

Diagrama Fe-Fe₃C (aços ao carbono) (AISI/SAE 10xx)

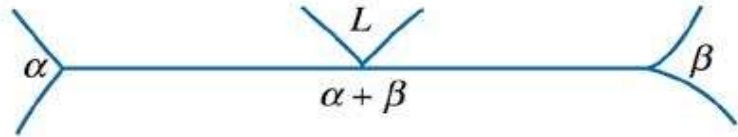
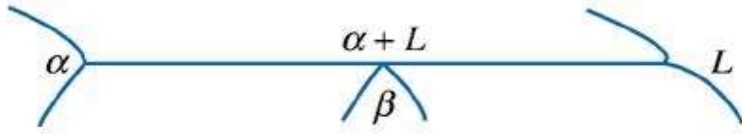
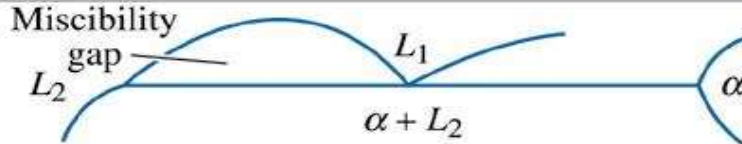
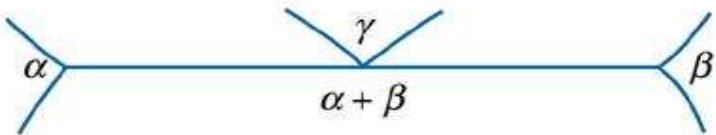
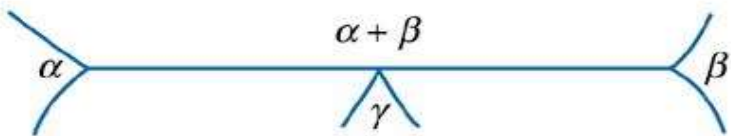
Composição Química dos Aços:

