

Amateurs Watch for Meteors

Astronomy

With the coming of August, thousands of amateur astronomers in all parts of the United States are watching the night skies for meteors, or shooting stars. By making careful records of what they see, without the aid of telescopes or even opera glasses, they are gathering data that will enable scientists to learn more of the behavior of these celestial visitors. For meteor observation is one branch of astronomy that does not require an observatory. A pair of reasonably keen eyes, a willingness to sit up a good part of the night, and a clear, dark sky are the only essentials.

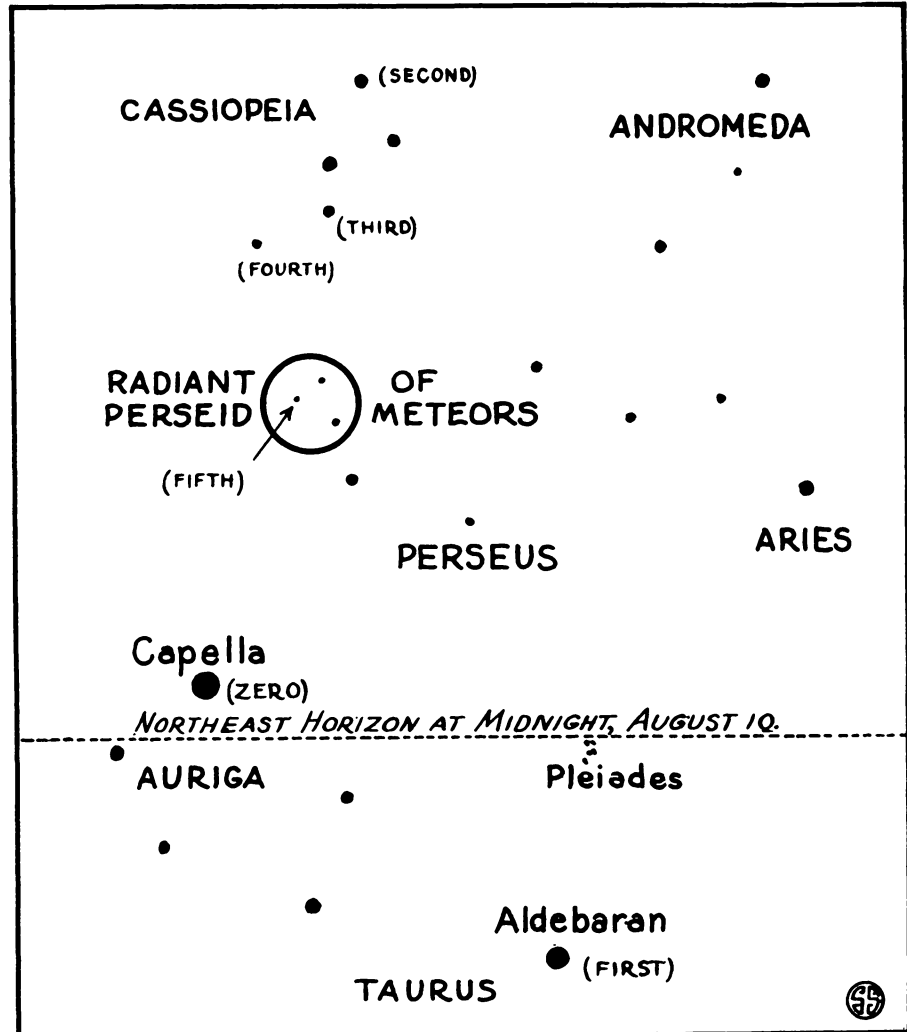
Meteor gazing is a sport that requires late hours, for the earth turns in such a way that after midnight we meet the meteors coming towards us, while before midnight they have to catch up with us. The result is that from 1:00 to 4:00 a. m. are the best hours for the chase.

Even in the earlier hours during August, if a person gets away from the brilliant lights of a large city and watches the sky, several meteors will probably be seen in the course of an hour. And after midnight a dozen or more might reward the searcher on any August night.

