What Has Happened to the Sun?

Probably Suffering from "Boils" Six Times Wider Than the Earth, Declare Scientists Who Are Inclined to Attribute Our Very Unusual Weather to Recent Solar and Lunar Disturbances and Eruptions

WHAT is the matter with the universe?

There is something awry somewhere—but what?

Did the five years of almost incessant cannonading—the barrage, the drumfire, the terrific detonations of huge shells—did all this cause terrestrial disturbances sufficient to make the moon anticipate its regular schedule by 12 miles? Was it sufficient to cause other terrestrial aberrations?

At first glance such a supposition appears absurd, yet there is a possibility that perhaps cynical science, which "must be shown" is too skeptical for once. A pebble thrown into a pond causes a ripple which expands in constantly enlarging circles. The shot of a pistol causes air waves which expand as they travel into space. And the cannonading of the war did the same thing on a tremendously exaggerated scale.

Did the disturbances to the air and circumambient ether cause the mbon to deflect from its course; did they cause electrical manifestations not scheduled in the catalogue of science?

That there is something askew with nature seems evident from a number of manifestations too positive to be ignored.

During 1921 there were 1,046 degrees of excess temperature, that is, the average daily temperature for the entire six months was 5½ degrecs above normal.

The greatest spots known to astronomy were visible on the sun. One measured 150,000 miles in circumference.

The moon speeded up in its course until it was twelve miles ahead of its schedule and considerably off the beaten path.

A hole was burned in an Atlantic cable two miles beneath the surface and several hundred miles from shore.

At Karlstad, Sweden, and at Brewster, N. Y., electric switchboards were burned the same night by stray electric currents.

Strangest of all, wireless telegraphy and wireless telephony were in no way interrupted and interference was no greater than under ordinary conditions.

Scientists, who are supposed to be accurate, speculated and delved, but all in vain. They argued that sun spots were to blame for the terrestrial disturbances and finally blamed the sun spots on Jupiter, the largest of the planets, about 1,000 times as large as the earth, with 300 times its mass density. Sun spots appear about every eleven years, which corresponds with the time required by Jupiter in making its journey around the sun.

Other scientists held that electrons thrown off by the action of the sun spots, bombarded the earth in such quantities as to upset the electrical equilibrium. Professor M. I. Pupin, one of the greatest physicists, holds to the electron theory.

"After it was proven definitely that sun spots were electric," said Professor Pupin, "further research was conducted and it was found that their appearance was accompanied by a greatly increased flow of electrons or electronic forces from the surface of the sun These were shot out into space and just as a part of the sun's light falls upon the planets in space, so did a portion of this electronic flow fall upon the earth and other planets. The earth, of course, received its greatest deluge of these particles when the spot was in a position on the sun's surface nearest the earth and this condition existed last year when the country was visited by an unusual display of the aurora borealis.

"It was not merely a local condition. When these spots occur, the entire earth is affected and similar effects and disturbances to those in this country would be bound to occur also in Europe and other parts of the world. The whole phenomena, to state it in simplest words, resolves istelf into this: There is the sun emitting, in addition to its light, a flow of electrons, parts of which impinge upon the earth, but which are not sufficiently strong to disturb, for example, our communications system. Then the sun spot comes, magnetic in character, and the flow of electrons from the sun is greatly increased. These, falling upon the earth, produce the effects mentioned."

Dr. Frank Schlesinger, director of the Yale University observatory, coincides with Professor Pupin in the electron theory. He believes that sun spots are to blame for many earthly ills and that Jupiter is at the bottom of the trouble.

Just how sunspots originate is of great interest. In order that the subject may be understood, it is necessary to state briefly that the sun is not a solid body. Parts of it revolve about its axis faster than others. Heat, so tremendous that it cannot be measured by man-made instruments, nor even guessed, causes tongues of flame to shoot out with a rapidity of 500 miles an hour, to a height of more than 300,000 miles.

The sun is not a hot body merely cooling; for if that were the case, the sun would be cold in about 3,000 years. It is not a mere burning mass like a coal fire, for in that case, the temperature would show a material falling off in a thousand years.

The generally accepted theory is that gravitation produces continued contraction, or falling in of the outer parts of the sun and that this falling, in turn, generates enough heat to compensate for what is given off. It is estimated that these contractions amount to about 180 feet a year.

