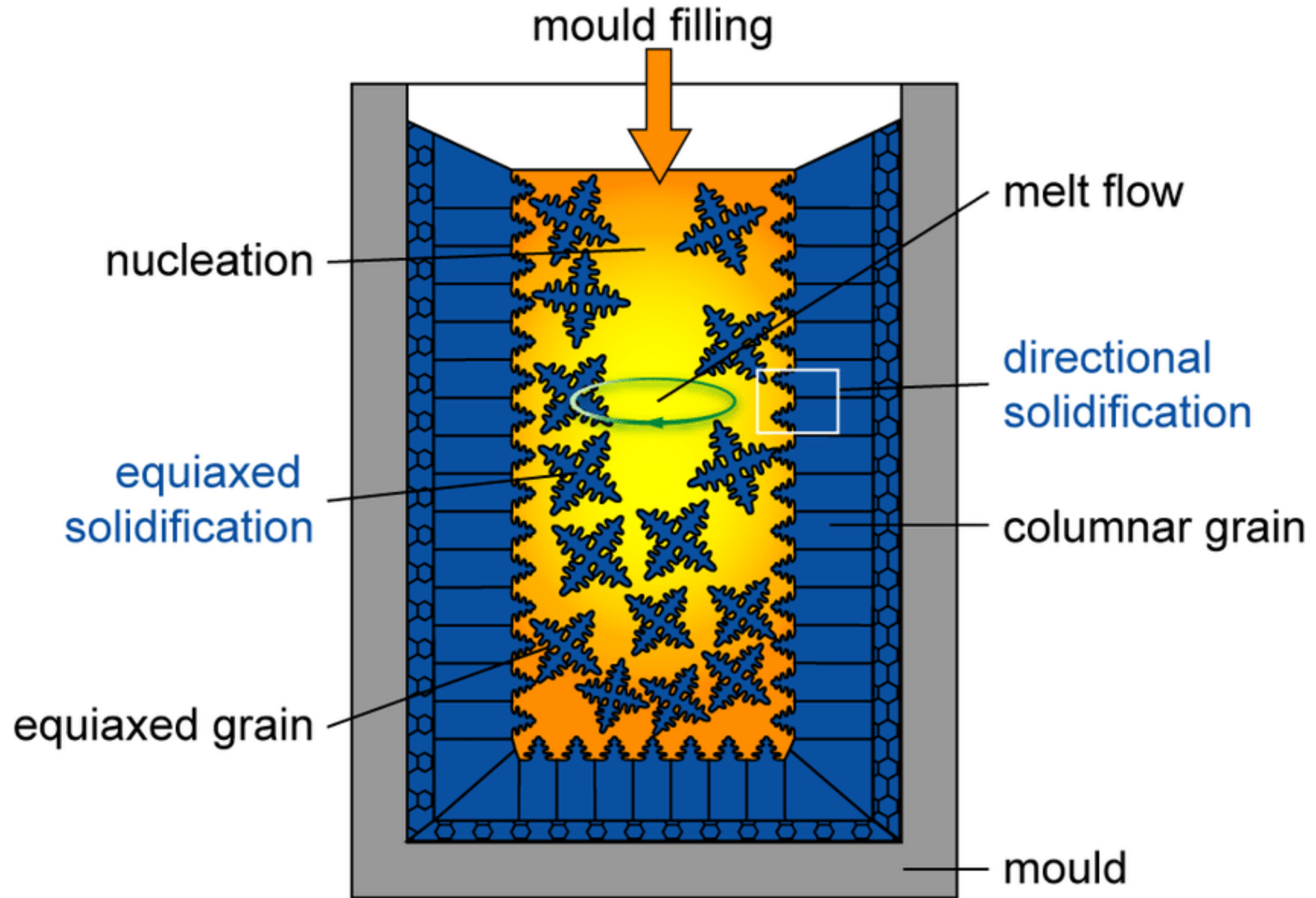
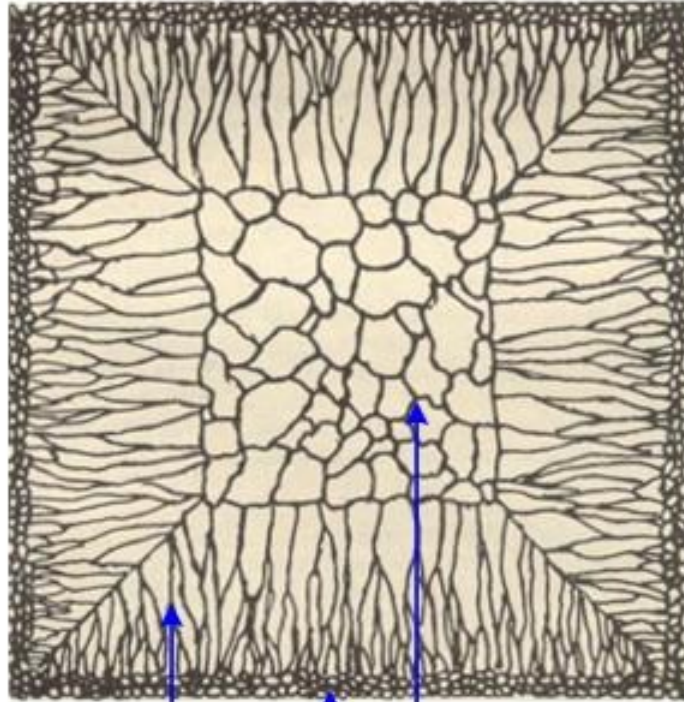