Fe: Base

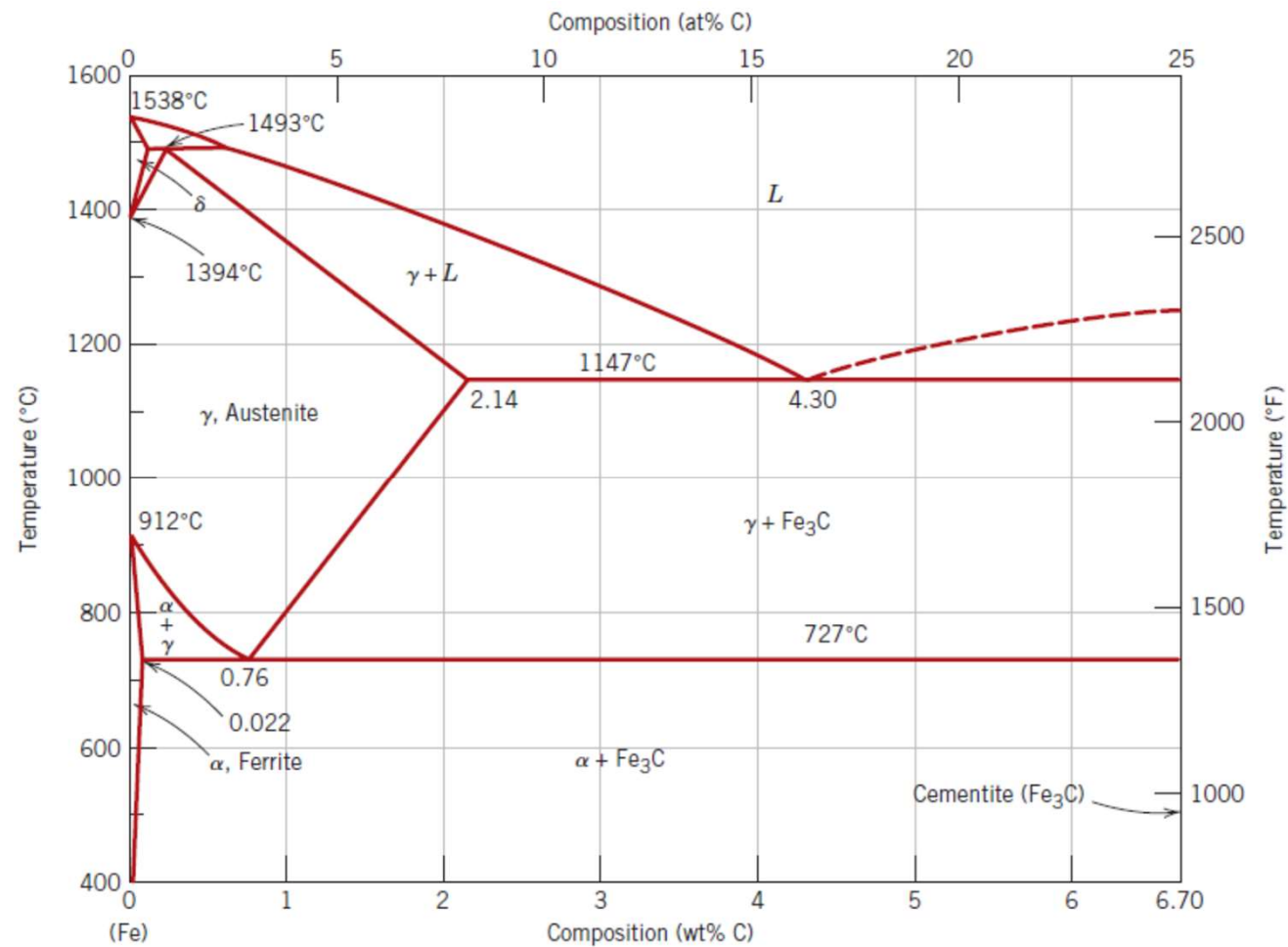
+

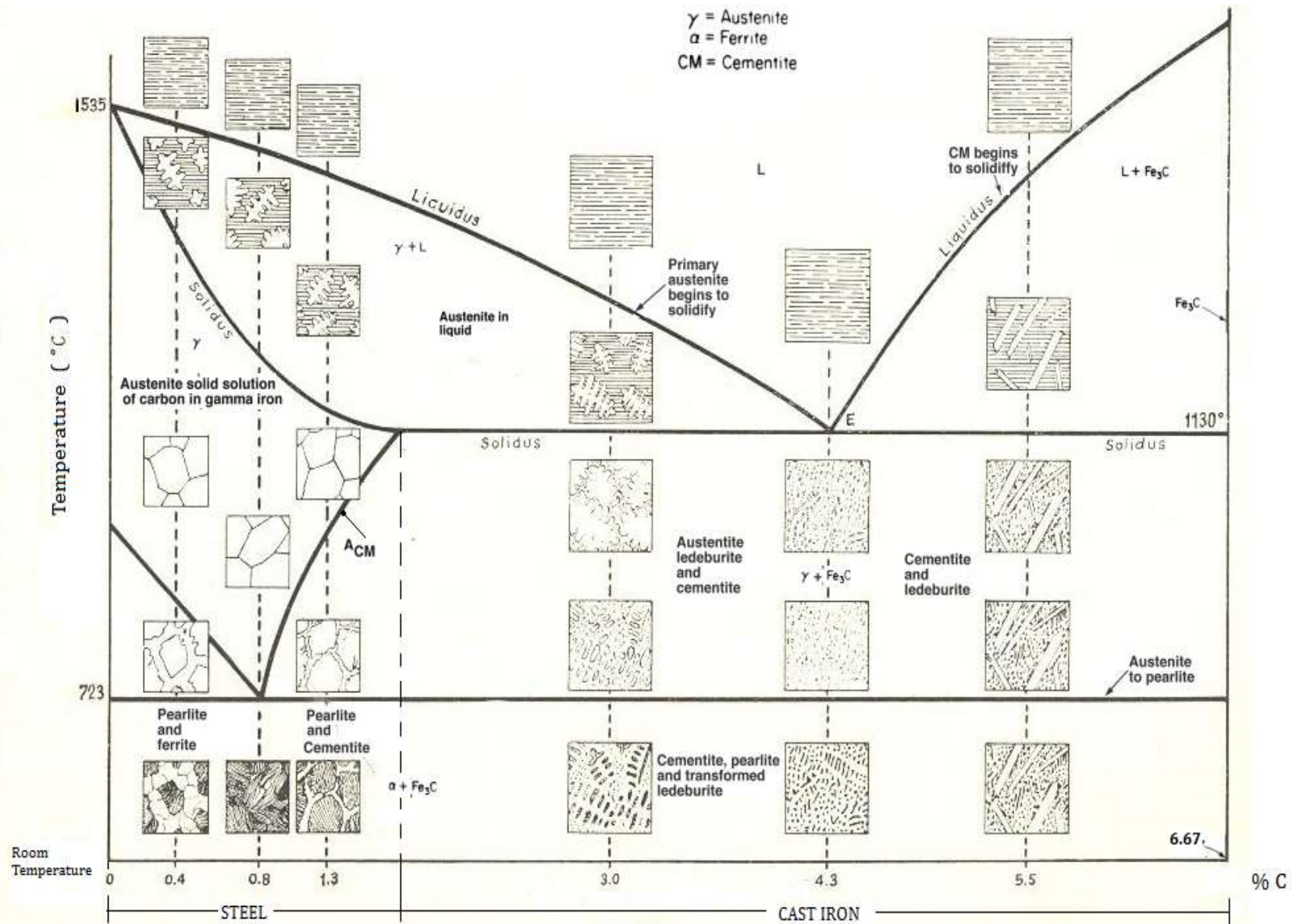
Elementos de Liga:

