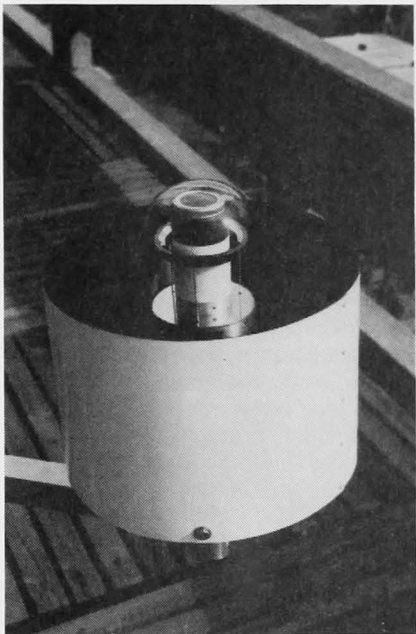




*J*ohn M. Cook, Information Technology Section (ASCL/I) is a professional engineer who came directly into AES in 1968 on graduating from the University of Windsor. His manner is serious, though he is quite capable of tolerating and smiling through humorous interruptions.

In 1969, John began inventing the Micropower Sunshine Sensor as an improved replacement for the Campbell Stokes sunshine sensor, still in general use. The "old" sensor is a crystal ball partly encircled by a paper form. When the sun is shining, and as the sun moves across the sky, its heat, refracted by the crystal ball, burns in a line on the paper form. Frost or snow on the crystal ball impedes the effectiveness of reflection. The device is non-automatable, the paper form must be changed every day by human hand, and the burn-line data is hard to interpret.

John's Micropower sensor does away with all that. It is fully automated and can be hooked into an automatic station or a standard rain gauge recorder. It is an electronic device and consists basically of eight sensor cells and four printed circuit boards. It is enclosed in a glass case, the dome of which protrudes above an



encircling shield that excludes ground level water or snow reflection. As the sun moves, its light strikes each of the eight cells one by one. A reading results from comparing the brightness of an illuminated cell with the brightness of cells still in the shade. Sunshine input is picked up by the circuit boards and fed into a multiplexer, an amplifier, a crystal clock, a scaler, a relay, and so on to OUTPUT. The fourth circuit board protects the device from transients such as lightning.

The Micropower Sunshine Sensor is an original invention of John M. Cook. It is innovative in concept and design and elegantly worked out. It bears no relation to the Campbell Stokes sensor. In fact John has conceived and constructed his sensor from scratch. It certainly deserves the name "Cook Micropower Sunshine Sensor".

The Cook sensor was originally a low priority project, worked on intermittently among John's other duties. It was completed in 1980. Since then it has been subject to extensive verification against an ultra-accurate suntracking pyrheliometer. At present, there is one mounted at a convenient location on the Downsview building roof.