But on two particular nights these numbers will be enormously increased. On the nights of August 10 and 11, or really the early mornings of August 11 and 12, several hundred an hour may usually be seen. The astronomer, studying meteors, wants to know two facts about them. First of all, he wants to know their numbers, so it is a useful labor simply to count the meteors as they flash across the sky, and make half-hourly totals.

It is the paths that the shooting stars take in the sky, however, that form the astronomer's most valuable data. One way of plotting these is to have a map of the sky, and, with the aid of a small flashlight to mark down the paths with a pencil. As the meteors all move through the stars in a straight line, it is only necessary to notice where the trail begins and ends, then to mark these points on the map and to connect them with the aid of a ruler. Each path should be numbered and the number, with the time that particular meteor occurred, should be listed on a separate sheet.

When the August meteors are charted in this way it is found that they do not dash about the sky at random, like members of a swarm



of bees. All the straight lines drawn on the map will be seen to radiate from a very small area, a place in the constellation of Perseus. This is a group of stars that rises above the northeastern horizon about midnight at this time of year.

The reason for this curious effect is that the meteors travel in a ringed cloud around the sun. The swarm is not sharply defined, but shades off rather gradually, so that while the meteors are especially thick in the center of the swarm, they are still numerous at some distance from the center. Every summer the earth crosses this swarm. Towards the end of July we encounter the outer ones, then they become more and more numerous until the nights of the tenth and eleventh of August, when we encounter most of them. The meteors are very tiny, some no larger than a grain of sand, most no larger than a pea. They are all moving in

parallel paths. When they encounter the atmosphere of the earth, the friction heats them and burns them up, causing the flash that we see. All these flashes seem to radiate from a point, just as the straight lines of a long corridor, or a railroad track, seem to come to a point in the distance.

The accompanying map shows the part of the sky from which the August meteors seem to emerge. The point from which they radiate is called the radiant, and as this radiant is in the constellation of Perseus, these meteors are called the Perseids. At midnight the horizon is approximately in the position indicated by the dotted line; a little later the constellations of Auriga, and Taurus, shown below it, rise into view. With this map you have the materials with which to do a real piece of astronomical observation.

Remember that (*Turn to next page*)

Huge Sunspot Causes Magnetic Storms

Astronomy

A sizable sunspot with extraordinary magnetic field has just passed across the sun's face. It was seen in the solar telescopes of the Mt. Wilson Observatory by Dr. Seth B. Nicholson and his associates. To it are attributed the magnetic storms of a few days ago that affected instruments in various parts of the world.

The ordinary solar magnetic field, surrounding a spot, has a value of 50 gauss, the units in which the physicist measures magnetic intensity, but the sunspot just observed has a value of 4000 at its center. The earth's magnetic field, measured in the same units, is only one-half a gauss, but ordinary magnets used in electrical work often have fields of over 10,000 gauss.

Seldom does the astronomer encounter such a highly magnetic spot. Intensities of 3500 are usual. Although a greater intensity would not be unusual in a small magnet here on the earth, it is unusual when it occurs in a sunspot, such as the recent one.

This spot was 33,000 miles long and 20,000 miles wide. It was a single solar marking located about sixteen degrees to the south of the sun's equator. Two weeks from now

it is likely to reappear on the sun's surface, as by that time the sun's slow rotation will have carried it completely around. Mt. Wilson astronomers say that it will again cross the sun's meridian on August 14, if it survives. Then it may again be accompanied by magnetic storms on the earth.

Sunspots occur in the surface of the sun—the layer that astronomers call the photosphere. A mass of hot gases shoots up from the interior of the sun to the surface, rapidly revolving like a bullet in a rifle barrel. As they get to the surface, a whirlpool of gases results, the pressure is reduced and they are rapidly cooled. This sudden cooling causes a reduction in brilliance, and so the spots appear dark against the more brilliant solar background. They shoot out streams of tiny electrical particles, or electrons, which may reach the earth when the spot is on the right side of the sun. These electrons, acting in conjunction with the magnetic field of the earth itself, produce such effects as the northern lights, and the magnetic storms that may tie up telegraphic communication.