C, Mn, Si, Ni, Cr, Mo, W, V, Ti, Nb

Eutectic	$L \rightarrow \alpha + \beta$	
Peritectic	$\alpha + L \rightarrow \beta$	
Monotectic	$L_1 \rightarrow L_2 + \alpha$	
Eutectoid	$\gamma \rightarrow \alpha + \beta$	
Peritectoid	$\alpha + \beta \rightarrow \gamma$	

O diagrama Fe-Fe₃C







Edgar C. Bain
Edgar Bain 1891-1971



Adolf Martens
 1850-1914



Sir William Chandler Roberts-Austen (1843-1902).

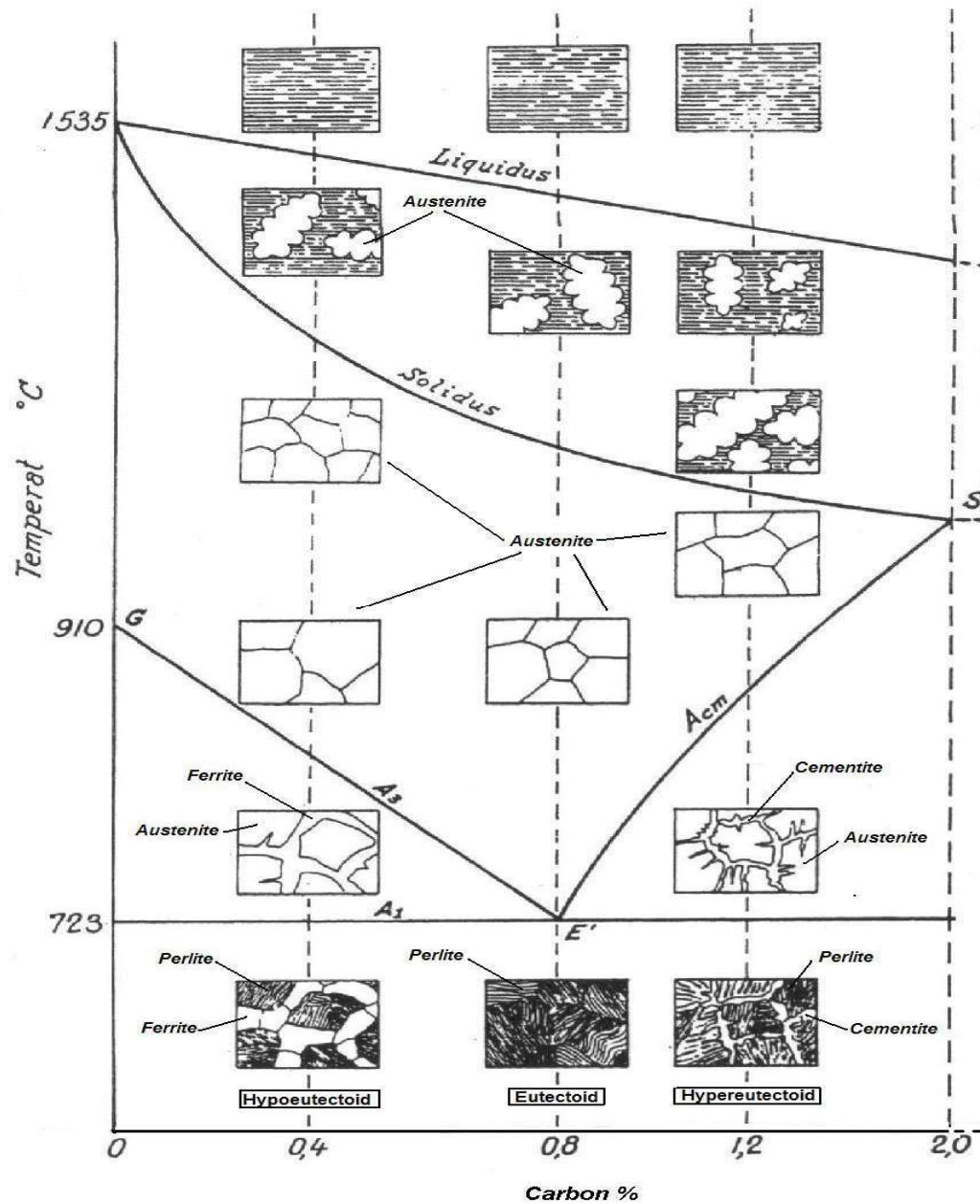


Adolf Ledebur (**1837-1916**).



