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A Science Service Feature

? WHY THE WEATHER ?

Dr. Charles F. Brooks,
Secretary, American Meteorological Society,
tells why:

REFRACTION SHORTENS POLAR NIGHT

The phenomenon of the bending of solar rays, called refraction, has an appreciable effect upon the length of day. For example, the territory covered by the polar night, that is, where at some season the period from sundown to sunup exceeds 24 hours, does not begin at the Polar circle of 66½ degrees but at 67 degrees latitude. Likewise, when the sun is vertical over the equator the day is not 12 hours long but 12 hours and 7 minutes. The reason is that while the sun is still below the horizon at sunrise and after it has set at night it is still visible to the eye and casts its light upon the earth. The cause is refraction, which is the bending of the rays.

An Antarctic explorer records that one winter, on the second and third days after the sun had set for its night of two and a half months, it reappeared at noon as a distorted half disc, shedding its feeble but welcome rays on ice-floes, bergs, penguins, ship and men, who saw the sun which was astronomically below the horizon. A cold wind from the Antarctic ice-cap had bent the rays to such an unusual degree that instead of passing out to space they came to earth in a long curving path.

(Tomorrow: The Shortest Day)

Science Service,
1115 Conn. Ave.,
Washington, D.C.