

ASTRONOMY

World-Wide Agency to Study The Sun is Being Perfected

Twenty-five Widely-Distant Stations Established To Keep Solar Body Continuously Under Astronomer's Eye

ORGANIZATION of a world-wide scientific agency for gathering facts on activities in the solar atmosphere is being perfected at Pasadena under the direction of Dr. George E. Hale, director emeritus of the Mount Wilson Observatory.

When the organization becomes active throughout the world, the sun will never set on workers who study the activities of sunspots and prominences. Somewhere on the earth, at every hour of the twenty-four, an astronomer will have his eye upon the solar body.

Twenty-five coelostat telescope and spectrohelioscope stations have been established in widely separated parts of the world for making observations of the sun's actions and for reporting them to Dr. Hale.

Dr. Hale revealed in an article published by the *Astrophysical Journal* that 25 instruments have been built or ordered for use at the various stations.

Stations are located at Cambridge, England; Zurich, Switzerland; Florence, Italy; Beirut, Syria; Kodaikanal, South India; Watherhoo and Canberra, Australia; Nanking, China; Wellington, N. Z.; Apia, Samoa; Mount Wilson, Calif.; Vermilion, S. D.; Williams Bay, Wis.; Chicago, Columbus, Poughkeepsie, N. Y.; New York City, Cambridge, Mass., and Philadelphia.

"A general scheme of cooperation for the detection of eruptions on the sun's disk in which spectroheliographs may

also take part, will be organized in harmony with present cooperative work of the International Astronomical Union," Dr. Hale stated in his paper.

"A simple device for transforming a spectrohelioscope into a spectroheliograph has been built and tested at my Solar Observatory," Dr. Hale added. "The design is very inexpensive. The instrument can be employed as a useful auxiliary of standard spectrohelioscopes, especially when it is desired to photograph quickly the forms of rapidly changing eruptive phenomena."

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ENGINEERING

Airplane Motor Cooled Without Use of Radiator

AVIATION engineers have found that they may be able to fill the radiator of their motor, screw down the cap and seal it permanently with nuts and bolts, and fly away, never to be bothered with adding more liquid or with the troubles of engine cooling.

This, in fact, is what has been done by engineers at Madison, Wis., as a continuation of research started by the Army and the Navy. In a paper presented before the aeronautic meeting of the Society of Automotive Engineers at Cleveland, J. H. Geisse, vice-president of the Comet Engine Company, described the development of a liquid cooled airplane engine which does not have any radiator.

To be sure, the liquid is there and it circulates around the cylinders, but when heated it is not run through a separate set of coils and fins set boldly in the air stream to get greatest cooling effect. There is no such radiator to increase the wind resistance of the plane. The coolant merely circulates within itself, the hot liquid rising and the cool falling, and gives off through the engine casing and external fins the heat absorbed from the cylinder walls.

This decrease in wind resistance and reduction of engine weight is made possible by a new liquid coolant, ethylene glycol, which is used in place of water. Ethylene glycol has been subject to considerable research in the past. It boils at 385 degrees Fahrenheit, instead of 212 degrees as does water, and, having a higher specific heat, conducts heat away from the hot cylinders faster than water.

Mr. Geisse said that the new coolant makes it possible for engineers to build a satisfactory radiator just half as large as those cooled by water.

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ARCHAEOLOGY

Valuable Remains to be Sought in Untouched Caves

CAVES in Arizona, as yet untouched by scientists but which are thought to contain valuable Basket-Maker remains, will soon be explored by Neil M. Judd, archaeologist of the U. S. National Museum.

Mr. Judd has left Washington for the field. The caves he is to examine lie in the Apache country.

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WHAT A COAL AGE FOREST LOOKED LIKE

A quarter of a billion years ago is shown vividly in a new natural-size restoration, just installed in the Field Museum of Natural History, Chicago. The towering trunks of Sigillarias and Lepidodendrons dominate the scene; tree ferns and giant relatives of the humble scouring-rushes of today form the second layer of vegetation, mixed with the now totally extinct seed-ferns. A giant dragon-fly, with a foot-wide wing-spread, rustles through the heavy air, and cockroaches bigger than mice scuttle around.