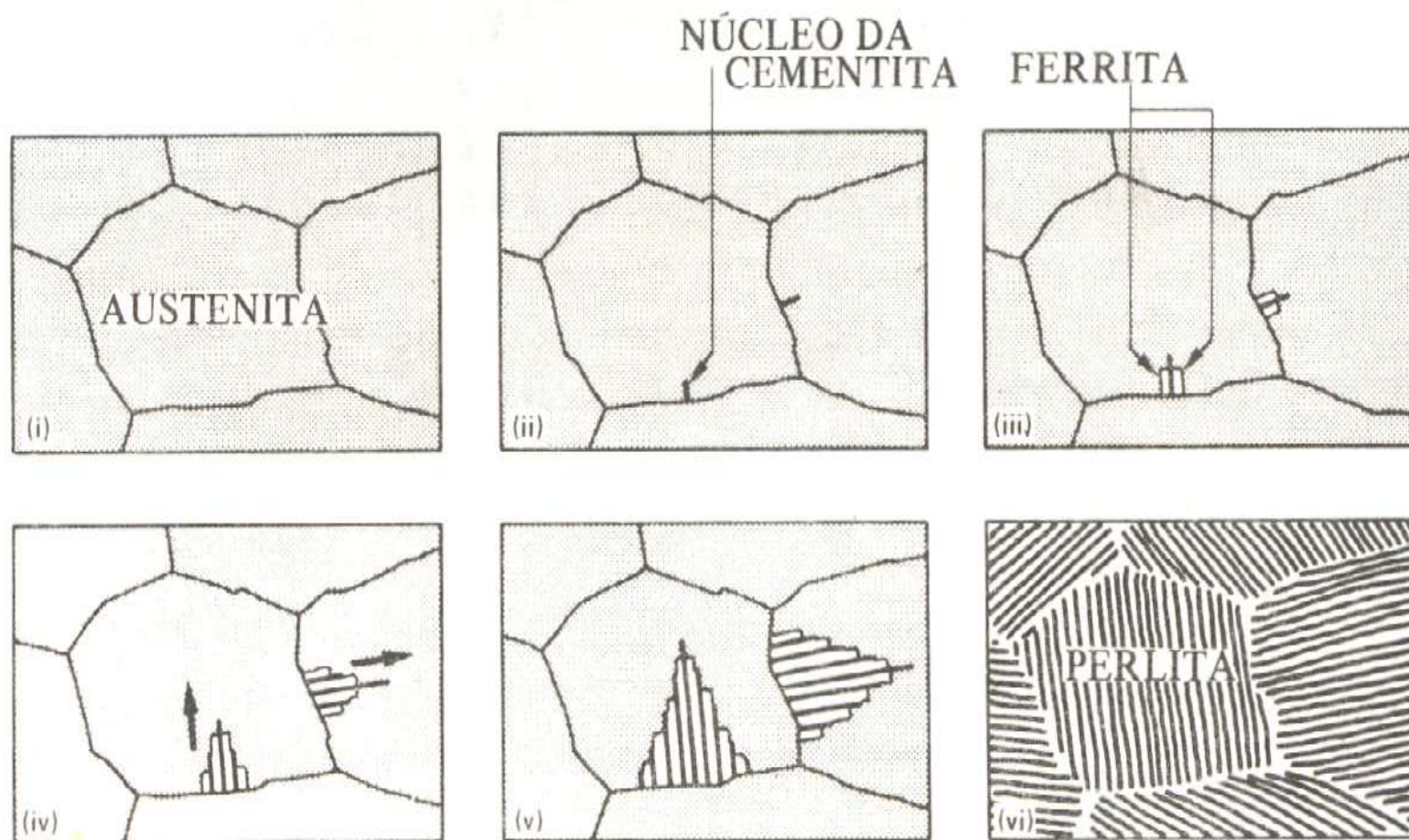
Laura

Lauralice



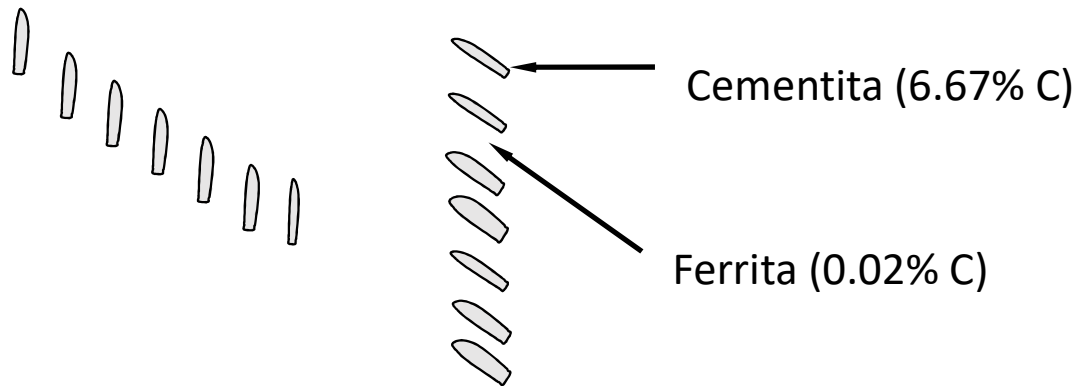
A1:
Temperatura de equilíbrio de
início de austenitização

