ASTRONOMY

Amateur Aid for Solar Study

To the radio amateur, there may soon be added the amateur solar observer, and just as the amateur radio experimenter has been responsible for many of the great advances in wireless communication, the amateur solar observer may do a great deal in the future to aid astronomers in solving the mysteries of the sun, nearest of all stars, and the one upon which our very life depends.

Already there are numerous amateur astronomers, but they are largely concerned with the study of stars which change their light more or less periodically. However, by means of the spectrohelioscope, an instrument that can be made at a cost not exceeding that of a good radio set or a cheap automobile, activities on the sun which a few years ago were invisible to astronomers may now be watched.

The spectrohelioscope has recently been developed by Dr. George Ellery Hale, honorary director of the famous Mt. Wilson Observatory. In the last few years he has been observing the sun regularly with it from his private observatory. In an article in the English scientific magazine, *Nature*, he tells of his latest observations, and how he has been able to see large clouds of hydrogen vapor on the sun rushing into the sun spots.

Many years ago, Dr. Hale invented a somewhat similar instrument by which it is possible to photograph the sun in the light of a single wave-length, or color. As each element, when its light is analyzed by the prisms of a spectroscope, shows characteristic colors, which belong to no other element, the device makes it possible to take pictures of the sun by the light of only one element, hydrogen for example.

However, observations with the spectroheliograph, as the earlier device was called, were not always clear, Dr. Hale states. It was not possible to tell which way the clouds of hydrogen were flowing, whether into the spots, or out of them, but the direction could only be inferred. Though a series of pictures could be taken in rapid succession, he says, the critical moments at which the hydrogen was drawn into the spot were rare, and only good luck would permit a photograph to be made at the proper moment. Among the thousands of spectroheliograms of the sun made at the Mt. Wilson Observatory, only once, and that in 1908, has such a phenomenon been recorded.

The spectrohelioscope, however, permits the observer to watch the sun, in the light of a single wave-length, and so the ebb and flow of a single element can be watched. And then, if necessary, a photograph could be made at the proper moment. With the instrument, says Dr. Hale, he has repeatedly seen these great clouds of hydrogen suddenly develop near an active sun spot, and then rise up and descend into the spot, with a speed of as much as 1,600 miles a minute.

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PSYCHOLOGY

Can't Guess About Babies

If you come into a room, and find a young baby lustily howling and waving his arms and legs, can you tell with certainty whether he is registering fear, hunger, pain, or anger? If you can, you are better at interpreting a baby's emotions than psychology students, medical students, nurses, or normal school students, all of whom tried this test at the University of Chicago.

A report of the experiment, by Dr. Mandel Sherman, in the *Journal of Comparative Psychology*, shows that if young infants really do set off different arm, leg, and face signals to show their different emotions, adults are very dense at reading the signs right. Psychology students suggested 25 different emotions to fit the four types of emotion shown by the infants. The babies in the experiment were under eight days of age.

If an observer does not know why a baby is crying, he is apt to color his judgment of the baby's emotion by his own interests and experiences, Dr. Sherman finds. Young medical students, for example, leaned rather heavily toward a diagnosis of "colic" when the babies were really frightened at being dropped a little way, or angry at being held. Most of the observers were considerably more accurate in their judgments when they knew what situation had started the crying than when they were simply shown the crying infants with no clue as to the cause.

Dr. Sherman is making a series of studies on the emotional responses of infants to find out just how babies express different states of feeling.

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BIOLOGY

NATURE RAMBLINGS

By Frank Thone

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Mosquitoes

After the long, wet spring we have had, with rivers out of their banks almost everywhere, and ponds and lakes and swamps all well provided with water, all signs point to a bad year for mosquitoes. Hence also a bad malaria year, especially in the flooded areas, where thousands of luckless farmers and townspeople will probably have to live as refugees, or camped out under makeshift conditions on the sites of their ruined homes after the waters have partly receded.

It therefore behooves everyone to guard against mosquitoes; as a sanitary measure wherever malaria is abroad, for ordinary comfort in the fortunate localities that are free from this disease. In most kinds of warfare the most distant defence is usually the best, but against mosquitoes the last entrenchments are the surest. Screens on all windows, edges of tents tight to the ground, mosquito bar over tent flies and other openings, mosquito-nets over camp cots, backed up by spray guns loaded with any of the good insecticides now obtainable commerically—there are your best weapons and armor.

Then, still on your own premises, you can conduct your private warfare effectively by emptying all old barrels and other rain-catchers, filling up chance hollows, and clearing the premises of tin cans and broken crockery that might hold even a cupful of stagnant water. For the troublesome biters can breed in a tablespoonful of liquid. Cisterns and permanent ponds, if not screenable, should be given a little oil: the thinnest kind of a film is enough to kill the wigglers. By doing these thing himself, the private citizen can render a real help to the larger-scale operations of city, county and state officials, and prove himself a civilized and practical patriot. For war has slain its thousands but malaria its tens of thousands.

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