

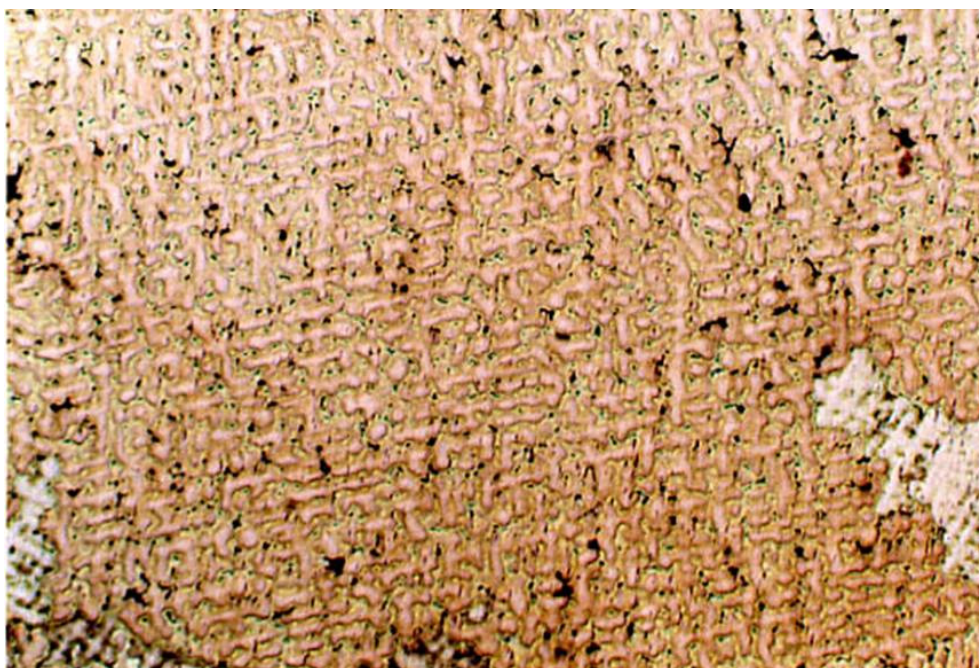
Appendix 2: Colour photomicrographs of bronzes cast in sand moulds



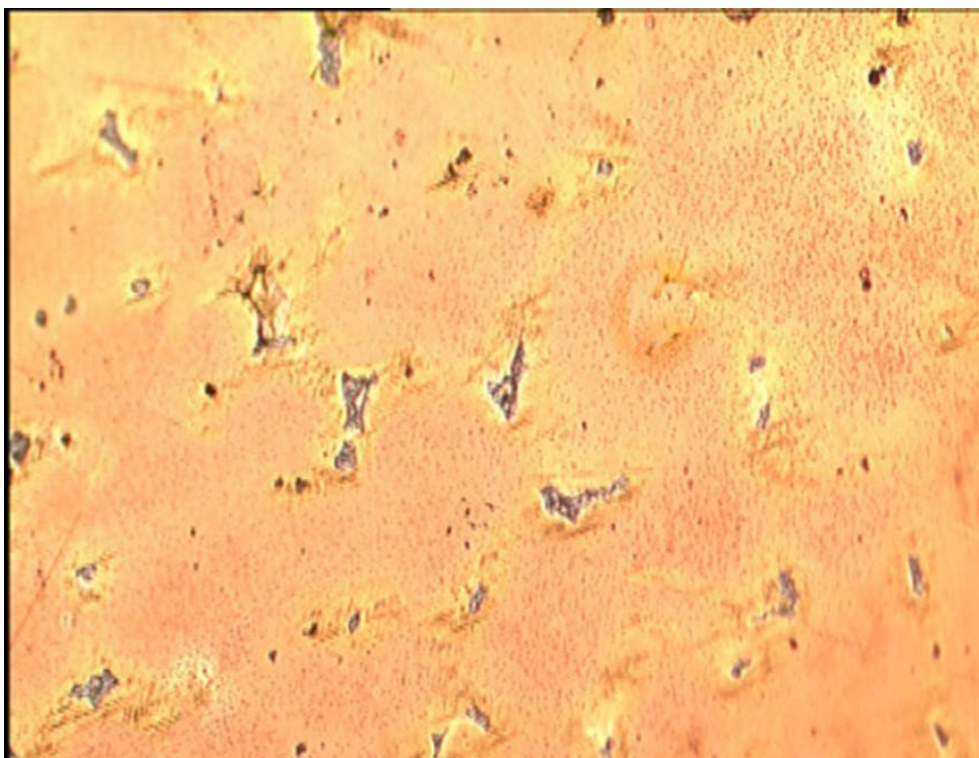
Figure S1. 2% Sn bronze, water-quenched, showing a granular structure without $\alpha+\delta$ eutectoids.
Image width 1.3mm



Figure S2. 2% Sn bronze, air-cooled, showing a granular structure without $\alpha+\delta$ eutectoids.
Image width 1.3mm

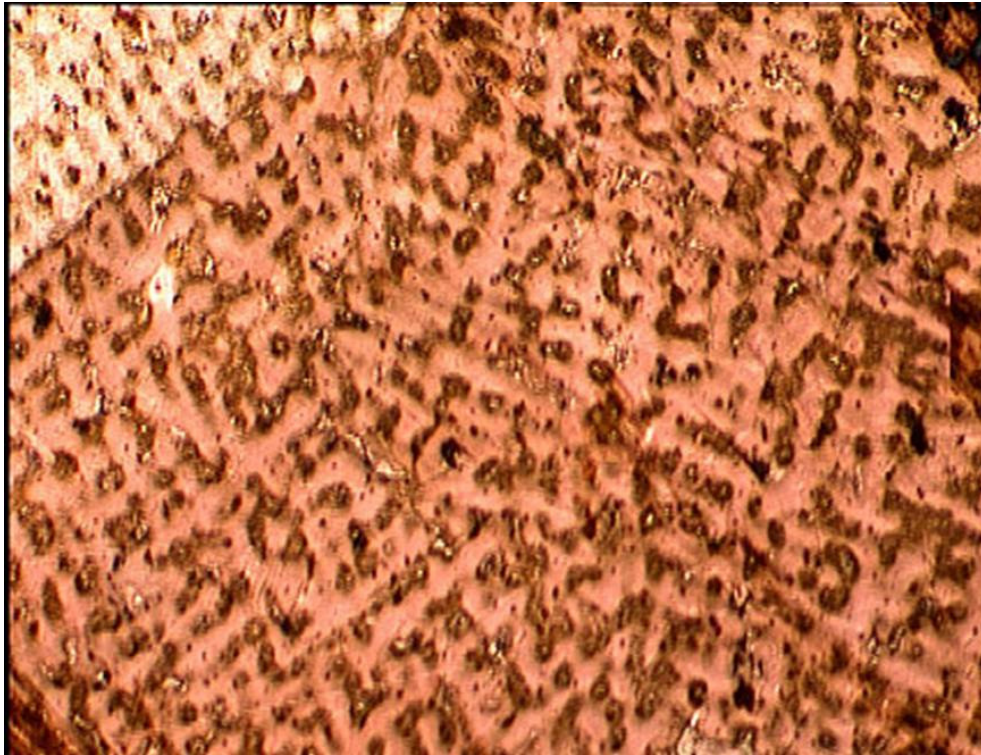


a: Image width 2.6mm

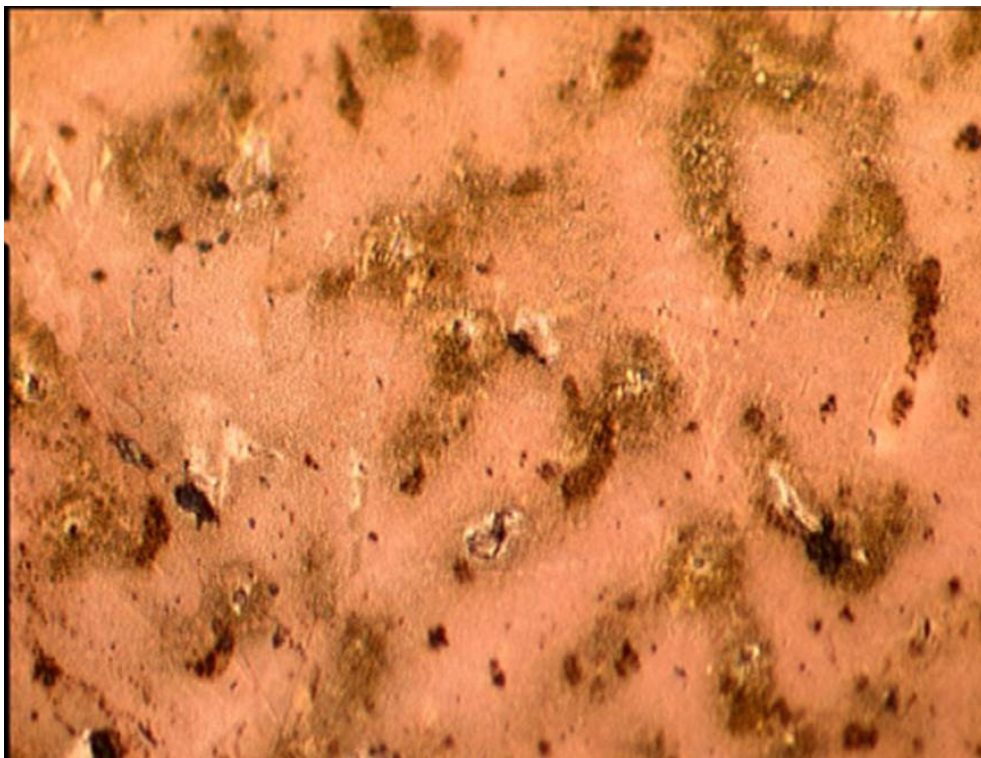


b: Image width 0.33mm

Figure S3. 6% Sn bronze, water-quenched, showing dendritic structure with α + δ eutectoids.

