



Figure 6-1. *Crystal-growing furnace.*

surface of the melt. By controlling the temperatures and rate of withdrawal, a long cylindrical single crystal is formed.

It is not absolutely necessary to have the silicon in the form of a single crystal to make a solar cell. However, the best cells have been made from single crystals. This is not surprising when the nature of the p-n barrier to be formed is considered. Crystal boundaries are likely to have impurities, and diffusion of a perfect p-n barrier across a crystalline boundary presents difficulties. The practical solution appears to be the use of single crystals.

Cutting the Crystal

Slabs are cut from the carrot-shaped crystal with a diamond cutting wheel flooded with water, Figure 6-2. The slices need be only thick