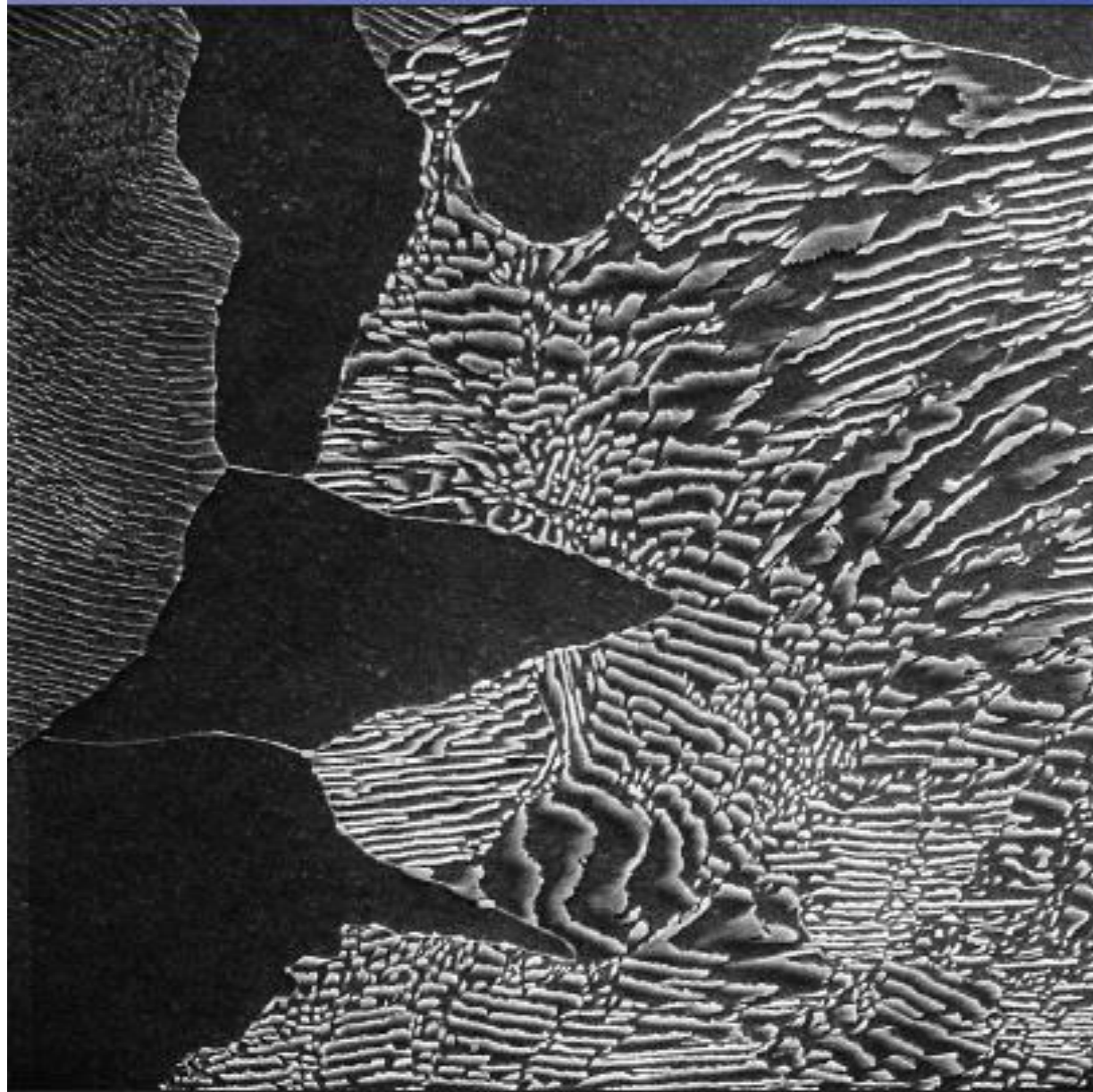