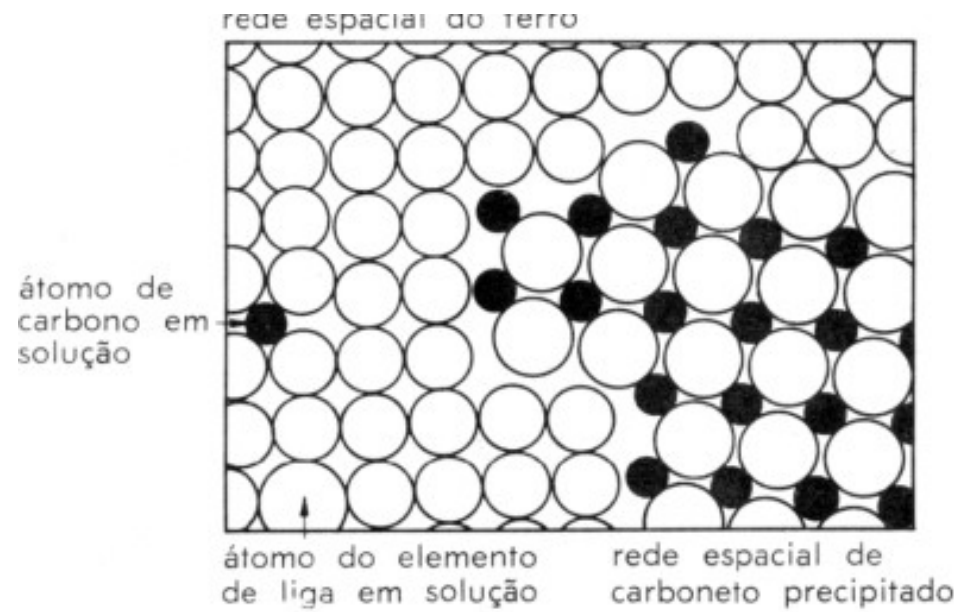
A3: Temperatura de equilíbrio
de fim de austenitização



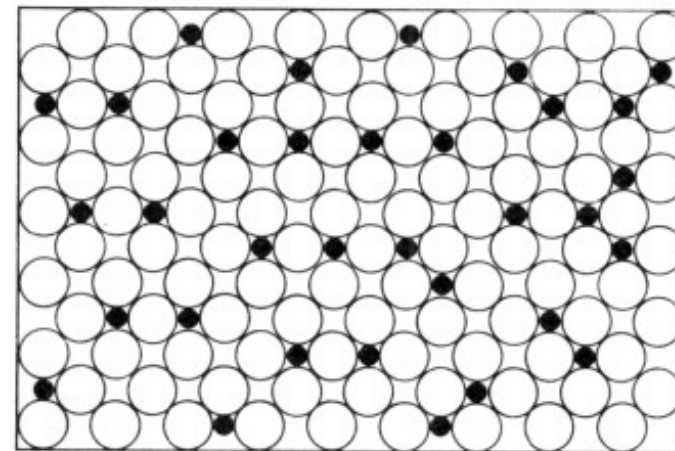
Estrutura da perlita

Perlita (0.8% C em média)





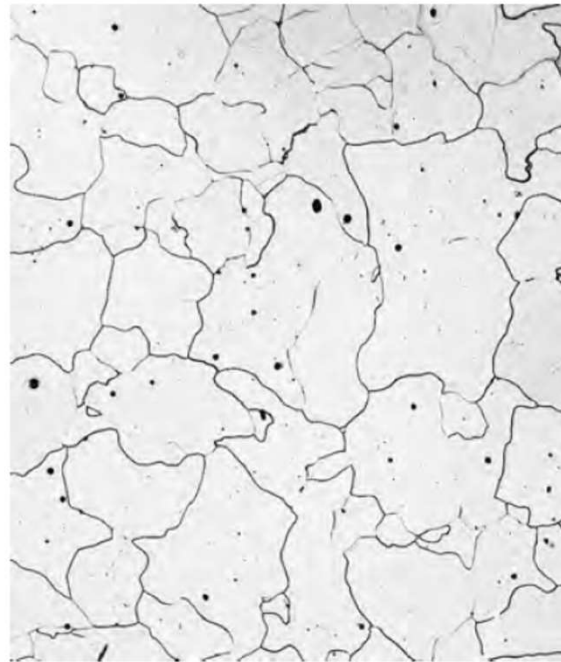
Solução sólida intersticial do carbono na ferrita e precipitação de carbonetos.