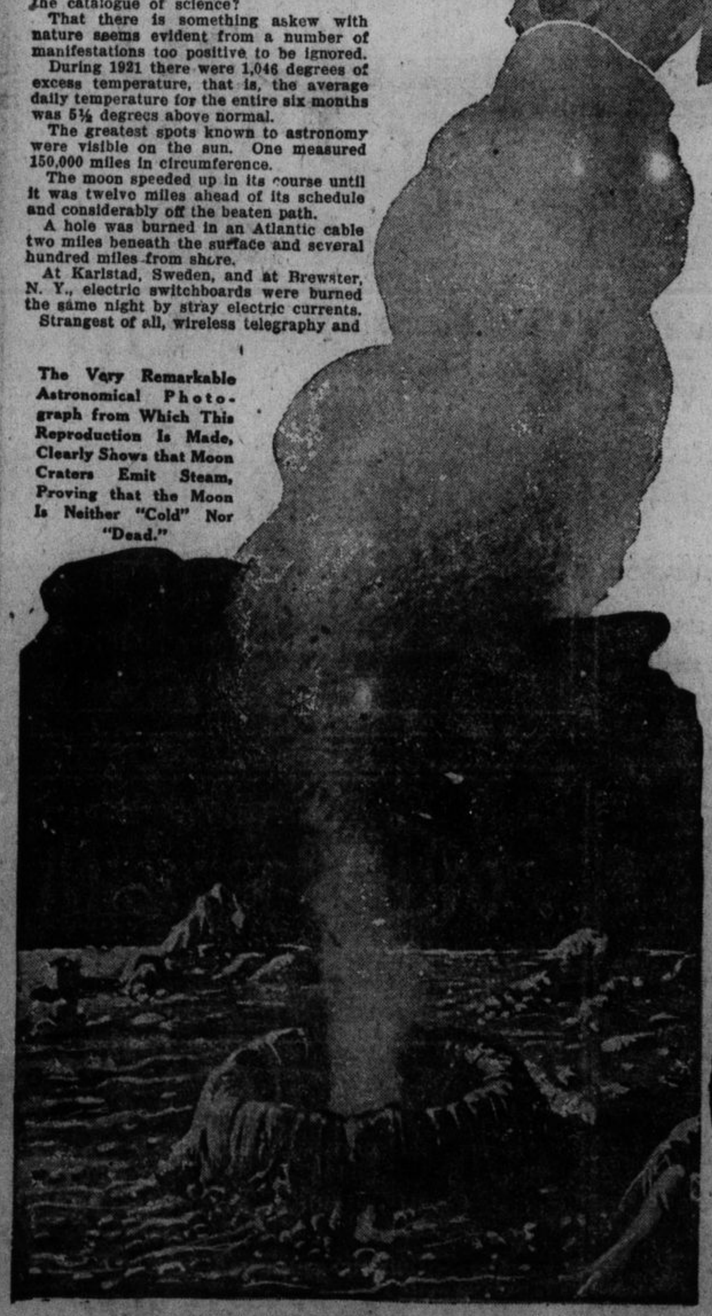
The earth's atmosphere absorbs about one-half the radiation which come to it from the sun. The most amazing phase is the tremendous amount of radiation wasted for only about one-millionth is caught by all the planets combined. What becomes of the rest is not known.

The sun's "atmosphere," if so it may be called, is divided by several layers of gases and vaporous matter. The white bright portion visible to us is the photosphere. From it comes the light and heat we feel. The other layers, above it, are the "reversing layer," some 500 to 1,000 miles in thickness and the cromosphere, between 5,000 and 10,000 miles thick. The upper portion of the chromosphere is in violent agitation like the waves of a stormy sea, and from it arise the red prominences which are a notable feature in solar eclipses.

