

## ASTRONOMY

# Spy on Sun's Outer Surface

Two powerful new, 26-foot coronagraphs, to give man-made eclipses, are under construction for installation at Climax and Alamogordo.

► TWO POWERFUL new instruments for spying on the sun are now under construction. The world's largest, these 26-foot coronagraphs, designed to produce man-made eclipses of the sun, will probably go into operation late this year.

Although designed for basic research, these twin instruments may make possible more accurate long-range forecasting of radio blackout, magnetic disturbances, and unusually brilliant northern lights. They may even conceivably some day lead to accurate long-range forecasting of weather here on earth.

Two coronagraphs are considered a minimum if scientists are to get at least one set of basic observations daily. One will be installed at the High Altitude Observatory of Harvard University and the University of Colorado, at Climax, Colo., some 11,000 feet high. The other will be at a companion station on Sacramento Peak, near Alamogordo, N. Mex. Meteorological records indicate that unavoidable seasons of bad weather do not tend to occur simultaneously at the two locations.

A coronagraph enables man to study the day-to-day changes in the sun's corona or outer envelope, which is too faint to be seen except during an eclipse when the blinding light of the sun's disk is blocked out. The first instrument to do this arti-

ficially was designed only about two decades ago.

Fitted with highly sensitive filters, coronagraphs also patrol the prominences, great masses of gas that shine spectacularly around the sun's limb. Occasionally these jets of hot luminous material rocket upward a quarter of a million miles or more, then fade or splash back on the solar surface.

The two instruments were designed by astronomers of Harvard College Observatory and the High Altitude Observatory of Harvard University and the University of Colorado. Sponsoring development and construction of the big solar telescopes are the Office of Naval Research, the Air Force Research and Development Command and Research Corporation.

Skilled craftsmen at the Westinghouse Electric Corporation are now busy constructing the mechanical mounts for the two 26-foot instruments.

Magnetism is now believed to be as important as gravity in controlling the motions of gases in the solar atmosphere, points out Dr. Donald H. Menzel of Harvard Observatory. The invisible lines of magnetic force act like soft springs and sag under the weight of the solar prominences, but tend to give some support to them.

Science News Letter, July 21, 1951

## DENTISTRY

# Thumb-Suckers' Hay Rake

► THE CHILD who persists in sucking his thumb after he is more than three and a half years old should have a device called a "hay rake" to help him stop the habit. This advice comes from Dr. Edward S. Mack of San Francisco, instructor in dentistry for children at the School of Dentistry, College of Physicians and Surgeons.

Dr. Mack agrees with psychiatrists and child psychologists that thumb-sucking often persists because the child has some emotional difficulty or need. He points out that it is rare in an only child, suggesting that the child who has to share his parents' love and attention may take to thumb-sucking to comfort himself in such a situation. He urges that parents make the young child feel loved and secure and that emotional difficulties should be straightened out. Thumb-sucking may stop when this is done, he states. But, he points out, there

is usually a time lag between straightening out the emotional difficulties and the stopping of the sucking.

"The time lag is often long enough to permit further indulgence in the habit. This time lag may exist for months or even years. During this period, an 'empty habit' persists," he states.

Dr. Mack disagrees strenuously with child specialists who claim that thumb-sucking does not cause mouth and jaw deformities. In a report in the JOURNAL OF THE AMERICAN DENTAL ASSOCIATION (July) he lists possible effects of thumb-sucking as abnormal development of jaws, misshapen nose and lip structure, irregular permanent teeth, speech defects and mouth breathing that may lead to respiratory infections.

The "hay rake" suggested as the most effective way of breaking the habit consists of a "series of tines which acts as a fence to prevent thumb-sucking and tongue-

thrusting." It is temporarily cemented to the teeth to "constantly remind the tongue to keep behind the appliance" and the thumb to stay out of the mouth. Used properly, Dr. Mack states, it is "always successful."

Science News Letter, July 21, 1951

## INVENTION

## Improved Ceramics Are Of Varying Hardnesses

► IMPROVED CERAMICS, suitable for ornamental uses and for industrial applications ranging from bearing parts to abrasives, are of the type made with metallic oxides but have varying hardness qualities depending upon the amount of titanium oxide included in them.

These ceramics contain titanium oxide, copper oxide, and two or more of the group composed of oxides of iron, cobalt, nickel and chromium. The characteristics of the composition depend upon the amount of titanium oxide, which may vary up to 65% of the total. Patent 2,560,188 was issued to Daniel Rosenthal, Brooklyn, N. Y., on this invention.

Science News Letter, July 21, 1951

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