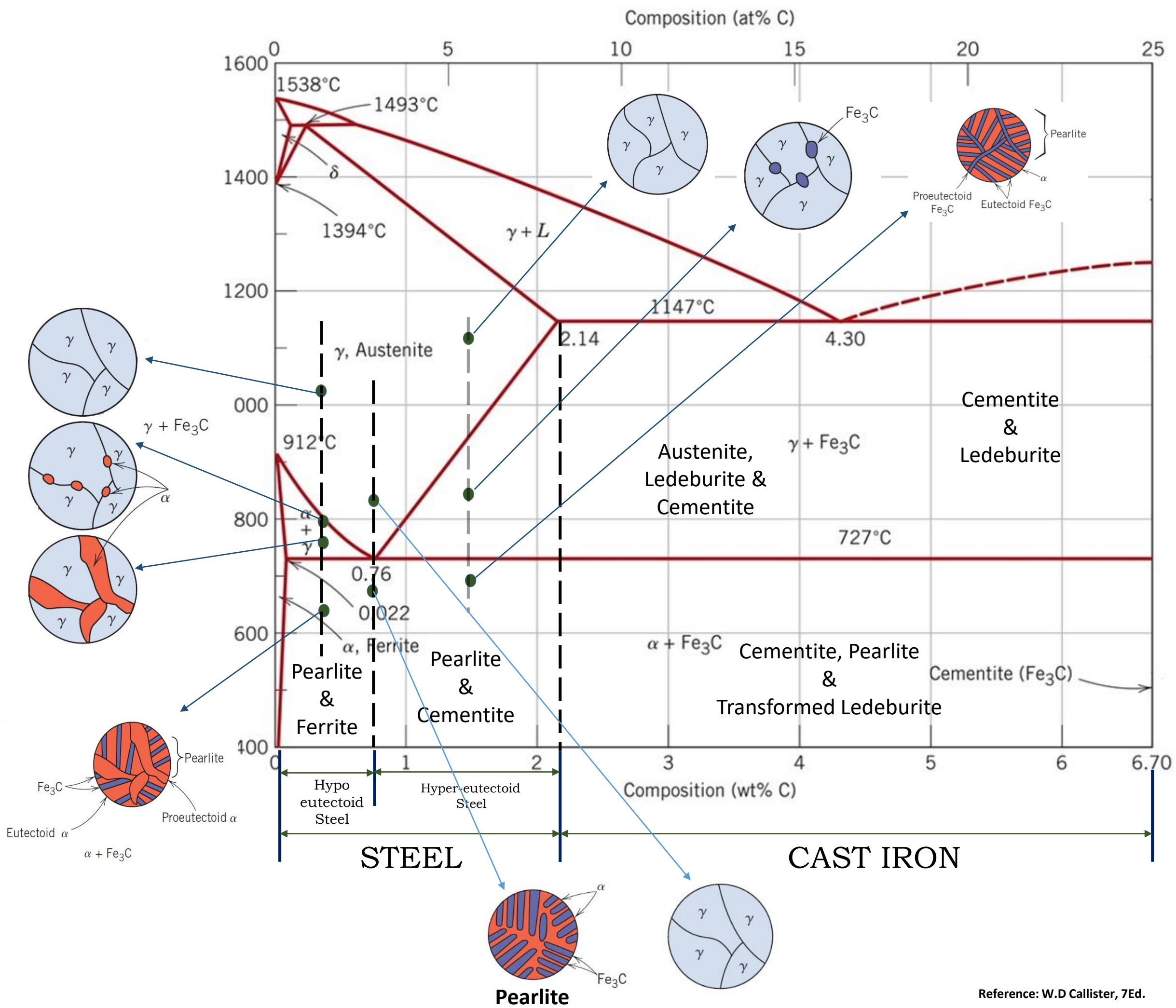


