trees, an unread book resting on a sleeping chest, a silent lawnmower nearby.

For the restless ones, there are always the roads and highways, beckoning and calling as strongly as the seas or mountains call the explorer. A dash in the car to some picnic spot, to some scenic route or some beach seems as compelling and as much a symbol of summer to some people as a red rose.

Civilization has its own index of summer. The profusion of sun tan lotions, poison ivy pills, heat prostration remedies, sandals, insect sprays and fly swatters that appear on drug store counters is about as sure a sign of summer as any advent of a bee.

The vast mechanisms of civilization to turn summer heat to winter cool fill warehouses with air conditioners, fans, air-cooled easy chairs, wading pools, swimming pools, skin divers' fins and goggles, tents, fishing equipment and other paraphernalia devised to accompany man in his summer habitat of beaches, woods, mountains, sea, golf courses, tennis courts or his own backyard.

Summer Solstice

The summer enters North America officially when our side of the earth is in shadow—at 10:04 p.m., EST, June 21. This is called the summer solstice, and the day is the longest day of the year. At this exact minute, on the other side of the earth, the rays of the sun are falling directly perpendicular upon the imaginary line of the Tropic of Cancer.

At 23 degrees and 27 minutes geographically from the equator, the Tropic of Cancer is the farthest north that the sun travels. From now on, as the earth tips back again, the sun starts the downward journey to cross the equator and to reach the southernmost point on earth, the Tropic of Capricorn.

Technically, the days now start to shorten and the nights to lengthen as the sun starts toward its winter home—but for the non-technical person, summer is just beginning.

• Science News Letter, 83:378 June 15, 1963

GEOPHYSICS

Glacial Ice From Everest

➤ NEW INFORMATION on how the sun works may be an important by-product of the U.S. conquest of Mt. Everest.

The Everest mountaineers collected 40 samples of glacial ice for Dr. Willard F. Libby, Nobel Prize winner and professor of chemistry and geophysics at the University of California, Los Angeles. Dr. Libby will determine the tritium content of the samples in an effort to find out whether some of these radioactive hydrogen atoms are brought to earth by solar flares.

Mt. Everest was chosen for sampling because its annual frozen rains are followed by dust storms which mark the layers of each year's ice formation. The layering provides a way to take accurate samples.

Tritium, which occurs in all rainfall, is produced by the action of cosmic rays on hydrogen in the upper atmosphere. Solar flares are a second source of tritium, the UCLA authority believes.

These flares are giant explosions on the surface of the sun. They occur in conjunction with sunspot activity on an 11-year cycle. Thus, if the tritium content of the layers of rainwater coincides with years of high sunspot-flare activity, it will indicate that flares bring tritium to the earth's atmosphere.

"Proof of this theory would aid us in understanding the energy mechanisms on the sun's surface," Dr. Libby said. "Such knowledge is important to our space program."

The present theory holds that tritium is formed only in the sun's hot interior, but it would take longer than tritium's radioactive life to reach the surface. To explain the large amount of tritium found in rainwater, the solar flare theory has been devised.

"This new theory was strengthened when a recent Discoverer satellite returned to earth full of tritium after a solar flare," Dr. Libby said.

To give some idea of the magnitude of the project, Dr. Libby said that he will be seeking a tritium concentration of one atom in a billion billion atoms of glacial water. He hopes to have the first samples from Everest in late June and results by September.

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GEOPHYSICS

Movement of Surface Water Due to Wind

➤ WIND is the main means for movement of surface water over the world.

This conclusion is based on measurements of the amount of tritium, or heavy weight hydrogen, in water samples taken during the 1958-61 nuclear test moratorium.

Nobelist Dr. Willard F. Libby, professor of chemistry at the University of California, Los Angeles, reported that the artificial tritium added to the atmosphere from bomb detonations before tests stopped in August 1958 was observed as it became distributed in surface waters and in the atmosphere. Measurements were made by noting the tritium content of water samples taken during the moratorium.

Other geophysical conclusions reached, according to Dr. Libby, include:

It is now possible to measure the thickness of the layer of surface water that mixes quickly with rain in the midwestern U.S. as well as the fraction of river run-off that is fresh rain.

It is also possible to measure the total bomb tritium released offsite up to the resumption of testing and the number of atoms still in the stratosphere.

The tritium from the tests conducted since the resumption of nuclear testing in September 1961 points to the probability that large amounts are being stored in the stratosphere for longer times than for the 1958 tests of the USSR.

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General Dynamics

BALANCE TEST—Joe White, a volunteer "astronaut" at General Dynamics/Astronautics, San Diego, seemingly poised in the air, is about to tumble from a narrow wooden rail during a balance test. The test is one of several given volunteers prior to riding in the manned revolving space station simulator. Observing are Dr. Bernard D. Newsom, chief of aerospace medicine (right), and R. L. Urmstron, senior research engineer.