Solução sólida intersticial do carbono na austenita

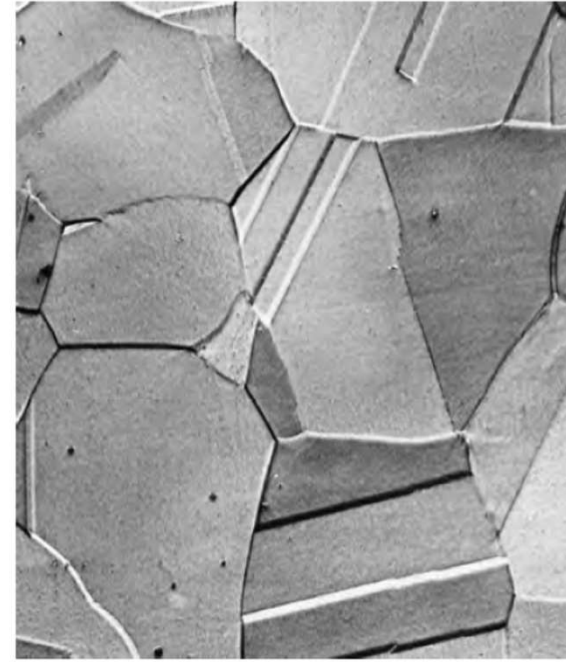
Ferrita e Austenita

Figure 9.25
Photomicrographs of
(a) α ferrite (90 $\times$)
and (b) austenite
(325 $\times$). (Copyright
1971 by United
States Steel
Corporation.)



(a)

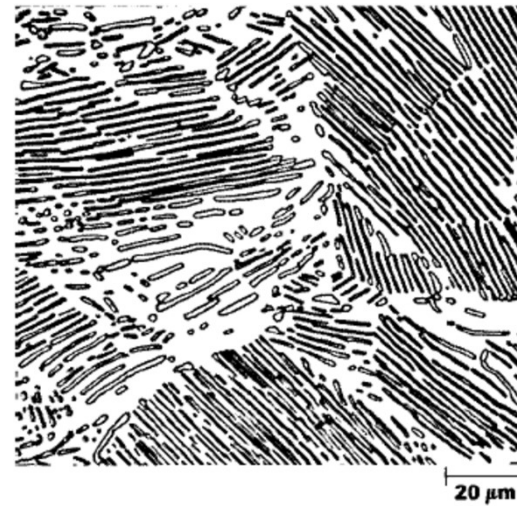
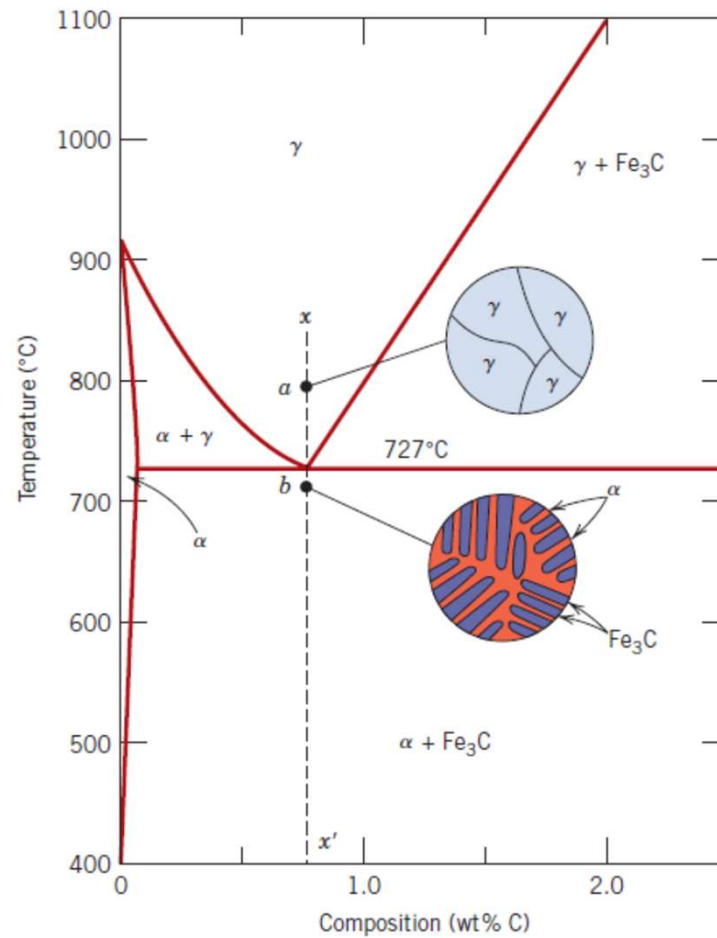
Ferrita ou Fe- α (CCC)



(b)