Science News-Letter, August 3, 1929

Gorillas at Home

Zoology

Africa, the once-thought "inexhaustible paradise of game", is going the way of the North America of the past century, and it may not be long before it will be impossible for even a Carl Akeley to assemble such a group as is depicted on the cover of this issue of the *SCIENCE NEWS-LETTER*. This great scientist-explorer-artist visited the gorillas, the biggest of the primates and in some ways the most manlike, in their homes in the remote fastnesses of the Congo, helped to secure the specimens, and then set them up in the American Museum of Natural History in New York.

The fashion of mounting gorillas has changed in the past few years. Formerly it was the custom to show the male animal with his lips curled back, exposing his great teeth and giving his face an expression of the utmost ferocity. Naturalists now are fairly well agreed that this was a libel committed for no better purpose than to display a fine battery of incisors and canines. Except when molested by a hunter, the gorilla is said to be a decently-behaved citizen of the jungle.

Science News-Letter, August 3, 1929

Infringement of Food

Physiological Chemistry

The Wisconsin Alumni Research Foundation has filed suit against the Solar Research Corporation and the Sargent Drug Company, charging infringement of patent rights which the Foundation holds on the process of irradiating foods and medicines.

The patent rights cover the process developed by Prof. Harry Steenbock of the University of Wisconsin, by which foods and medicines may be supplied with vitamin D, or their vitamin D content increased, as a result of exposure to ultra-violet rays. This vitamin is the growth-promoting anti-rachitic factor contained in large amounts in cod liver oil and in lesser amounts in certain foods. When Prof. Steenbock found a way of making ordinary foods rich in this important vitamin, the Wisconsin Alumni Research Foundation applied for patent rights on the process, so that its benefits might be made available to the public under properly controlled conditions.

Licenses to use the patented process have been granted to some commercial companies. The proceeds from the licenses of the patent rights are used for further scientific research at the University of Wisconsin.

Science News-Letter, August 3, 1929

August Meteors—Continued

there is no use trying to observe them from a big city, so get out into the country, away from the bright lights, and where you have a clear view of the northeastern horizon. Start observing about midnight, if it is clear. As the moon is at first quarter on the twelfth, it sets at midnight, and the sky is dark. Have a small flashlight handy to see the map, but the light had better be covered with several thicknesses of tissue paper. Otherwise its brilliant glare may temporarily blind you to a faint meteor. As soon as you see a meteor, notice its path in the sky. By holding a ruler at arm's length, parallel to the meteor's path, and sighting along it, you can do this most easily. Then, with the aid of the flashlight, draw its path on the map. Number it, and on a separate sheet note the time and brightness. You can judge its brightness as compared with nearby stars. The numbers on certain stars on the map refer to their magnitude, and provide a scale with which to judge the brightness of the meteors. If you can't chart the meteors, simply count them. On a piece of paper lay out a series of

spaces, marked 12:00 to 12:30, 12:30 to 1:00, etc. Every time you see a meteor during these times make a check, then you can count up totals later.

And then, when the night is over, don't forget to send your material to Dr. Charles P. Olivier, University of Pennsylvania, Philadelphia, Pa. Tell, as accurately as possible, the location from which you observed the meteors. Professor Olivier is president of the American Meteor Society and operates a clearing house for information concerning them, and your data will help his studies.

Science News-Letter, August 3, 1929

Death Rate Increases

Sociology

Latest figures from the U. S. Bureau of Census show an increase in the death rate for the registration area of the country, exclusive of Massachusetts and Utah. At the same time the birth rate fell off. The latter was 19.7 for 1928 compared with 20.7 for 1927. In the same area the death rate was 12.3 in 1928 compared with a rate of 11.4 in 1927.

Science News-Letter, August 3, 1929