

## ASTRONOMY

# New Cycle of Sunspots May Begin in Next Few Months

Solar Disc is Least Spotted Since 1923, Last Minimum Period of Famous Ten-and-a-Quarter Year Cycle

**T**HE SPOTTEDNESS of the sun is at a low ebb. The old cycle of sunspots has nearly run its course. Any day now Mt. Wilson Observatory astronomers would not be greatly surprised to see on the sun's face the first of a new family of spots, the leader in a new cycle of spots to last nearly eleven years.

The sun continued to be nearly inactive in July and August, with only five spots all belonging to the waning cycle. In August the number of groups was lowest since 1923, when the last minimum in sunspots occurred. In September there was a slight increase in the number of spots but this was due, Dr. Seth B. Nicholson, Mt. Wilson astronomer, suggests, to a secondary and short-period fluctuation in the sun's spottedness, not to the beginning of another of the long cycles such as have been traced for centuries past in astronomical records and in natural phenomena such as tree rings.

## Few Spots This Year

Dr. Nicholson explained that the low level of solar activity may continue for several months and may even extend into 1934. The time between sunspot minima has been about  $10\frac{1}{4}$  years and if the waning cycle is of that length, the exact time of minimum should be this month or next. The astronomers can not generally tell just when is the real turning point until some months after it occurs.

Sunspots are gigantic disturbances in the luminous layer or photosphere of the sun. The dark central part or umbra of spots varies in diameter from 500 miles to some 50,000 miles. The earth could be lost in the swirl of the larger spots. Sometimes the larger sunspots can be seen with the unaided eyes when the sun is dimmed in setting or when a shade glass is used in viewing it.

The German astronomer, Schwabe, in 1843 first discovered that the number of spots varies greatly in different years and shows an approximately regular periodicity of about eleven years.

Dr. George E. Hale, now director emeritus of Mt. Wilson Observatory, discovered that when the sunspots appear in pairs the leading spot is opposite in magnetic polarity to the following spot. The spots in the northern hemisphere of the sun are also opposite in sign to the analogous spots in the southern hemisphere. He also found that the sun is a giant magnet much like the earth in this respect.

## SOCIOLOGY

# Biologist Finds Multiplicity Of "Castes" Even in America

**H**UMAN SOCIETY has evolved many more different castes than have ant and termite societies. To Americans steeped in the idea that "all men are created free and equal," this may seem to be a statement more applicable to India or some other foreign land than to the U. S. A.

Nevertheless such is the finding of Prof. Raymond Pearl of the Johns Hopkins University, a leading biologist, who has prepared a new classification and code of occupations for use in analyses of social and economic conditions.

## Forces Affecting Population

In research in human biology, Prof. Pearl and his associates study such important factors as the death rate, the birth rate, and differential fertility. The new occupational classification which he discusses in *Human Biology* will permit a more thorough and penetrating analysis of the effect of social and economic forces as they influence our population. It is the first step in a systematic plan of research on population "castes" that is being undertaken in the Department of Biology of the Johns Hopkins School of Hygiene and Public Health at Baltimore.

At the beginning of a new sunspot cycle, the spots appear in high latitudes and the magnetic polarity characteristic of each hemisphere is reversed, and in this way astronomers now know that a new cycle is about to begin. Dr. Nicholson explains that the appearance of a new cycle spot will not mean that the exact time of sunspot minimum has arrived as the first spots of a new cycle often appear a month or two before the minimum.

Nearly every sort of earthly phenomena, from war, birthrates, and crop failures to magnetic storms and auroras, have been linked to sunspots by scientific enthusiasts. There is good observational evidence that sunspots and changes in the magnetism of the earth are related. The sunspot minimum now about due will have no real major effect on earthly conditions, astronomers contend.

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This new classification puts all occupations into three broad classes as follows: I. Owners, managers officials and professional men; II. Skilled and semi-professional workers; III. Laborers—unskilled and semi-skilled. The primary purpose is to contrast, for research purposes, two classes of persons, namely those in class I and those in class III. Class I persons are, on the whole, situated at or near the top of things in the existing social organization. Those in class III are at or near the bottom in the same social organization. This leaves the second class who are neither very near the top nor the bottom, who if they sometimes think themselves worse off than those in class I are plainly and admittedly better off than those in class III.

A tabulation of the male population of New York State on this new classification shows that approximately 21 per cent. of the gainfully employed males in New York fall in class I, and 29 per cent. in class III, leaving 50 per cent. in the intermediate class II.

In commenting on this new classification to a representative of Science Service, Prof. Pearl said: "While we hear a good deal of rather vague talk