آزمایشگاه متالوگرافی

آلومینیوم



Grain structure of ingot



Columnar grains

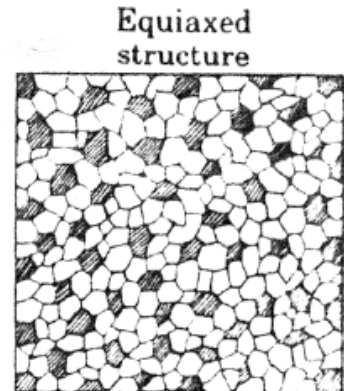
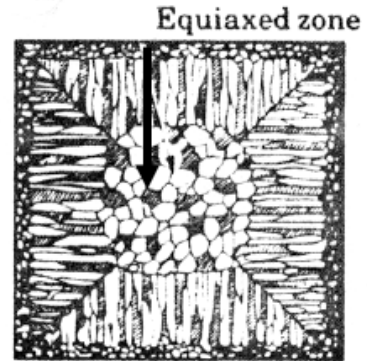
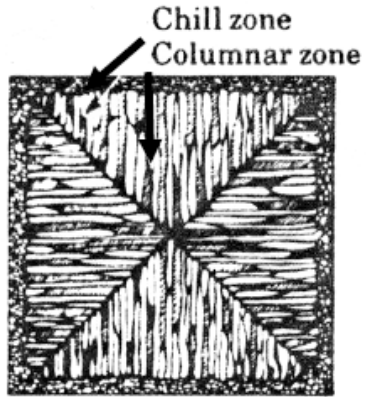
Large equiaxed grains

Small equiaxed grains

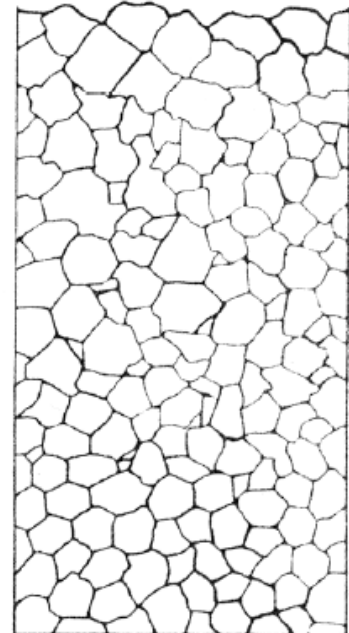
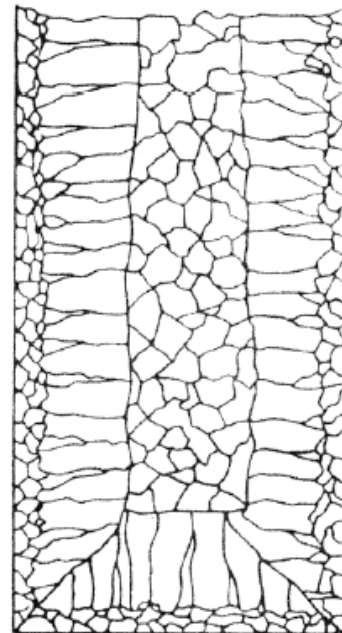
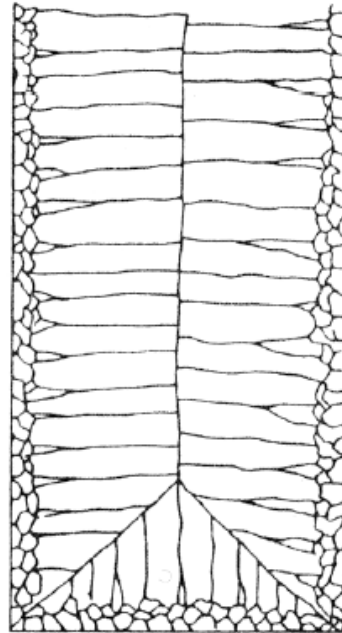
(from Bower T.F. and Flemings M.C., Trans. AIME, 239, 1620 (1967))



Horizontal Section



Vertical Section



No nucleation within melt

Nucleation both on walls and within melt

No nucleation on walls