# Iron Carbon Diagram

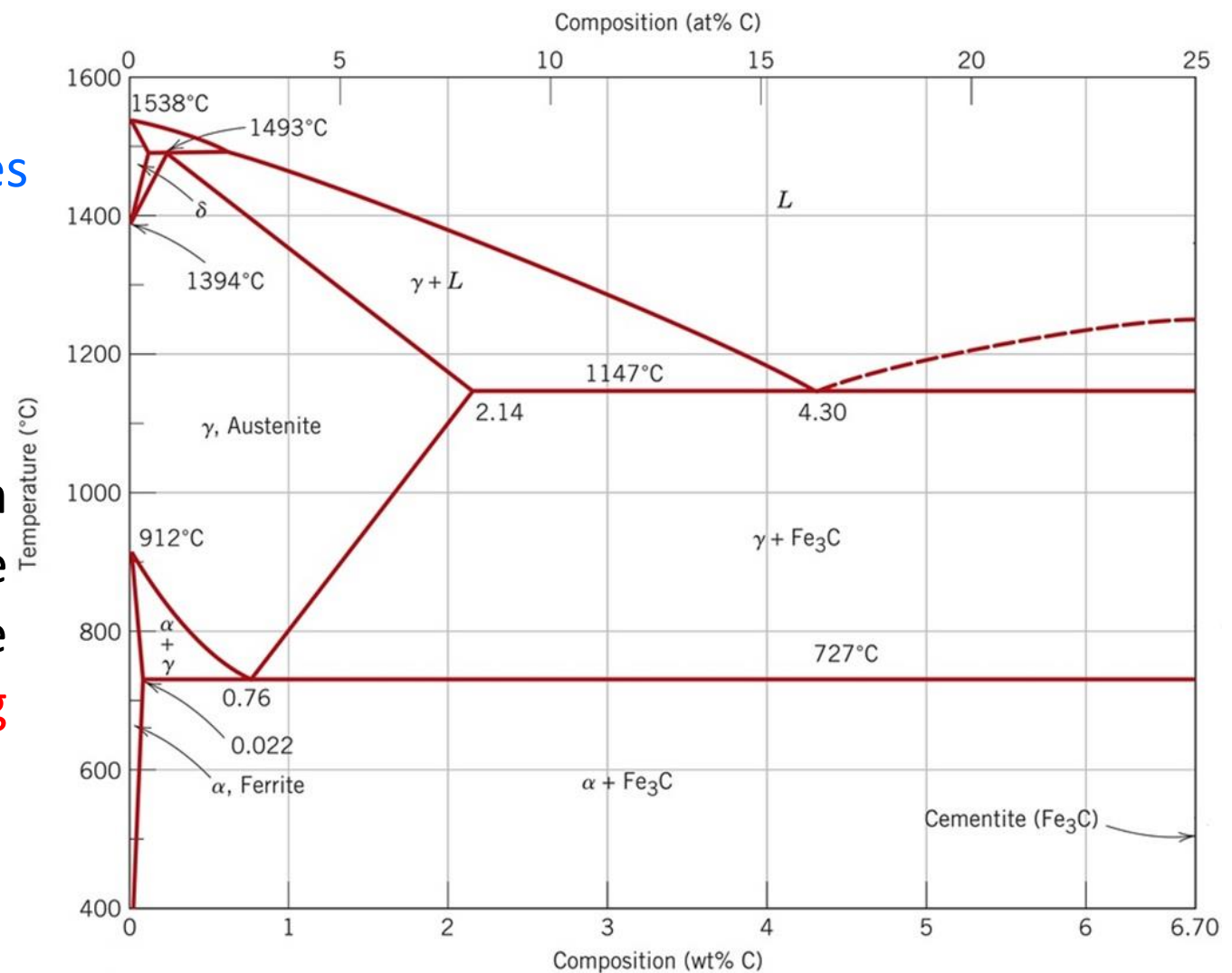


Microstructure of a plain carbon steel that contains 0.44 wt% C.

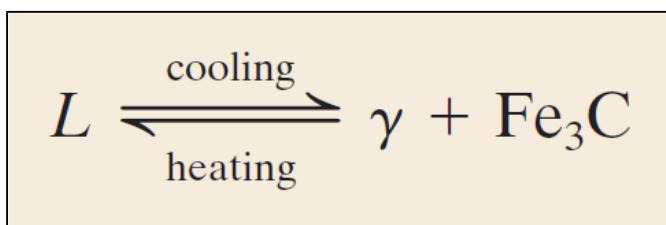


The diagram shows **three horizontal lines** which indicate isothermal reactions:

**1. Peritectic reaction (1493°C) :** On Cooling, a solid phase and liquid phase will together form a new solid phase and vice-versa. – **Almost no Engineering Importance.**

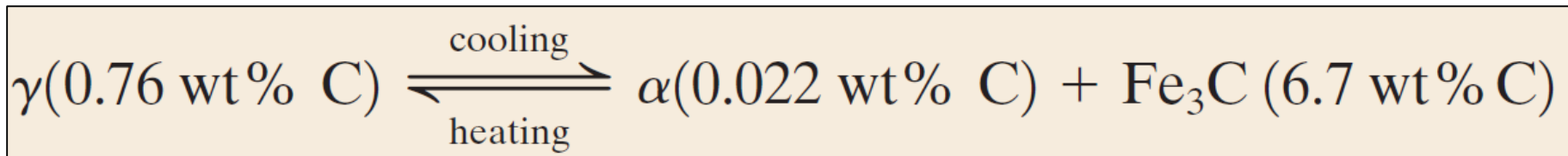


**2. Eutectic reaction (1147°C and 4.30 wt.% C) :** On Cooling, a **liquid transforms into two solid phases** at the same time and vice-versa. They are CAST IRONS.

