

Do You Know?

A *parachute* is fully open 1.6 seconds after the cord is pulled.

American *butter* production in 1945 was roughly 67% of that in 1941.

Tantalum oxide is being used successfully in the treatment of wounds and burns, an industrial physician reports.

Here is another tip for the cook: Vitamin losses during cooking are greater in leafy than in root vegetables.

Birds are often found with twigs and bark embedded in their bodies, accidentally acquired in flying against a bush or tree.

Aluminum *coal chutes* are now coming more widely into use because they are safe from the sulfur in the coal; sulfur does not eat aluminum.

Some *birds* prefer animal meat, other than insects, for food, others eat only vegetable food, and still others live principally on the eggs or young of insects which they get from under the bark of trunks or limbs of trees.

Dusting a *sugar beet* seed crop with DDT mixtures in Oregon eliminated destructive Lygus bugs so thoroughly that it was impossible to find any, where previously the average population was 19 bugs per scoop of an insect net.

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ASTRONOMY

Sunspot Cycles 22 Years

That the apparent 11-year cycle is only a half-cycle was discovered from a study of the magnetic polarity at the times of sunspot minima.

► SUNSPOT CYCLES are 22 years long, not 11 as previously supposed, Dr. Seth B. Nicholson of Mt. Wilson Observatory stated in an address before the American Association for the Advancement of Science. Dr. Nicholson spoke as retiring chairman of the Association's section on astronomy.

That the apparent 11-year cycle is only a half-cycle was discovered from a study of the magnetic polarity of the sunspot groups at the times of sunspot minima. The polarity of the groups at the end of any given 11-year period is exactly the reverse of what it was at the preceding minimum, and of what it will be at the next one.

Practically all sunspot activity takes place at solar latitudes roughly corresponding to the tropics on earth. At the beginning of a cycle, the spot groups appear along lines approximately 35 degrees north and south of the solar equator. They gradually move closer together, reaching solar latitudes of about 14 degrees as the spots become most numerous, and coming to within 7 or 8 degrees of the sun's equator as the cycle ends. Then spots of the new cycle appear again at the 35-degree latitudes.

Astronomers and earth-scientists alike are still far from complete knowledge regarding the significance of sunspot cycles in terrestrial affairs, Dr. Nicholson told his audience.

He said, in part: "Of the many correlations with solar activity which have been investigated, those related to the state of the ionosphere, to the frequency of auroras, and to changes in geomagnetism are by far the best established.

"Correlations with the weather were attempted as early as 1801 by Sir William Herschel before the periodic nature of sunspots had been recognized. The available weather records were so poor that Herschel used the price of wheat as an index of the weather instead of the recorded temperature and rainfall.

"That important relations between solar and terrestrial phenomena still remain to be discovered can hardly be questioned but when one considers the complex nature of the earth's atmosphere, it is not surprising that many attempts have failed. Correlations derived entirely

by statistics need long records to be sure of their reality and scientific progress in this field is therefore slow."

Not Bombardment Weapons

Solar prominences, those enormous flame-like jets that spurt out from the sun's face, are not responsible for the bombardment of the earth with atomic beams, as has often been asserted. Evidence to this effect was presented by Dr. Robert McMath, director of the McMath-Hulbert Observatory.

Using two spectrographic instruments simultaneously, he and his associates were able to obtain a much more accurate measurement of the velocity of the streams of atoms that go out into these prominences than heretofore.

These streams move at speeds of about 12 miles a second—which is very slow motion for events on the sun. It is far below the velocity needed for escape from the sun's gravitational field, which is 387 miles a second. Only rarely have atomic streams of that velocity been observed, Dr. McMath stated.

Clouds of matter have been observed floating high above the sun's surface, the speaker continued. Since they cannot escape the pull of the sun's enormous gravity, some other force must be active in holding them up. The pressure of the sun's intense radiation is apparently at least part of the answer, but, Dr. McMath concluded, "much more observation and analysis are required before it becomes certain just what forces are acting and how they combine to produce the prominences on the sun."

Science News Letter, April 6, 1946



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