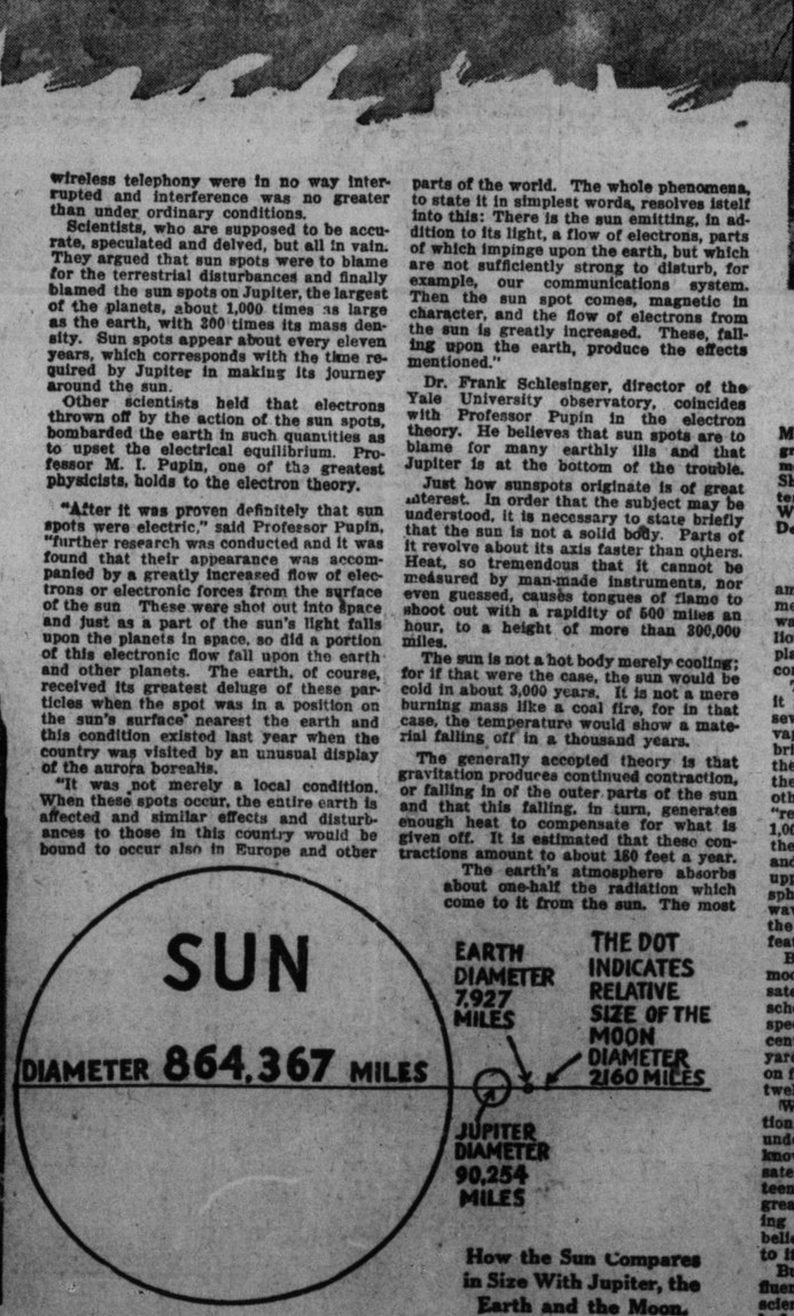
But all this does not explain why the moon, the earth's well-known and admired satellite, should be 12 miles ahead of its schedule. It is true that this accession of speed amounts to only two "seconds" a century—a "second" being equal to 30 yards, but this speeding-up has been going on for so long that the total mileage is now twelve.

Whether this be due to the earth's attraction, to the tides, to the, as yet, only half understood law of gravitation, science knows not. It is known though, that the satellites of Jupiter fall behind some sixteen "minutes" when Jupiter is at its greatest distance from the earth. Deducting from this, it appears reasonable to believe that the moon's acceleration is due to its comparative proximity to the earth.

But why the earth should have this influence on its brother planets and stars, science cannot explain—neither, why we had such an excess in temperature—or electrical disturbances.



The Very Remarkable Astronomical Photograph from Which This Reproduction Is Made, Clearly Shows that Moon Craters Emit Steam, Proving that the Moon Is Neither "Cold" Nor "Dead."



How the Sun Compares in Size With Jupiter, the Earth and the Moon.

Showing Relative Size of the Earth and One of the Newly Generated Sun Spots to Which Science Attributes Many Recent Terrestrial Disturbances

Magnified Photograph of a Segment of the Moon Showing the Craters, Many of Which Are Still Declared To Be Active.