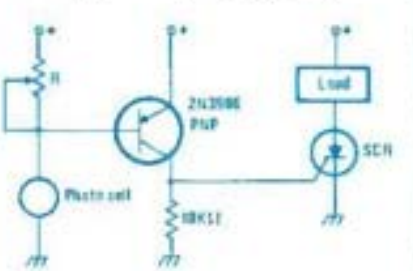
# 9 Sun-powered alarm

Here's a neat alarm clock based on the tried and true *sundial*. Although the alarm circuit is quite simple, placement of the detector may be a little tricky. It consists of a photocell mounted in a relatively long black tube. When the sun is in just the right position, its rays will shine down the tube, striking the cell at the bottom, actuating the circuit.


Because the sun's rays must strike the photocell, the tube must be aimed very carefully. The degree of accuracy depends on the length of the tube and its diameter. The greater the ratio of the tube's length to its diameter, the greater the accuracy required, and the more precise the timing of the alarm.

Although a longer tube takes more care in positioning, it greatly reduces the likelihood of the alarm being set-off accidentally. Even with a long tube, however, you may have to partially cover the solar cell with black tape so that the alarm isn't triggered by a bright sky.




The actual alarm circuit is straightforward. Parts layout and wiring are not critical. The circuit can be powered by any convenient six to 12 volt source. The SCR load can be an alarm buzzer, light, or even a relay to actuate other circuitry. The SCR should be chosen on the basis of the load voltage and current requirements. The potentiometer, R, should be selected so that the circuit will trigger at the desired light level with the control set at about the midpoint of its rotation.