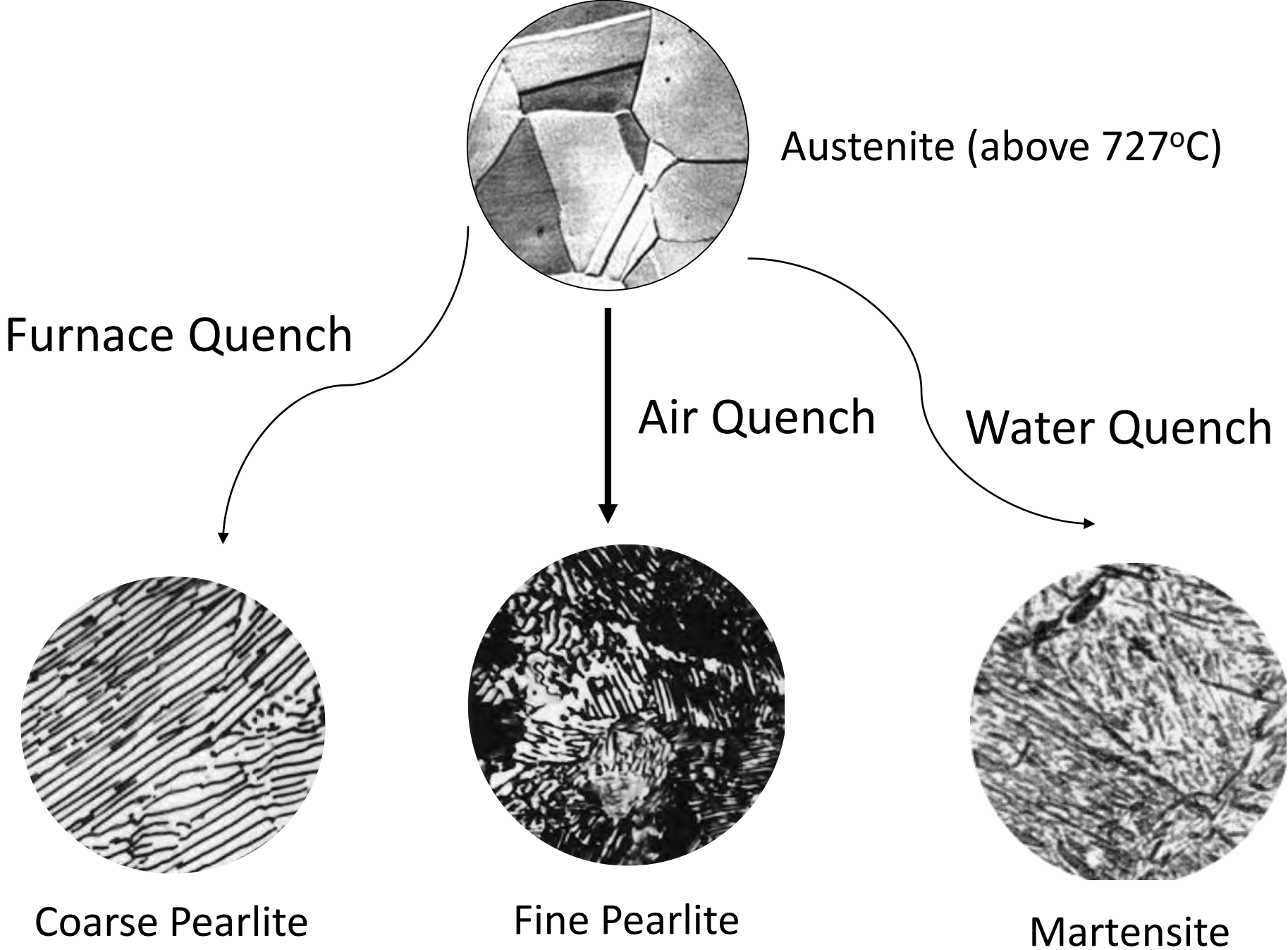


Example: Ledeburite (in fig. 'L' means liquid) is the eutectic mixture of austenite and cementite. It contains 4.3% C and is formed at 1130°C.

**3. Eutectoid reaction (727°C and 0.76 wt.% C) :** On Cooling, a **solid transforms into two solid phases** at the same time and vice-versa. They are STEELS.



# Quenching of Steel with different medium



Hardness Increases