

### Problem 7.34

After CW the grains are elongated, oriented in a direction associated with the working, and very deformed.

After CW and recrystallization, the grains go back to equi-dimensional shapes, which can be grown to the desired sized.

Of course, we now have taked the cold-worked piece one step closer to its final shape. Recrystallization restores ductility according to our plan. We can continue to do more CW after recrystallization, if it is needed.

Some manufacturing processes involve several stages of CW alternating with recovery and recrystallization.