12.5 miles has been attained, construction is such that a lever can be used to detach the glider from the balloon, and start it into a nose dive, tapering off into a long glide.

Soviet scientists predict that at this altitude the speed of the glider will be 266 miles an hour, due to the rarefied atmosphere, and consequent lessening of frictional drag.

Scientific data on the phenomena of a falling body in the stratosphere will be obtained which would be impossible to get in an ordinary stratosphere balloon, because of the comparatively slow descent with the buoyant gas bag attached.

*Science News Letter, August 24, 1935*



#### ONE PORCUPINE: IN TIN

The "fretful porcupine" becomes fretful indeed when he is sick. The veterinary force at the New York Zoological Park had a hard time dealing with these prickly problems, until some one thought of making a hinged cylinder of tinplate in which to confine the patient while he was being examined and treated.