

CLIMATOLOGY

Severest Heat Waves Come After Sun Starts Southward

Lag in Temperature Climax Varies According to Region; Greatest on Pacific Coast, Least in Interior States

IF IT IS any comfort to you, these sweltering days, the sun's light and heat rays are not as concentrated as they were at the time of the summer solstice, June 21.

It is quite all right to feel hot, nevertheless. This is the time of year when normal temperatures are highest, according to the weather men.

On June 21, the summer solstice, the sun was farthest north. Then, in countries on this side of the tropics, it was highest in the sky and its heat and light rays alike were falling on the ground mostly nearly vertically. Therefore, they were most concentrated. Their heating effect was greatest.

Yet the summer solstice was not the hottest time of year. Here's why:

All day long, the rays beat on the earth, and it becomes hotter. All night long, if it is clear, the earth radiates this heat out again into space. In June, with long days and short nights, the amount of heat taken in during the long days was considerably more than that given off during the short nights.

Even after the solstice this condition continued, despite the fact that the sun moved southward in the sky, and its rays, falling on the ground at a lower angle, were less concentrated. Thus the temperature of the earth continued to rise. Not until July or August is there a balance, with amount of heat radiated at night the same as that received during the day. After that, the nocturnal radiation is greater, and average temperatures begin to drop.

Local conditions, naturally, affect this. If there happens to be a series of hot days and cloudy nights, the heat becomes greater than ever, because clouds blanket the earth, and reduce the nightly cooling. Most to be desired are cloudy days and clear nights. The former reduce the heat received from the sun, while the latter permit the heat to escape as usual.

Edward H. Bowie, in charge of the U. S. Weather Bureau at San Francisco, has made a study of the delay in hottest weather in various parts of the country. This shows that in southern Arizona

and New Mexico, highest normal daily temperatures come only ten days after the solstice. Around the coast of the Gulf of Mexico, the delay is 40 to 50 days. Along the North Atlantic coast it is about 40 days, but about a hundred miles inland it is only 30 days. In the Central States it is about 30 days.

Along the Pacific Coast, the delay is greatest, about 100 days at San Francisco, but this lag drops very rapidly away from the ocean. At Sacramento, less than 100 miles inland, it is 37 days. Dr. Edgar W. Woolard, of the U. S. Weather Bureau, who has carefully studied these time lags, attributes the great delay to the prevailing westerly winds that blow in from the cool ocean surface. The proximity of water along the Gulf and North Atlantic coasts makes the delay greater than in the dry Southwest. Dr. Woolard states, however, that not all the delays are fully explained.

It is on account of these facts that the summer solstice on June 21, when the sun is farthest north, is considered the beginning of summer rather than its middle. If temperatures depended solely upon the sun, it would be just as hot a month before the solstice as a month after it. In reality, warmest weather arrives some time after the solstice, so the highest temperatures come approximately in the middle of the three months following the solstice.

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PHYSIOLOGY

Eating Fats and Candy Improves Golf Scores

GOLFERS, especially poor players, who get tired and begin to pile up a high score between the ninth and fifteenth holes in a foursome or between the eleventh and the fifteenth in a twosome, are advised to eat more fat foods for lunch and take some sugar or candy near the seventh or ninth hole. The advice comes from Dr. Paul Michael, of Oakland, Calif., (*Journal, American Medical Association, July 27*).

The idea comes from previous findings that marathon runners who are sustained by sugar come through a race with less fatigue.

Comparatively few persons run in marathons or other races, but more than 2,000,000 golfers play on 3,000 courses in the United States, so Dr. Michael decided to investigate the possibilities of helping this large group of sportsmen and women through diet studies.

Blood tests showed that following usual luncheons and playing under ordinary conditions, the sugar in the golfers' blood dropped below normal between the ninth and fifteenth holes in a foursome and between the eleventh and fifteenth holes in a twosome. This corresponds to the periods when the golfers made the greatest number of poor shots, felt most tired and had the highest scores.

The poorer golfers had even less sugar in their blood in many cases "because of the fact that they expended more energy in playing the game and showed greater signs of exhaustion."

Getting upset over their poor shots at this period made the condition worse. The more composed and accomplished players did not have as low a level of sugar in their blood. When the golfers ate more fat foods for lunch and took candy or sugar at the seventh or ninth hole, they did not feel so tired or nervous and, on the whole, had better scores.

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CHEMISTRY—MEDICINE

Synthetic Malaria Drugs Sought by New Committee

DEVELOPMENT in the United States of new synthetic drugs for malaria, vitally necessary if war shuts off the supply of quinine from Java, is the first objective of the newly announced committee on chemotherapy of the National Research Council. Dr. Marston T. Bogert, Columbia University, is chairman of the committee.

"While quinine, plasmoquine, atebine and a few other drugs have been useful, there is, in the judgment of the medical profession, great need for something better," the committee states. "The present remedies leave much to be desired from a therapeutic point of view and the price is higher than many can afford to pay."

Discovery of synthetic chemicals for treating other diseases besides malaria will be encouraged by the committee, although the antimalarials will be given first attention.

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