

Tutorial problems and questions

1. Explain the microstructure that forms due to cellular precipitation if the material is aged at two different temperatures before quenched.

Answer

As noted, in the formation of cellular microstructures, the diffusion of solutes takes place in the moving grain boundary. Hence, if the system is aged at two different temperatures, the diffusion distances at these two temperatures along the grain boundary will be different: it would be higher at higher temperatures and lower at lower temperatures. Thus, the resultant microstructure is as shown below in Fig. 23.

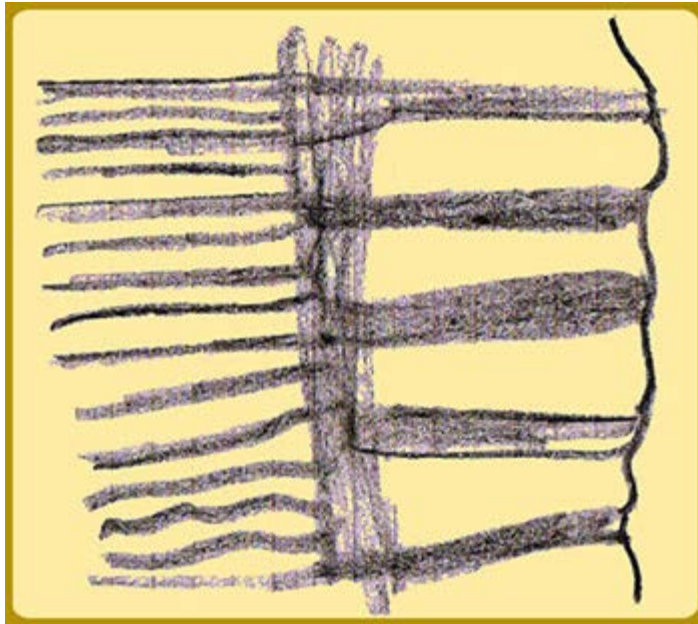


Figure 23: Effect of two stage cooling on cellular precipitated microstructure: the intercell spacings change.