ASTRONOMY

Spots Decorate Both Upper And Lower Halves of Sun

BOTH the northern and southern hemispheres of the sun are decorated by spots. A northern spot has a diameter of 19,000 miles, while one in the south measures 14,000 miles.

Dr. Seth B. Nicholson, astronomer in charge of solar observations of the Carnegie Institution's Mt. Wilson Observatory here, explained that there was a spot on the sun's face in April that was an earlier stage of the 14,000 mile diameter spot. At its maximum it was 35,000 miles in diameter including its outer portion of penumbra. A new small group of spots appeared on the sun recently, making four groups in all.

Thus far these spots have produced no change in the earth's magnetic field.

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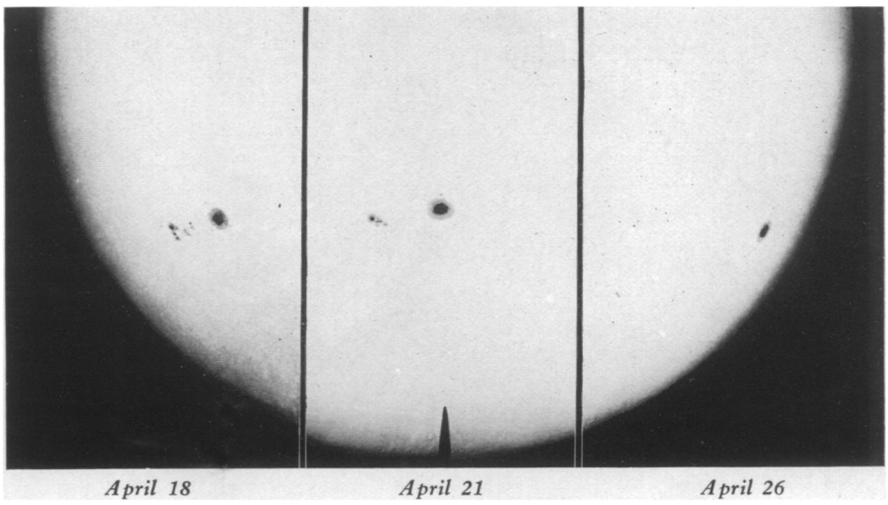

LARGE SUNSPOT GROUP

These three sectors of the sun's disk show an unusually large group of sunspots as they passed across the solar face and were photographed at the Mount Wilson Observatory. The total length of the group was 106,000 miles. The largest spot in the group was 35,000 miles in diameter and had a dark center 15,000 miles across.

ASTRONOMY

Zodiacal Light Partly Due To Dust Among the Asteroids

IN THE spring, just after twilight in the west, and in the autumn just before dawn in the east, one may sometimes see a faint finger of light stretching up from the horizon and, in the northern hemisphere, inclined toward the south. This is the zodiacal light, so-called because, stretching out on either side of the sun, it lies along the zodiac —that belt of constellations that encircles the sky and forms the highway along which the sun, moon, and planets travel among the stars.

The zodiacal light diminishes in intensity toward the tip of the finger, and from the central portion—axis—toward the edges. Under very favorable conditions, a thin string of faint light can be seen to stretch all around the zodiac, and to increase perceptibly in brightness at the point opposite the sun. The latter is the counter-glow or "Gegenschein" as the Germans call it. This phenomenon is best observed in low latitudes, where the zodiac passes nearly overhead. It has been known since 1854 when it was discovered by Brorsen.

The theory generally accepted down to the present time has been that the light is due to diffuse reflection of sunlight from a huge lens-shaped cloud of dust that fills all the central part of the solar system out to somewhat beyond the earth's orbit, the density of the clouds diminishing from the sun outward. This theory has been considered fairly well established by the researches of the astronomer H. von Seelinger around 1900.

New Theory

A new theory is now proposed by Dr. Cuno Hoffmeister of the University of Berlin Observatory at Babelsberg. In 1930, he made a voyage to the South Atlantic and to the Caribbean Sea, under the auspices of the Society of German Scientists, and made many photometric measurements of the brightness, and exact measurements of the position, of the zodiacal light. He found that Seelinger's theory accounted well for intensities of the light along the axis, but not for intensities away from the axis. Little attention had in fact been paid to the latter, and exact photometric measurements were almost wholly lacking.

Last year, Dr. Hoffmeister made another voyage to the same regions, repeated and extended his measurements, which completely confirmed his former results. They are now reported in the scientific journal, *Forschungen und Fortschritte*.

Dr. Hoffmeister finds that the glow really consists of two parts, a brighter central portion toward the sun, and a fainter outer portion. This finding is supported also, he says, by measurements made at the Harvard Observatory at Arequipa, Peru, and by a few others.

The inner glow he believes is due to a dust ring inside the earth's orbit but extending slightly beyond it, the densest part coinciding approximately with the orbit of Venus.

The outer glow and the Gegenschein he believes are due to a dust ring outside the orbit of Mars. This would place it about in the region of the asteroids, those tiny planets from 2 to 500 miles in diameter, of which more than a thousand have been discovered, that revolve between Mars and Jupiter.

Dr. Hoffmeister makes the bold suggestion that the outer dust cloud may be due to the gradual disintegration of these tiny planets. This raises the interesting question whether the inner cloud may not also be due to the disintegration of small planets, most of which have already disappeared, but a few of which may yet survive and may yet be discovered.

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Funeral wreaths of flowers were commonly used in Egypt about 1200 B. C.