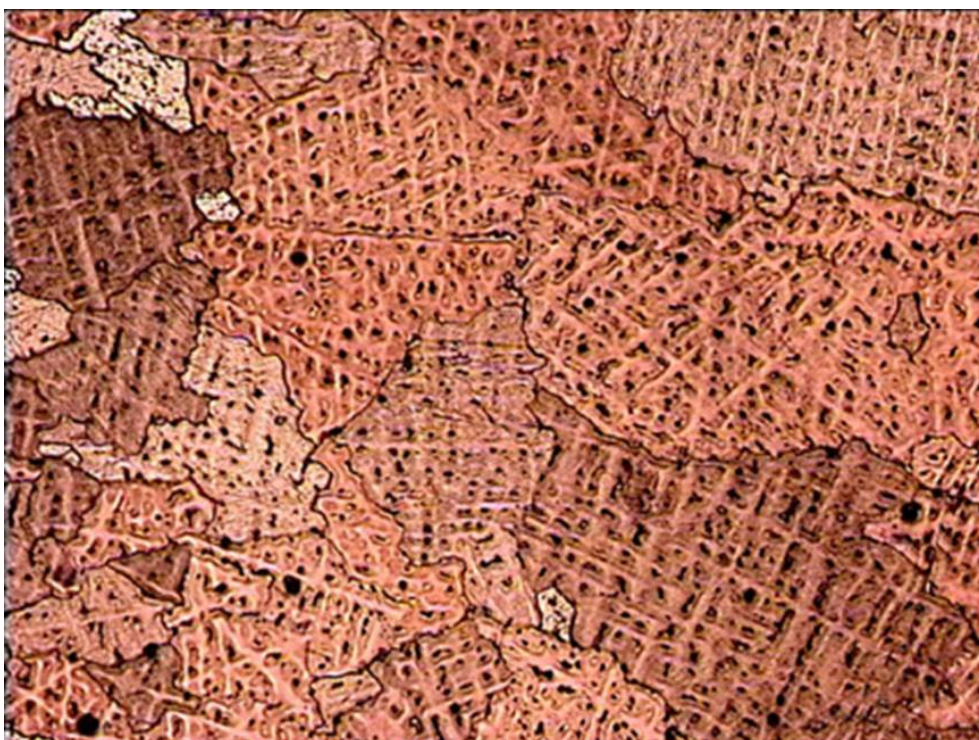


a: Image width 1.3mm



b: Image width 0.33mm

Figure S4. 6% Sn bronze, air-cooled, showing dendritic structure with rare $\alpha+\delta$

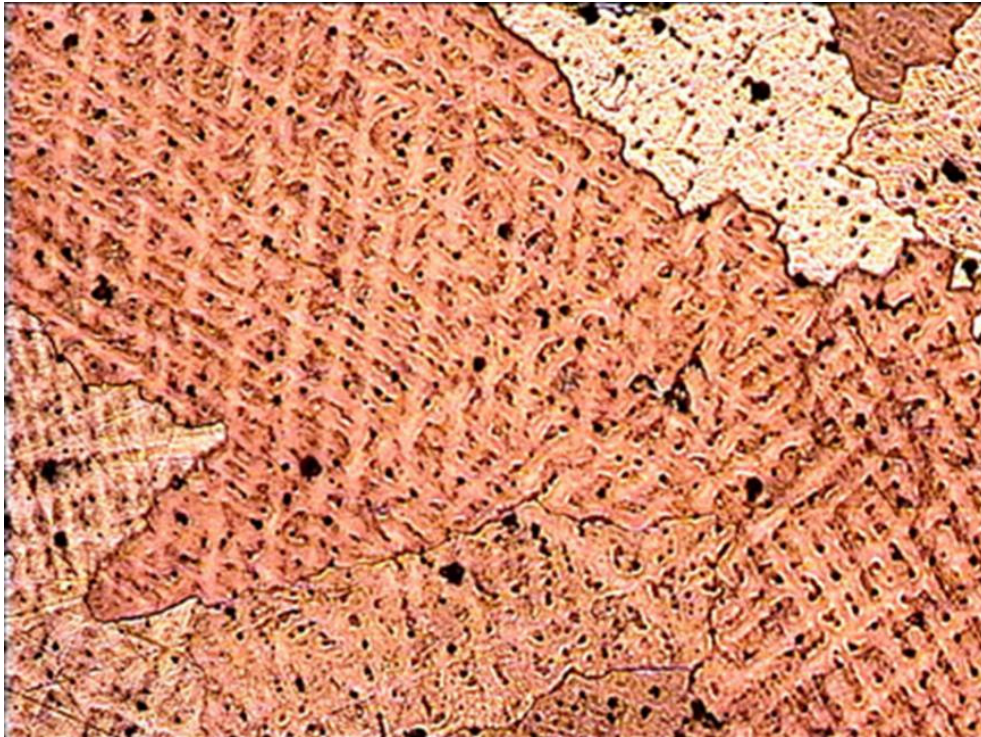


a: Image width 1.3mm



b: Image width 0.13mm

Figure S5. 10% Sn bronze, water-quenched, showing dendritic structure with dark $\alpha+\delta$ eutectoids.

