



#### PREDICTING CLOUDS

*Dr. Hans Neuberger, of Pennsylvania State College, is shown here sighting through his polariscope. With this instrument, he has found he can predict cloud formations before they appear.*

#### METEOROLOGY

## Light Change in Clear Sky Permits Prediction of Clouds

### Light From Most of Clear Sky Is Polarized; Non-Polarized Points Rise Before Cloud Formation

WITH a simple instrument of his invention, Dr. Hans Neuberger, of Pennsylvania State College, has found a means of predicting, several hours before they appear, the formation of clouds in a clear sky.

The method makes use of the fact that the light from most of a really clear sky is polarized. That is, its waves vibrate more in one direction than in others. There are certain points in the sky, however, where there is no polarization.

Before clouds appear, says Dr. Neuberger, there is a sudden increase in the size of condensation particles in the air. These are made of such things as dust, combustion products and tiny crystals of ocean salt. When the moisture content of the air rises, it begins to condense on these particles, forming water droplets, and clouds are nothing more than conglomerations of these tiny drops.

Using the special instrument to meas-

ure sky polarization, he says, "we are able to detect the first sudden swelling in the condensation particles. The swelling is reflected in an immediate rise in the neutral or non-polarized points in the sky."

The method is only useful, he stated, when the sky is originally almost cloudless.

"It would be of auxiliary value," he declared, "in isolated regions or for army troops cut off from regular information channels. The knowledge of impending cloud formations is of vital importance for military activity, particularly in the air."

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By "fortifying" white flour with vitamin B<sub>1</sub> and adding calcium salt, the British government aims to give white bread some of the nutritive qualities of whole meal.

#### OPTICS

## Soviet Science Claims Old Art Secret Unlocked

LONG-FORGOTTEN secrets of color, which enabled artists 1,500 years ago to make frescoes effective through long vistas of halls and cathedrals, have been rediscovered, according to a report from TASS, official news agency of the Soviet government, received in the United States.

Laws governing effect of distance on color, formulated in these experiments at the Soviet Academy of Arts in Moscow, will be put to use, it is stated, in decorating immense halls in the Palace of Soviets.

Examining famous mosaic pictures in churches of Ravenna, Italy, of the fourth to sixth centuries, the Soviet investigators became convinced that artists of that era recognized laws governing changes of pictorial images with increasing distance of sight. Modern color science has shown such facts as that light blue spots on white background turn almost black at a distance, and yellow spots deepen to orange, while against colored background even more marked changes take place. Yet frescoes painted within recent times show distortions when viewed from afar, indicating a loss of ancient art knowledge, and no full utilization of modern science.

The Academy of Arts plans publication of a chart showing how colors appear on different backgrounds, and also an album of ancient art illustrating methods of using paint to obtain desired effects at long distance.

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#### ENGINEERING

## Shaft Carries Power to Drive New Ship to India

See Front Cover

ONE of the newest of American cargo vessels, the 475-foot long, 6737 ton S.S. *Executor* of the American Export Lines, is now on her maiden voyage to India. Capable of sustained sea speed of 16.5 knots, over a 15,000 mile steaming radius, the power from her steam turbines is carried from the engine room to the propeller over the long shaft shown in our cover picture.

This important part of the vessel is one almost never seen by the public.

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