NIGHT AND DAY

It is odd that gentle forces, because they do not attract our attention, hold greater surprises than those that are dramatic and familiar. We all know how the sun shines, but few have stopped to consider how our earth shines back. Does cold air cool the ground, the trees, and the grass at night? No, it is the other way around; the air is cooled by contact with the ground, trees, and grass, which first cool themselves by shining heat into space, and then pull the clear atmosphere's temperature down behind them. At night, air only provides second hand cooling, just as it provides second hand heating during a sunny day. Air temperature is vastly over honored and over measured. We tend to accept air temperature as the index of all heating and cooling on earth. Despite our deference to air temperature, we still have the sense to stand in the sun to get warm, but most are surprised to find the advantage of standing in the open and shining back directly into space to cool.

Our eyes work almost exclusively by light reflected from, not emitted by, objects. We owe our ignorance about subtle flows of heat to the dominance of the sun. Although our eyes report what the sun says of everything, reflected sunlight gives limited information; it is faithful to shape, but colors tell us nothing of all important temperature, for colors are only surface décor, not temperature readings. An infrared camera finds objects are already red hot at room temperature. The mysteries of cooling would quickly disappear if our eyes could see in the dark as today's infrared cameras do. Without external light we only see something after it gets "red" hot. The objects we can see by