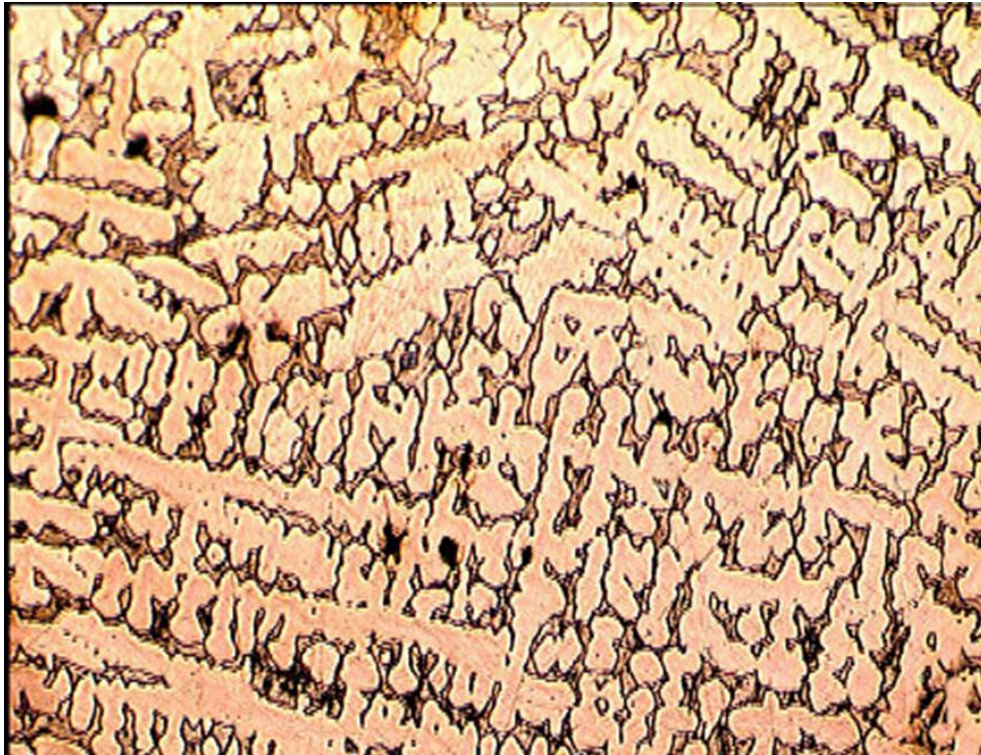


a: Image width 1.3mm

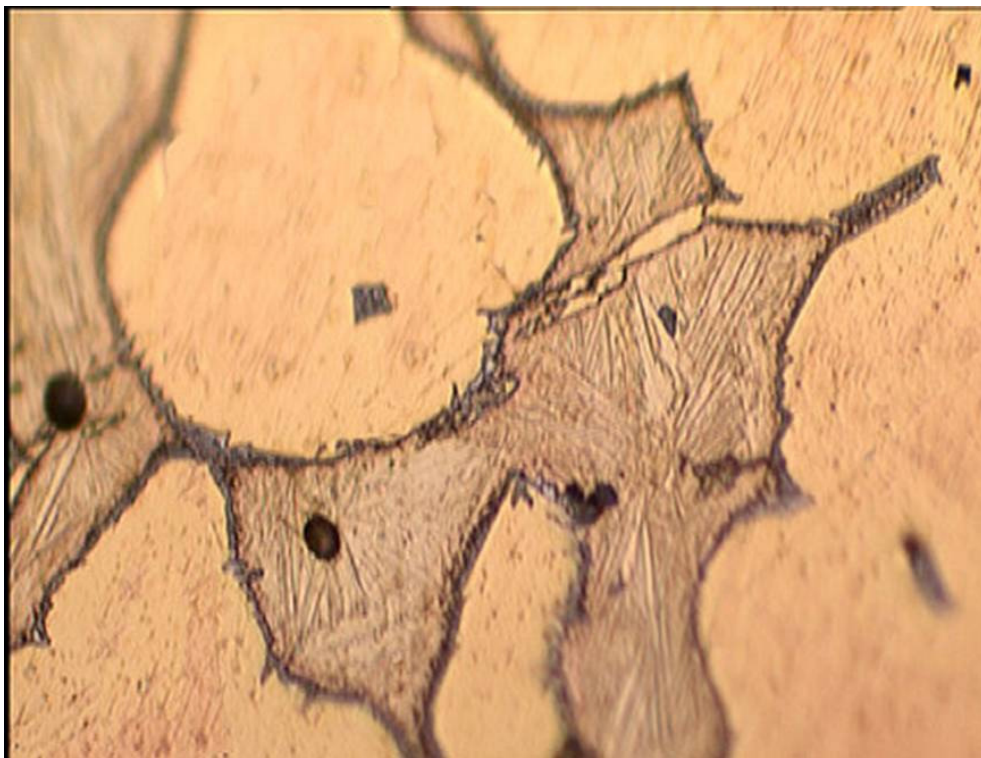


b: Image width 0.13mm

Figure S6. 10% Sn bronze, air-cooled, showing dendritic structure with $\alpha+\delta$ eutectoids.

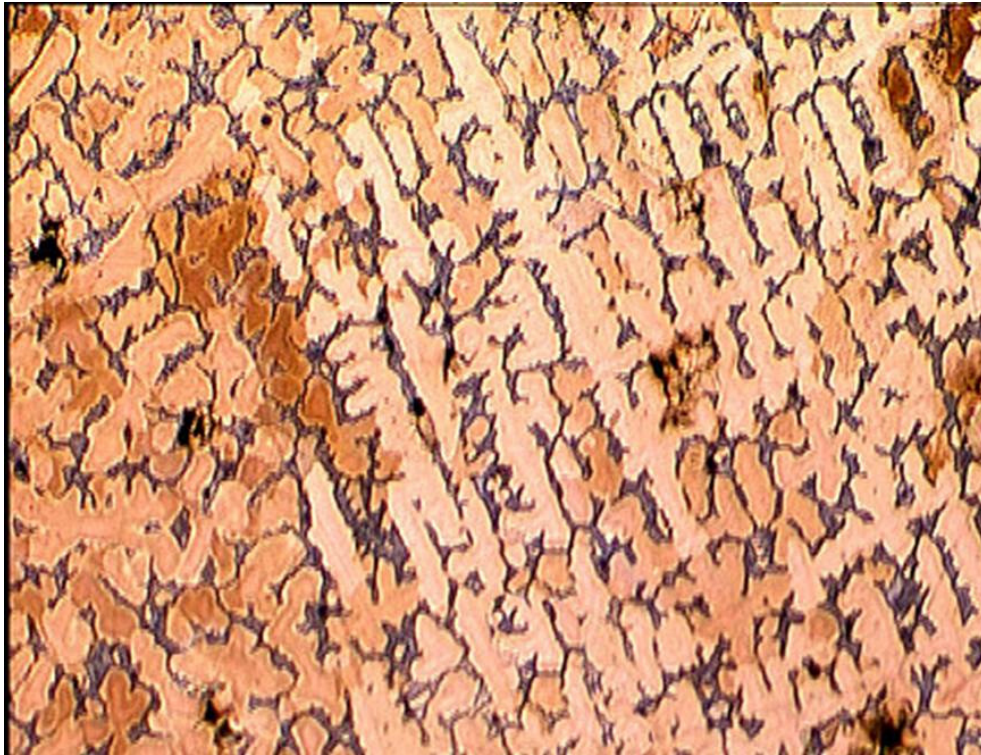


a: Image width 1.3mm

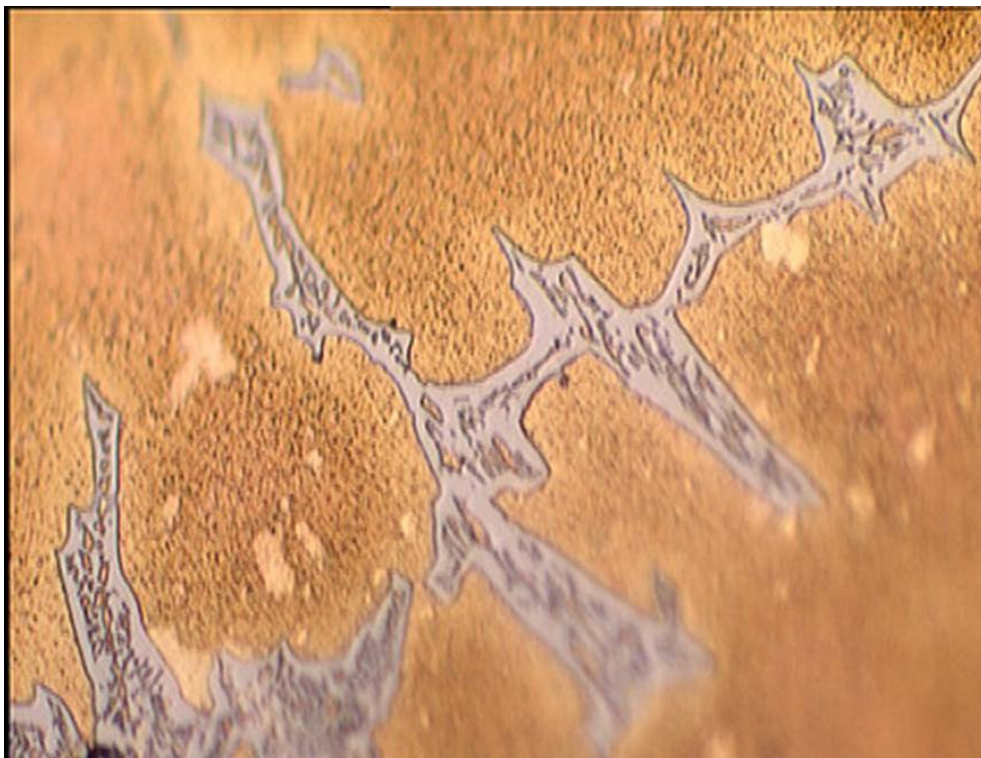


b: Image width 0.13mm

Figure S7. 15% Sn bronze, water-quenched, showing dendritic structure and abnormal (dark) delta phase on the grain boundaries and needle beta phase in the interdendritic regions



a: Image width 1.3mm

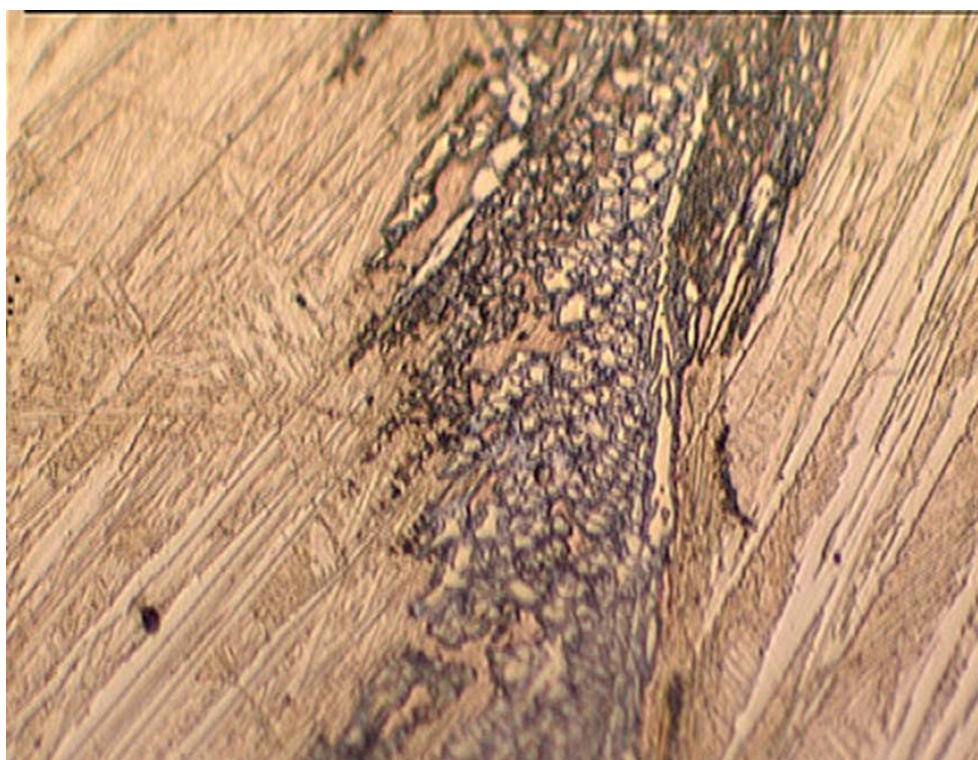


b: Image width 0.13mm

Figure S8. 15% Sn bronze, air-cooled, showing dendritic structure with lots of $\alpha+\delta$

