GEOPHYSICS

Energy From Spotted Sun

A period of great sunspot activity, such as we are now in, means that the earth is sporodically receiving increased doses of radiation from the sun.

➤ THE SUN, particularly when as now sunspots mark its face, showers the earth and all space around it with tremendous amounts of energy. It is the earth's power house. Blot out the sun and the earth would die.

Light and heat are obvious. But there is also the unseeen ultraviolet that can cause an even tan, or a painful sunburn from overexposure. Unseen radio waves, as well as cosmic rays, are also part of the sun's generous outpouring of radiation.

When sunspots erupt on the solar surface, tremendous increases in some of this radiation are recorded, although not in the visible or heat portion of the spectrum.

Bizarre effects, such as freak television reception, beautiful aurora displays and jumpy compass needles, are believed sunspot-caused.

Now, during an 11-year cycle of activity, is the time of sunspot maximum. The International Geophysical Year, or IGY, was scheduled to take advantage of the sun's greater activity. One focal point of this world-wide program, which lasts to Dec. 31, 1958, is the sun's behavior and resulting earthly effects. (See SNL, June 1, p. 346.)

Since the 17th century, when Galileo and other astronomers first saw sunspots through a telescope, the black dots marching across the sun's face have been blamed for many of man's ills.

Wars, droughts, pestilence, insect outbreaks and, more recently, the ups and downs of the stock market, all have been linked to the periodic outbreak of sunspots. There is, however, absolutely no scientific basis for these suggested links. But there is a scientific basis for linking sunspots and increased solar activity, such as flares, with changes in the earth's magnetic field, with auroras, with increased bombardment by cosmic rays.

These are some of the areas scientistis will study intensively during IGY. Some are even hopeful they will uncover the key to what makes our weather: Does it start at the top of the atmosphere and work down, or at the earth's surface and work outward?

There is no doubt sunspots sometimes affect radio "weather."

Sunspot activity is carefully watched and plotted by radio experts around the world, then used in making daily predictions of shortwave radio reception. The vastly increased solar bombardment of the ionosphere, which reflects radio waves, changes its properties so that normal long-distance communication is interrupted or difficult. Sometimes these ionospheric storms last only for minutes, sometimes a black-out will last for hours.

During IGY, the World Warning Agency at Fort Belvoir, Va., operated by the National Bureau of Standards, broadcasts special alerts when unusual solar activity is expected. Then scientists double their efforts to record the earthly effects.

Rockets zoom hundreds of miles into space at times of the special alerts. They will be armed with special instruments to catch cosmic rays, to chart the increase in solar X-rays, to count meteoric particles, to record the Lyman alpha radiation.

Brilliant auroral displays are more likely to be seen farther south than usual at times of special alerts. Everyone is asked to be a volunteer and send in at least a qualitative report whenever he sees an aurora.

When the sun erupts with black spots, flares also often occur. These are gigantic fiery flames, shooting out for tens of millions of miles from the solar surface.

The sun's present epidemic of spots is the most thoroughly scrutinized in history.

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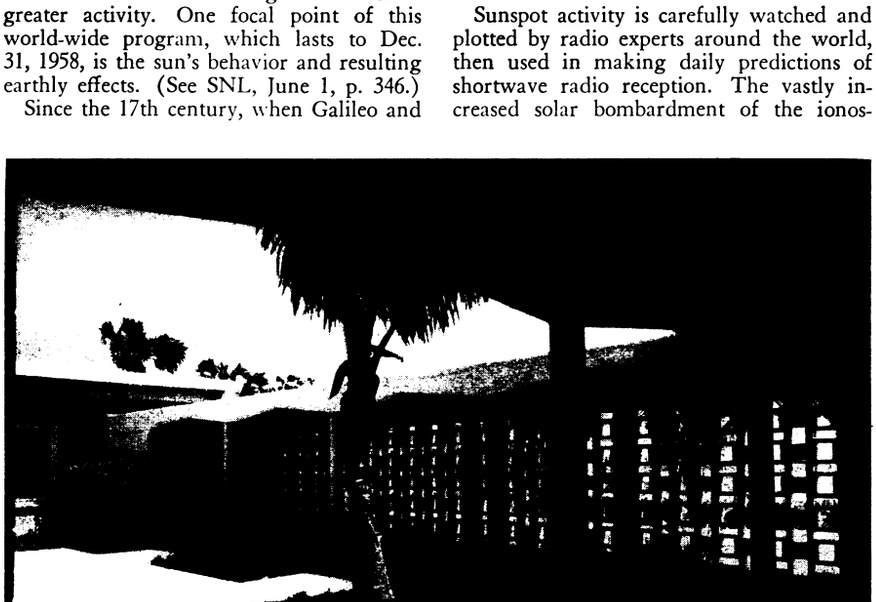

ENVIRONMENT OF PEACE AND HOPE—The outdoor garden and patio shown in the photograph is representative of a new approach to the problems of the mentally ill. It is part of the South Florida State Hospital in Hollywood. Throughout the grounds and in the design of the buildings, architects have tried to provide restful and hopeful surroundings. A decorative garden wall, rather than a confining fence, is suggested by the lattice design of the concrete block wall.

MEDICINE

Says Citrus Flavonoids Worthless Against Colds

➤ CITRUS FLAVONOIDS are of little or no value in treating the common cold or any other disease, Dr. William N. Pearson, Vanderbilt University School of Medicine, Nashville, Tenn., reports in the *Journal of the American Medical Association* (Aug. 10).

The report was made to the A.M.A. Councils on Foods and Nutrition and Drugs and was prompted by the recent upsurge of interest in the flavonoids.

Flavonoids are organic compounds widely distributed in nature as coloring in flowers, fruits, tree barks and vegetables. The most important commercial source for them is citrus rind. They have been advertised as effective in treating the common cold.

Reports on several small studies were enthusiastic about the flavornoids effect on common respiratory infections, because of their supposed ability to strengthen capillary walls. Larger studies do not confirm this.

The compounds do appear to have some effect on strengthening capillary and blood vessel walls and to possess some mild blood-vessel-constricting effects, but these properties are weak when compared to those of other available drugs, Dr. Pearson reports.

The flavonoids' effects on such diseases as hypertension, diabetes, rheumatic fever, arthritis and various blood diseases have been studied but the testing procedures have been generally unreliable.

"Those workers who claim therapeutic value for the flavonoids have not supported their claims with data obtained from well-controlled clinical studies," Dr. Pearson reports, concluding that until such studies are made the flavonoids have to be considered of doubtful value.

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