Austenita ou Fe- γ (CFC)

O eutetóide Fe-Fe₃C (perlita)



Lamelas de ferrita e cementita

Aço AISI/SAE 1080

Crescimento da perlita

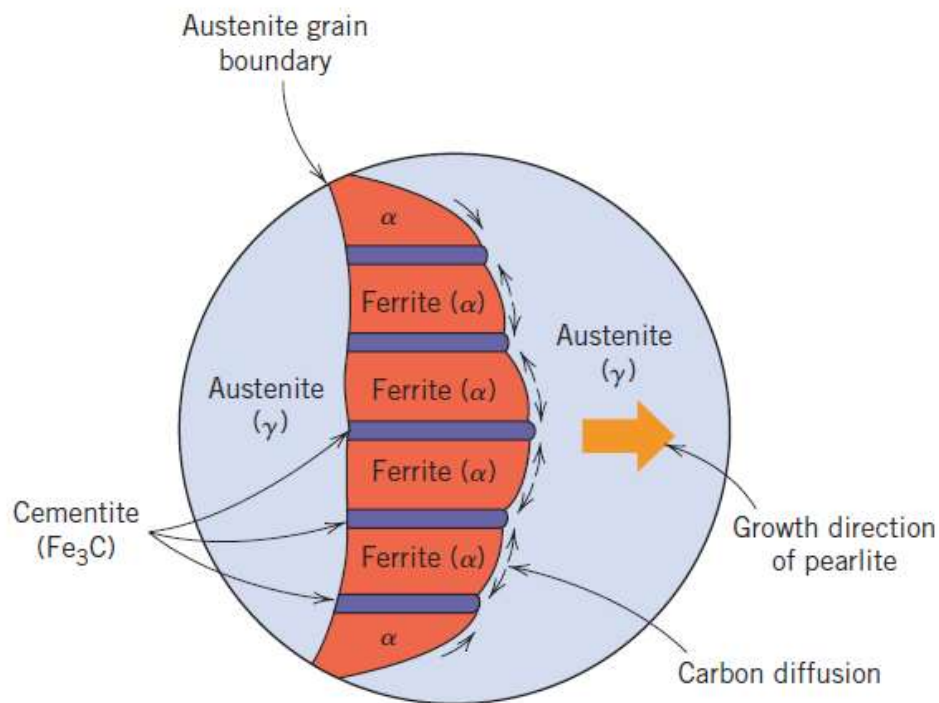
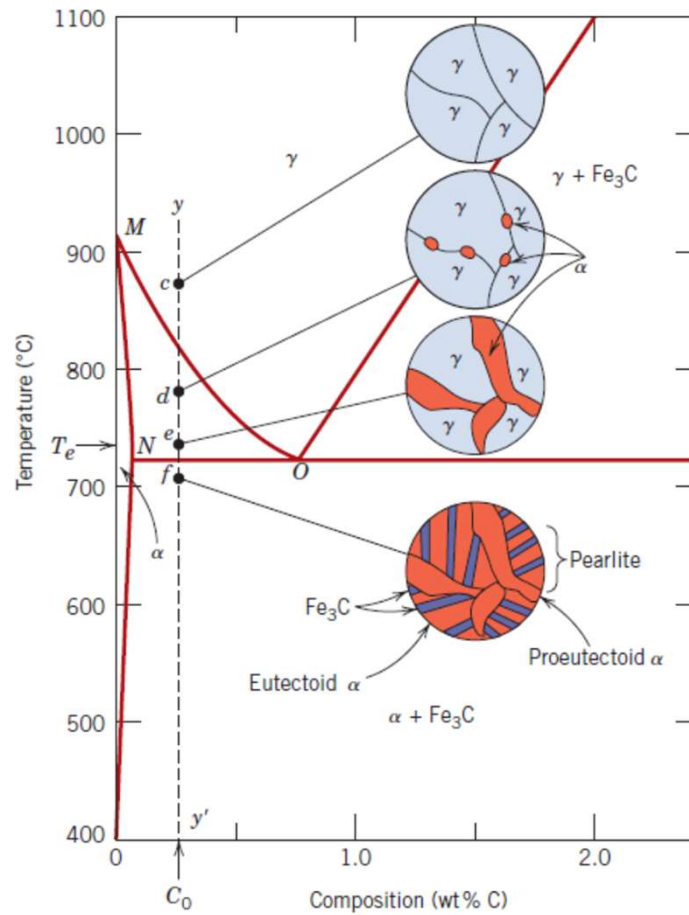