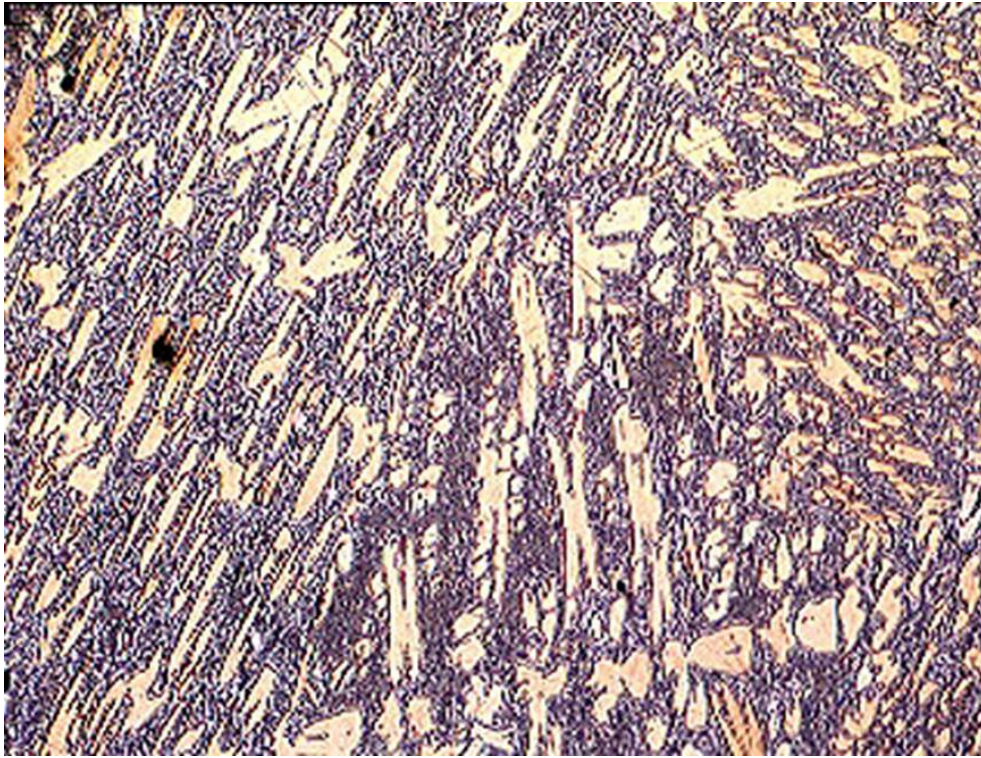


a: Image width 1.3mm

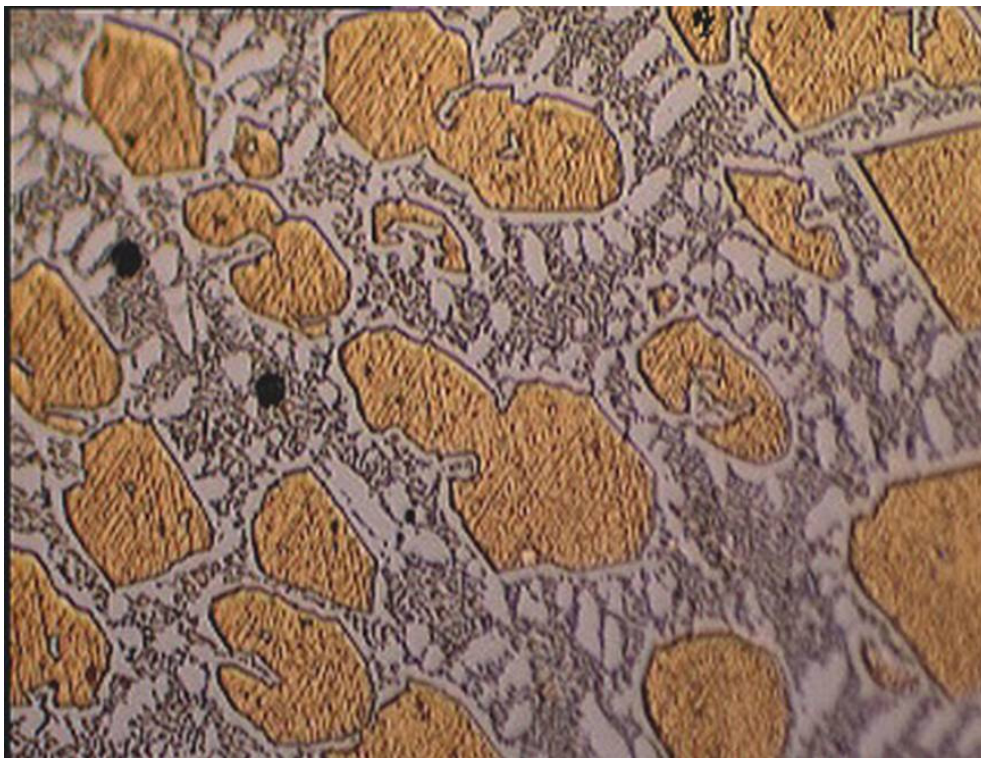


b: Image width 0.13mm

Figure S9 23% Sn bronze, water-quenched, showing needle beta matrix with abnormal delta phase on the grain boundaries

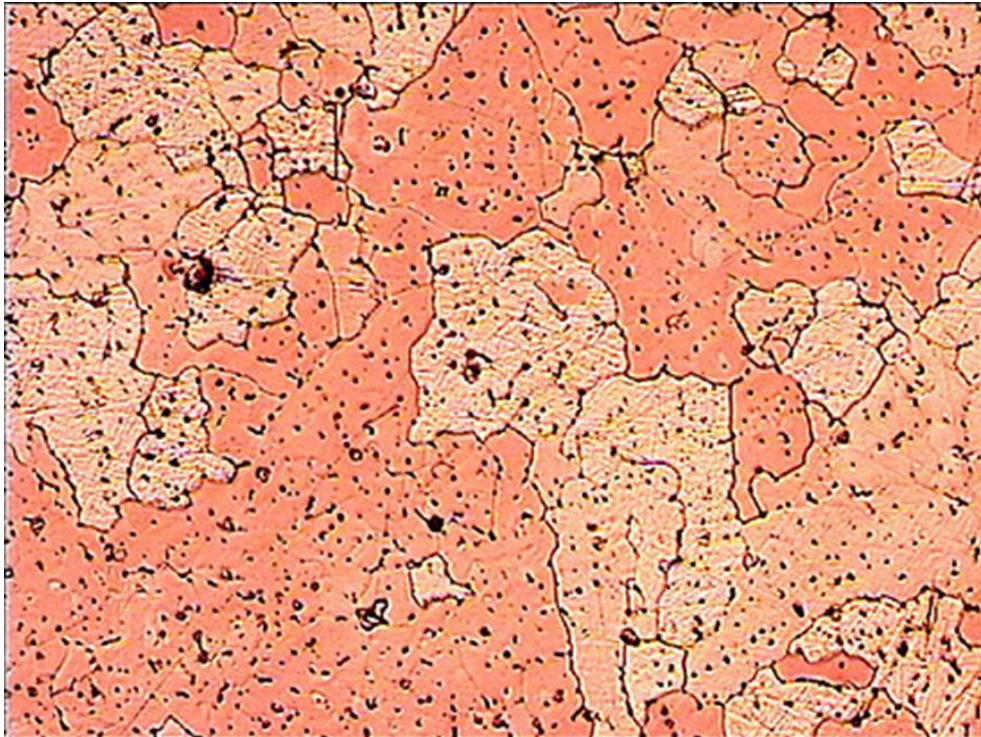


a: Image width 1.3mm

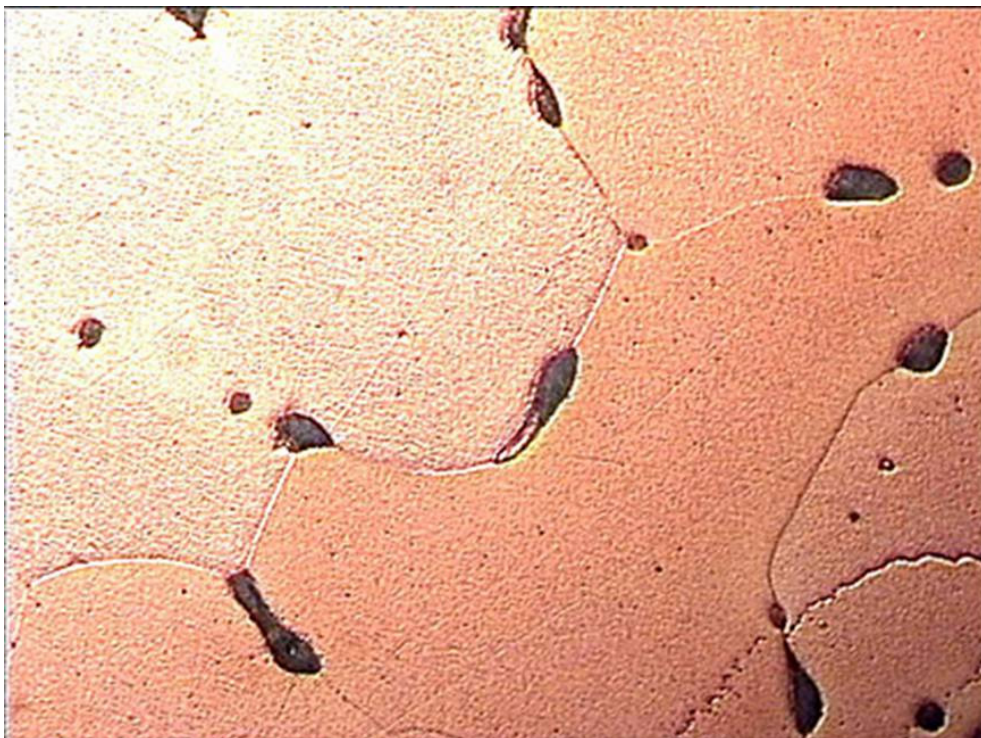


b: Image width 0.13mm

Figure S10. 23% Sn bronze, air-cooled, showing massive $\alpha+\delta$ eutectoids

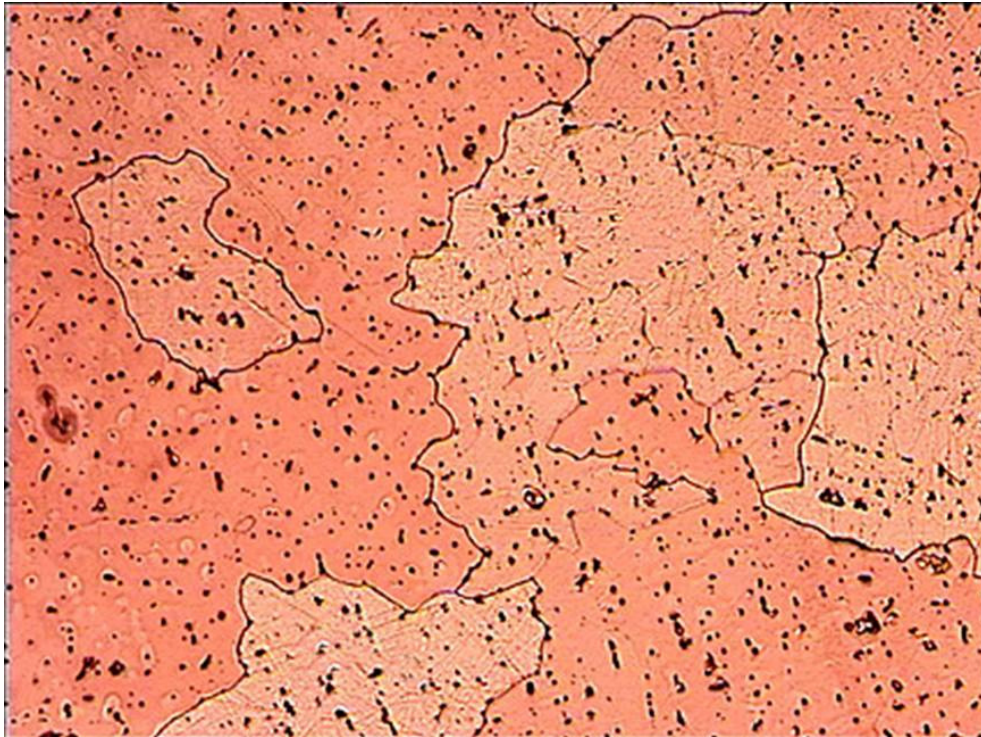


a: Image width 1.3mm



b: Image width 0.13mm

Figure S11. 2% Sn + 2% Pb bronze, water-quenched, showing a granular structure without $\alpha+\delta$ eutectoids. Most of the lead droplets are on grain boundaries.



a: Image width 1.3mm

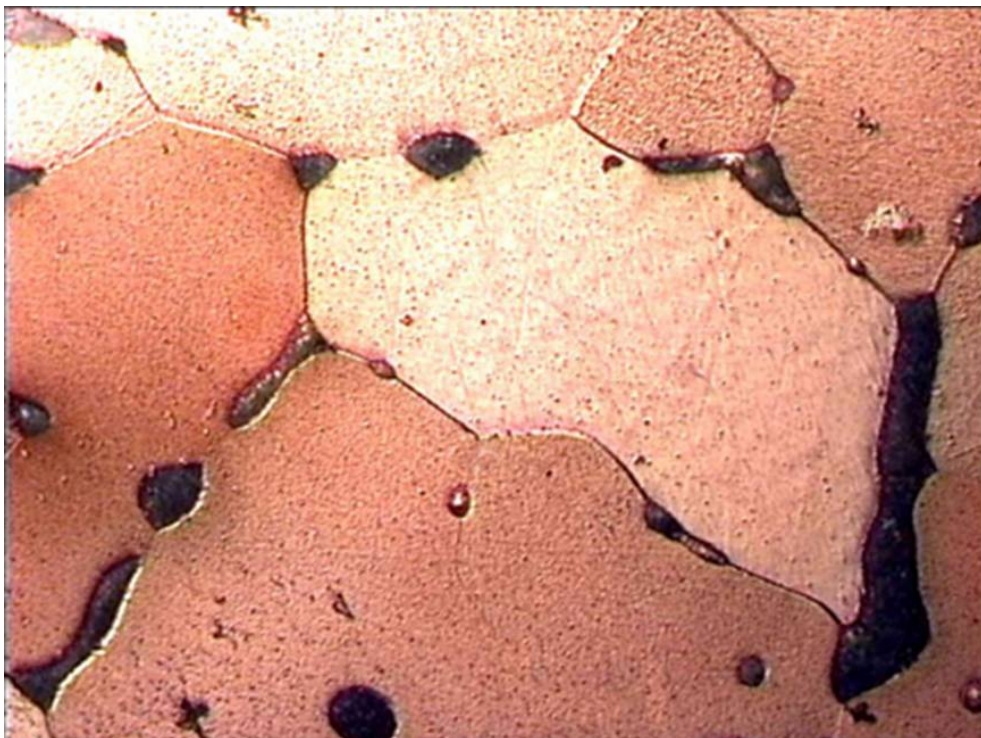


b: Image width 0.13mm

Figure S12. 2% Sn + 2% Pb bronze, air-cooled, showing a granular structure without $\alpha+\delta$ eutectoids. Lead droplets are both on grain boundaries and within the grains.



a: Image width 1.3mm

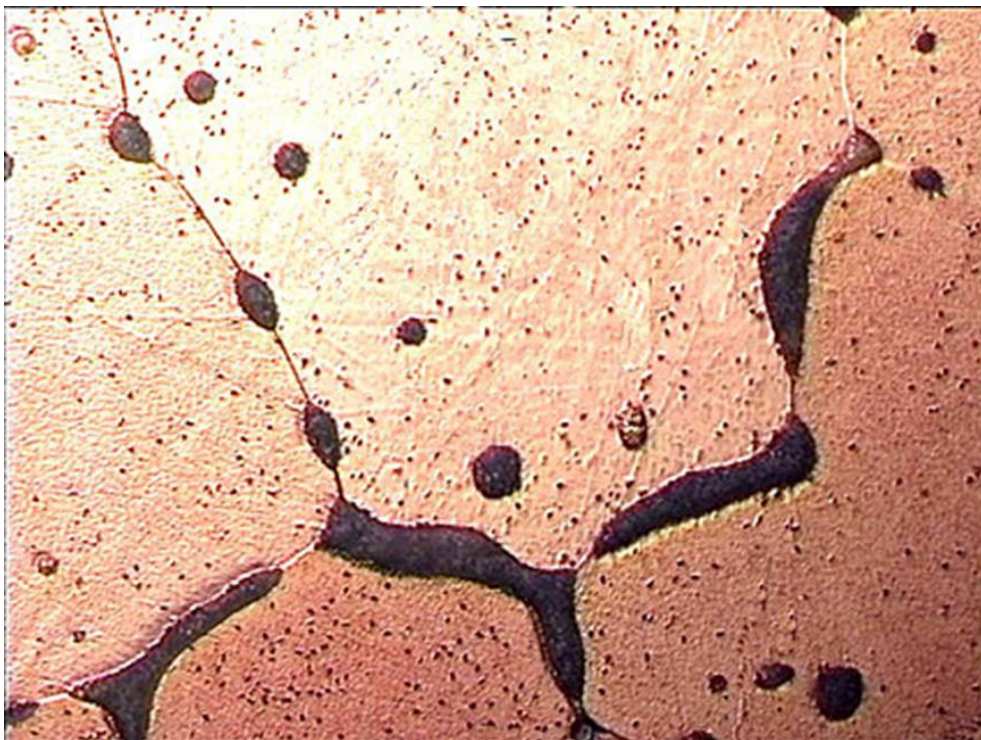


b: Image width 0.13mm

Figure S13. 2% Sn +6% Pb bronze, water-quenched, showing a granular structure without $\alpha+\delta$ eutectoids. Lead droplets are mainly on grain boundaries and vary greatly in size.