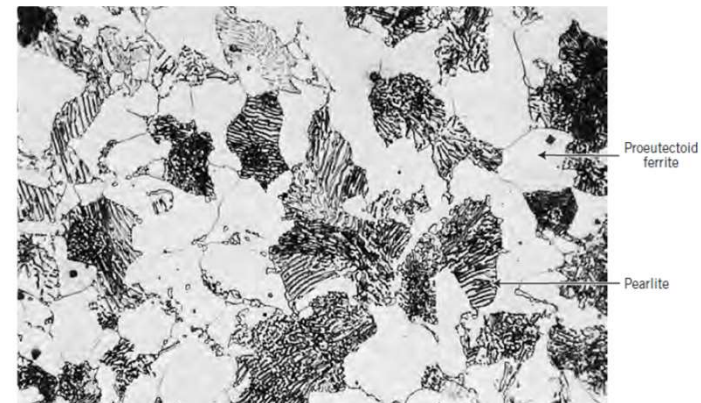
Figure 9.28 Schematic representation of the formation of pearlite from austenite; direction of carbon diffusion indicated by arrows.

Microestrutura hipoeutetóide

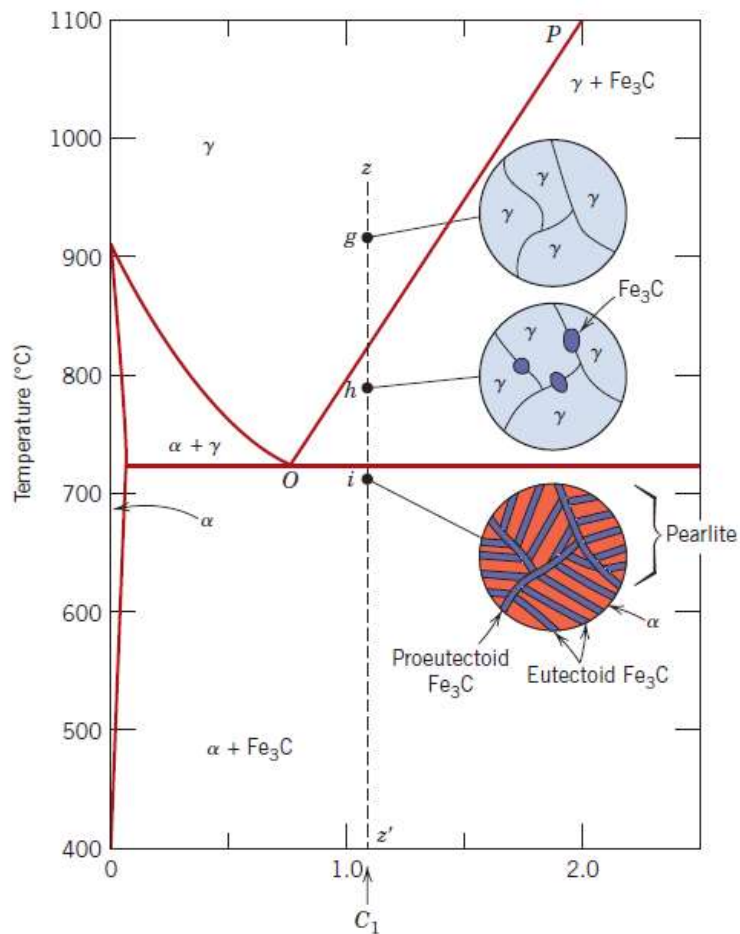


Aços hipoeutetóides

AISI/SAE 10xx com $xx < 80$

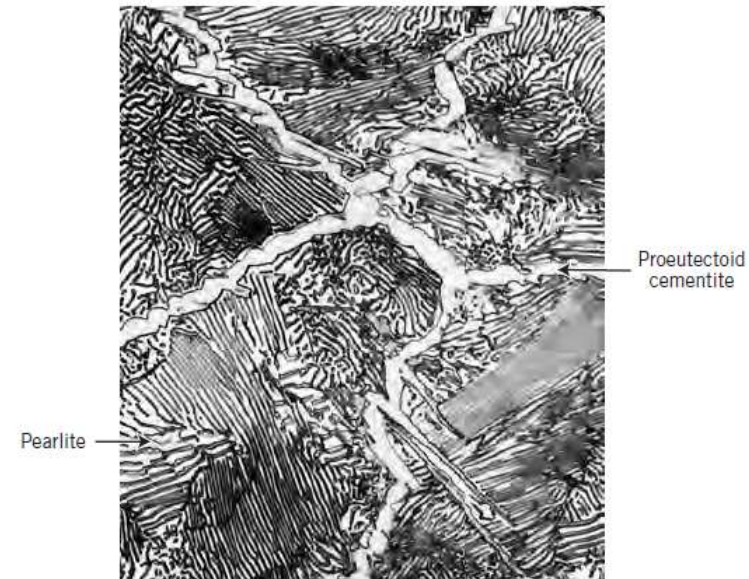


Microestrutura Hipereutetóide



Aços hipereutetóides

AISI/SAE 10xx com $xx > 80$



Efeito da porcentagem de perlita