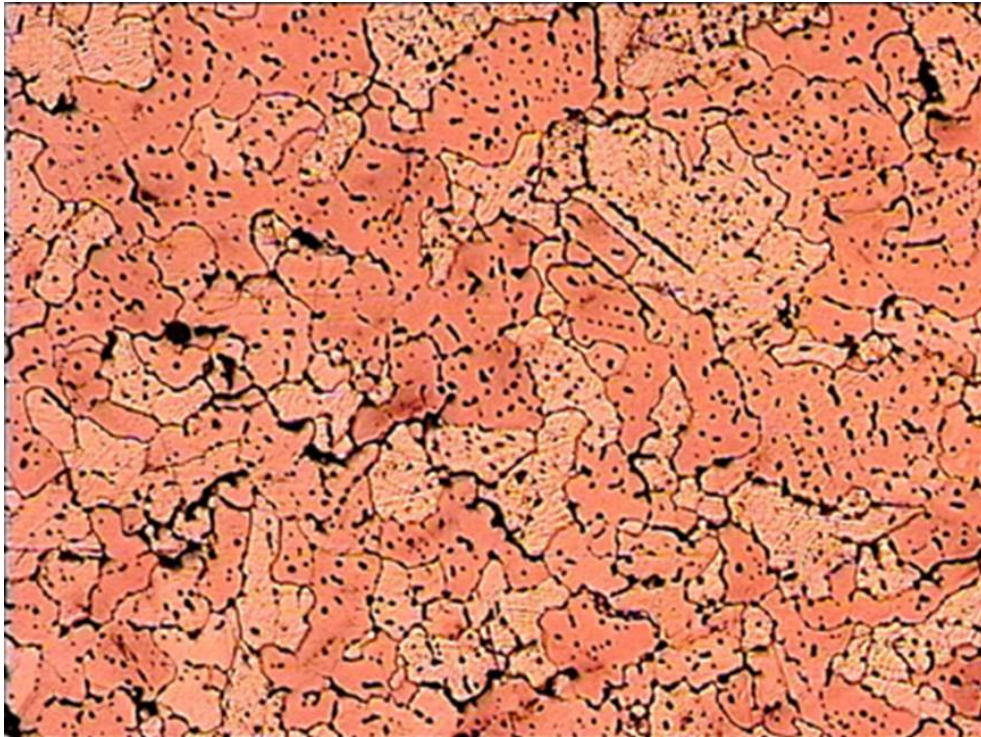


a: Image width 1.3mm

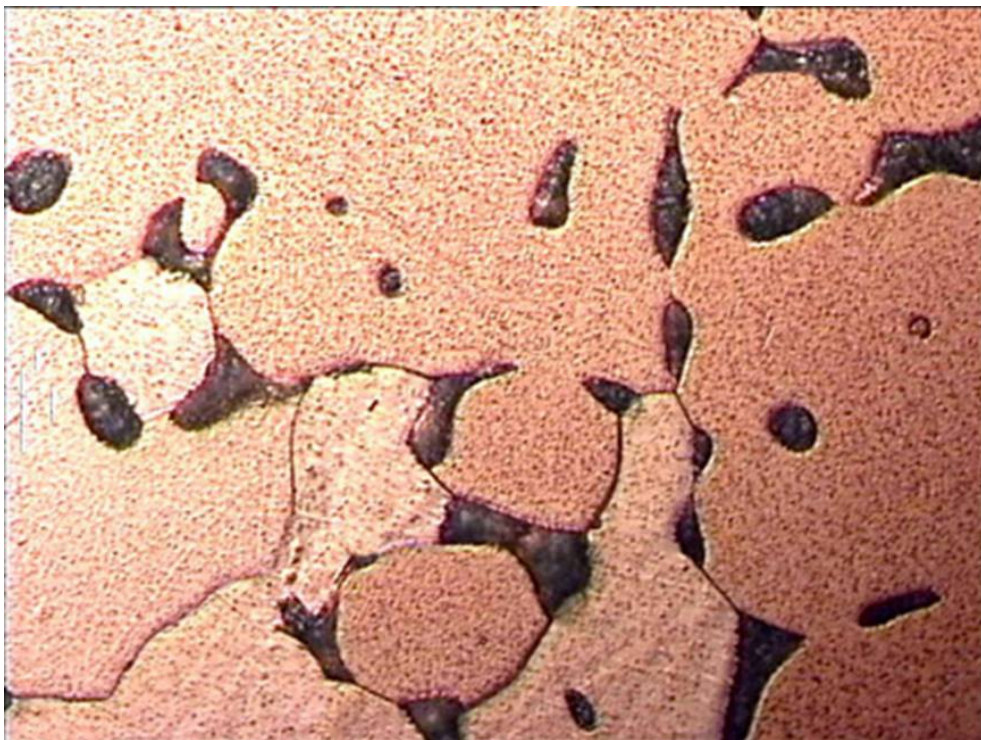


b: Image width 0.13mm

Figure S14. 2% Sn +6% Pb bronze, air-cooled, showing a granular structure without $\alpha+\delta$ eutectoids. Lead droplets are mainly on grain boundaries and vary greatly in size.

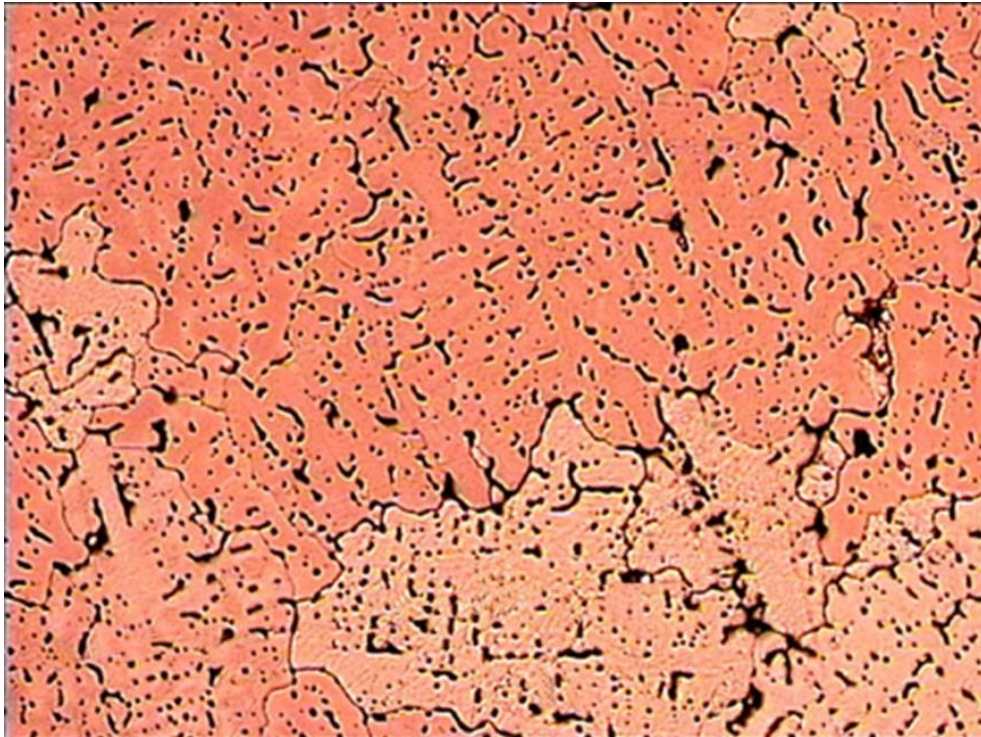


a: Image width 1.3mm



b: Image width 0.13mm

Figure S15. 2% Sn + 10 %Pb bronze, water-quenched, showing a granular structure without $\alpha+\delta$ eutectoids. Lead droplets are mainly on grain boundaries and vary greatly in size.

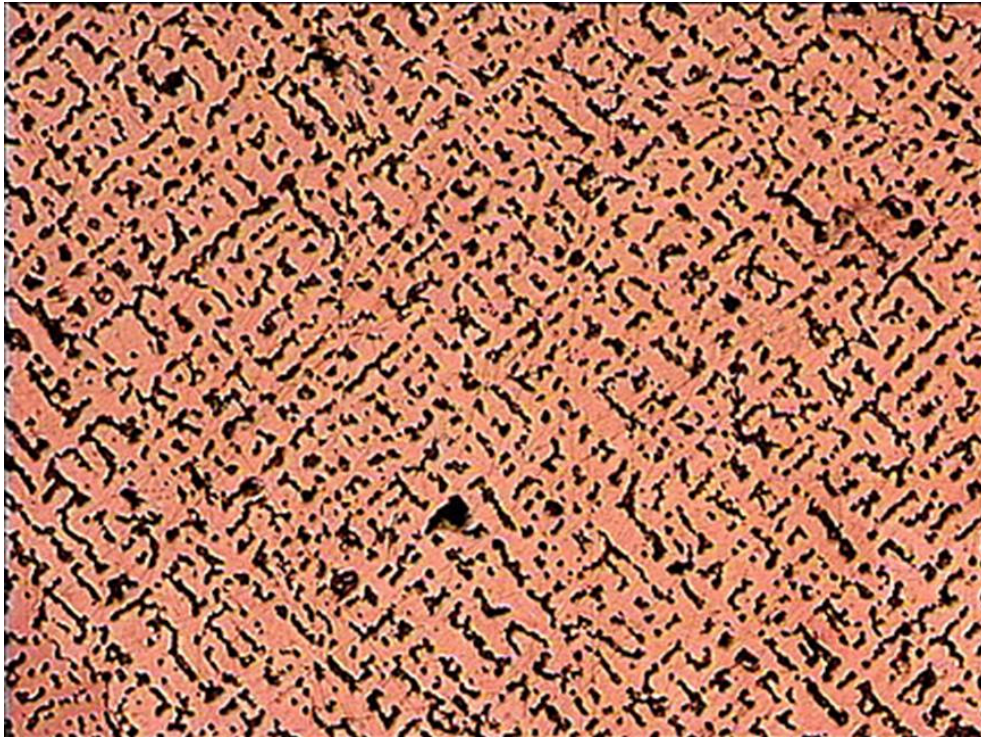


a: Image width 1.3mm



b: Image width 0.13mm

Figure S16. 2% Sn + 10% Pb bronze, air-cooled, showing a granular structure without $\alpha+\delta$ eutectoids. Lead droplets are both on grain boundaries and within the grains.

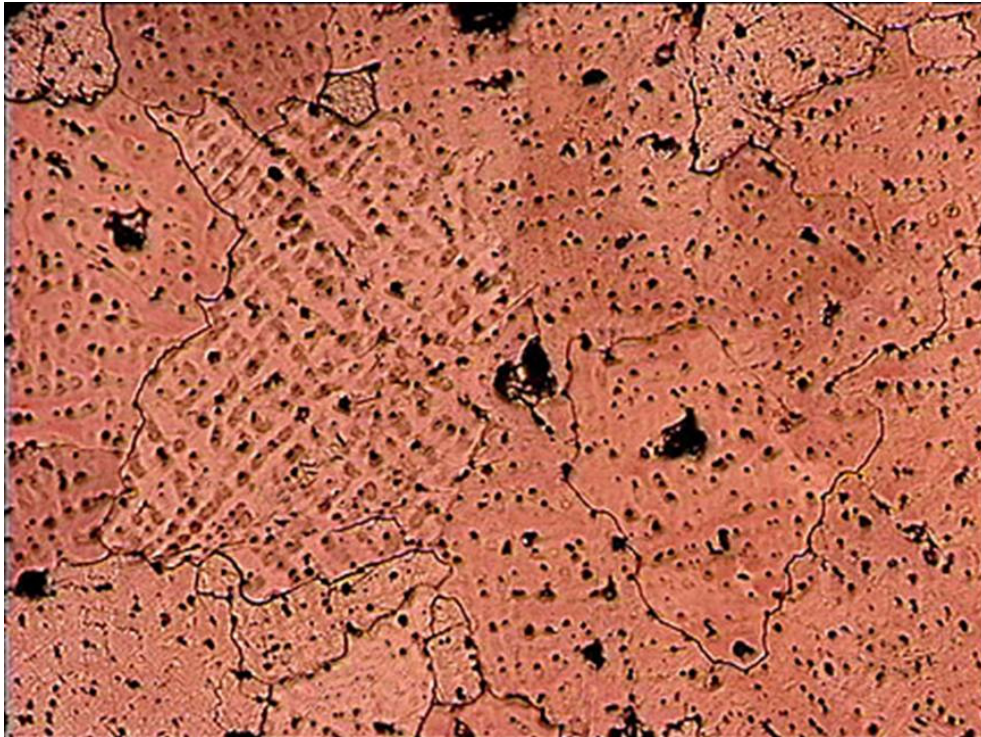


a: Image width 1.3mm



b: Image width 0.13mm

Figure S17. 6% Sn +2% Pb bronze, water-quenched, showing a pronounced dendritic structure with abnormal $\alpha+\delta$ eutectoids.

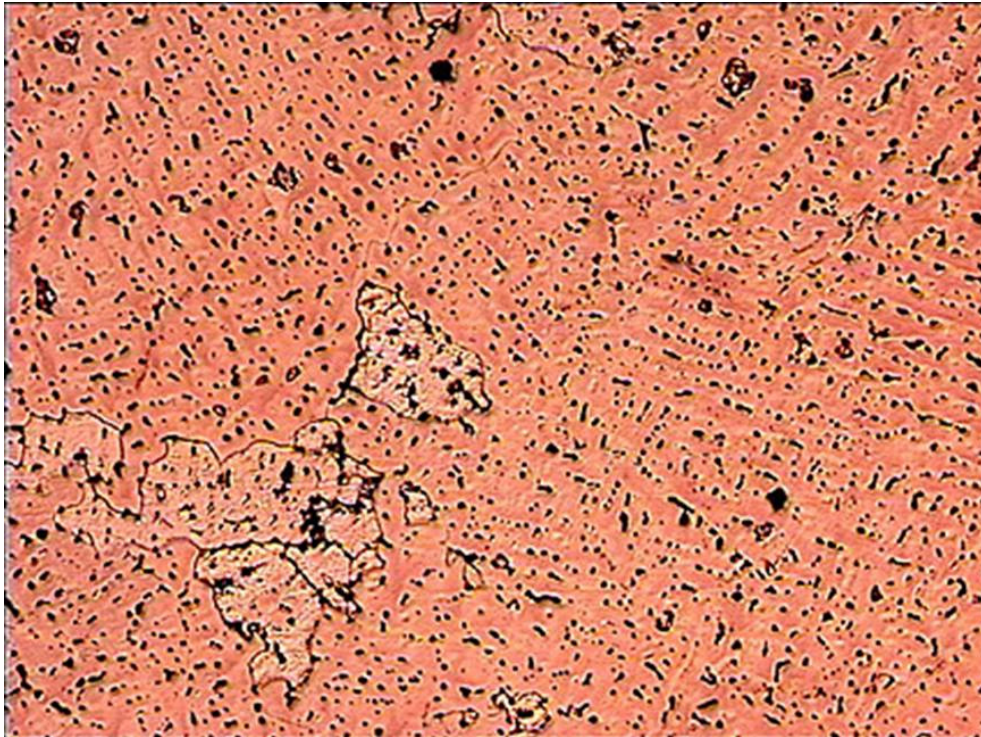


a: Image width 1.3mm



b: Image width 0.13mm

Figure S18. 6% Sn +2% Pb bronze, air-cooled, showing a dendritic structure without $\alpha+\delta$ eutectoids. Lead droplets are both on grain boundaries and within the grains.

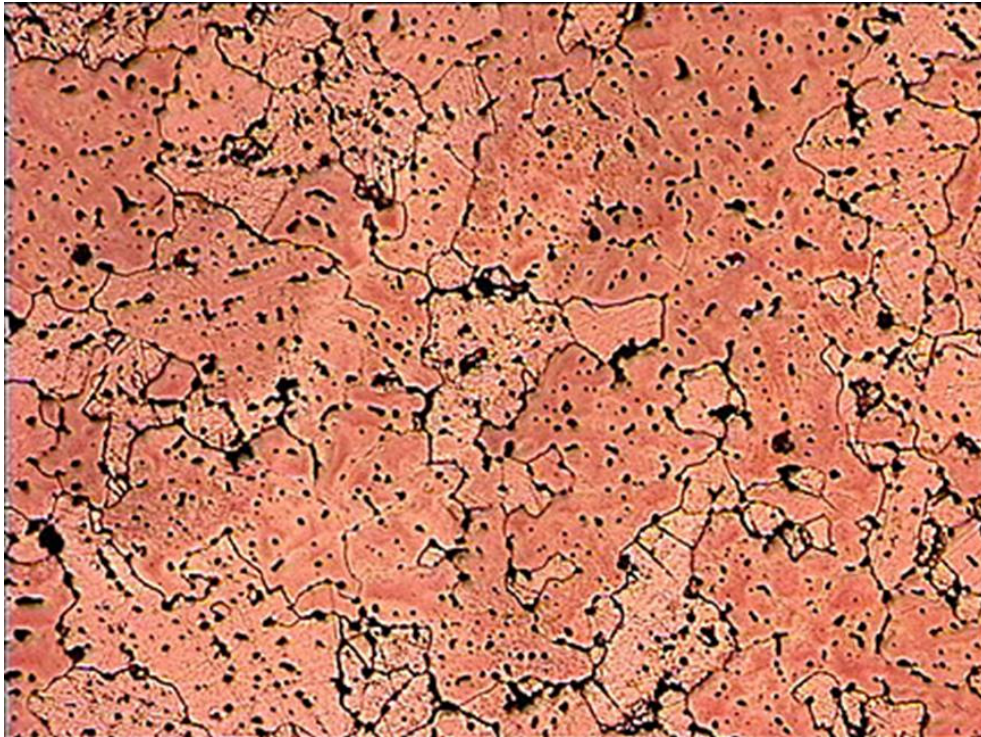


a: Image width 1.3mm



b: Image width 0.13mm

Figure S19. 6% Sn + 6% Pb bronze, water-quenched, showing a dendritic structure without $\alpha+\delta$ eutectoids. Lead droplets are both on grain boundaries and within the grains.



a: Image width 1.3mm



b: Image width 0.13mm

Figure S20. 6% Sn +6% Pb bronze, air-cooled, showing a dendritic structure without $\alpha+\delta$ eutectoids. Lead droplets are both on grain boundaries and within the grains.

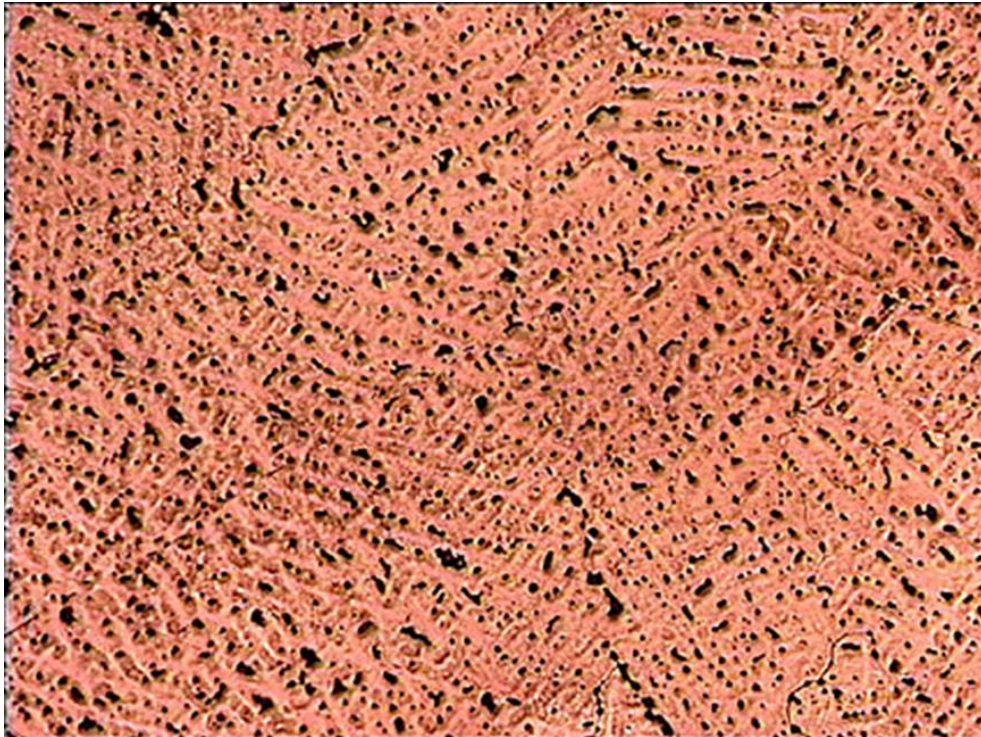


a: Image width 1.3mm

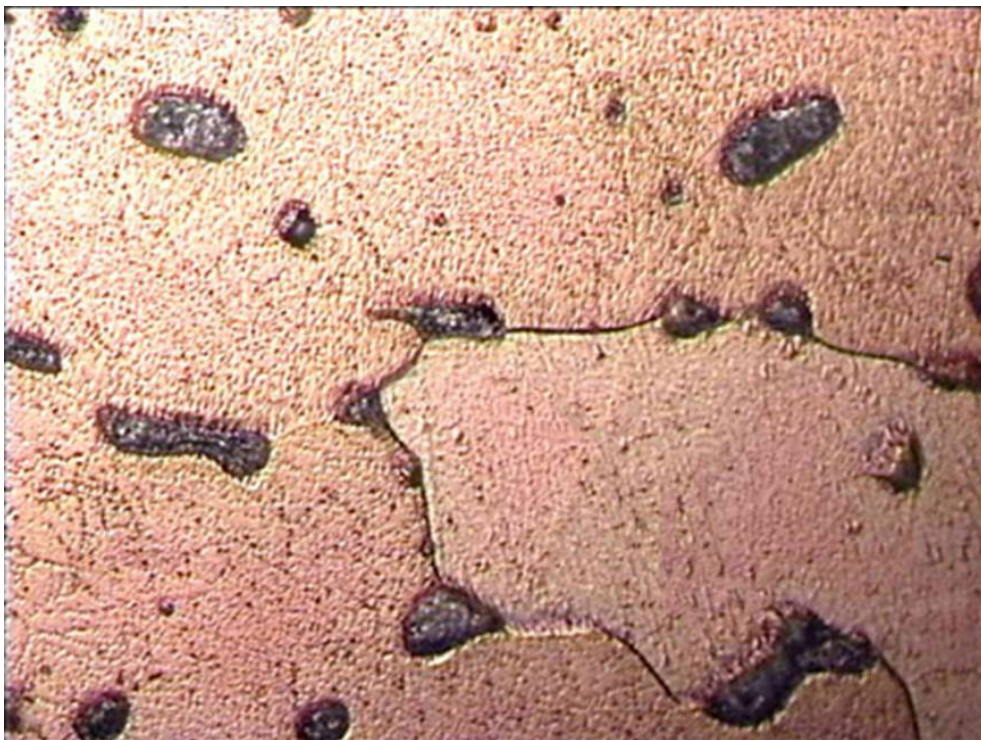


b: Image width 0.13mm

Figure S21. 6% Sn +10% Pb bronze, water-quenched, showing a dendritic structure without $\alpha+\delta$ eutectoids. Lead droplets are both on grain boundaries and within the grains and vary greatly in size.

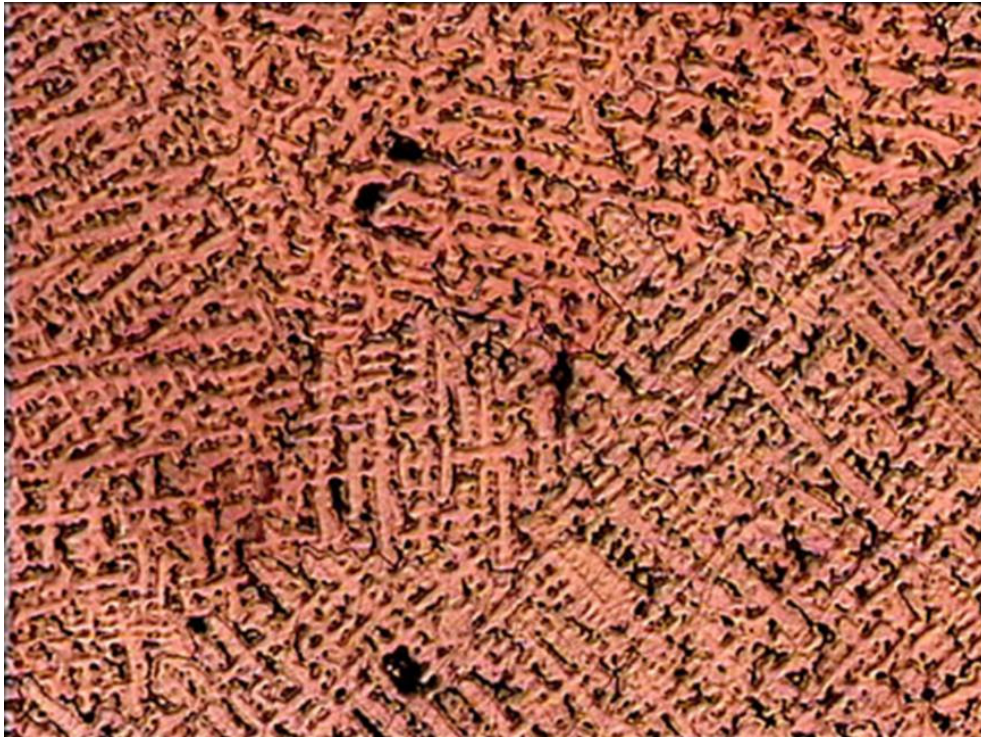


a: Image width 1.3mm

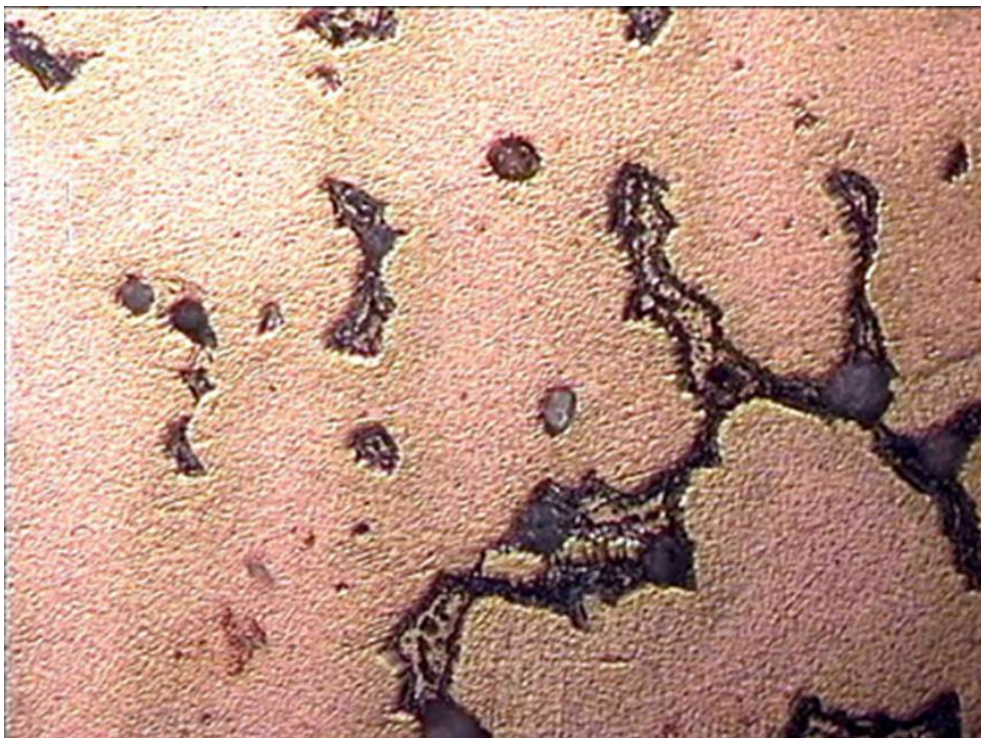


b: Image width 0.13mm

Figure S22. 6% Sn +10% Pb bronze, air-cooled, showing a dendritic structure without $\alpha+\delta$ eutectoids. Lead droplets are both on grain boundaries and within the grains.

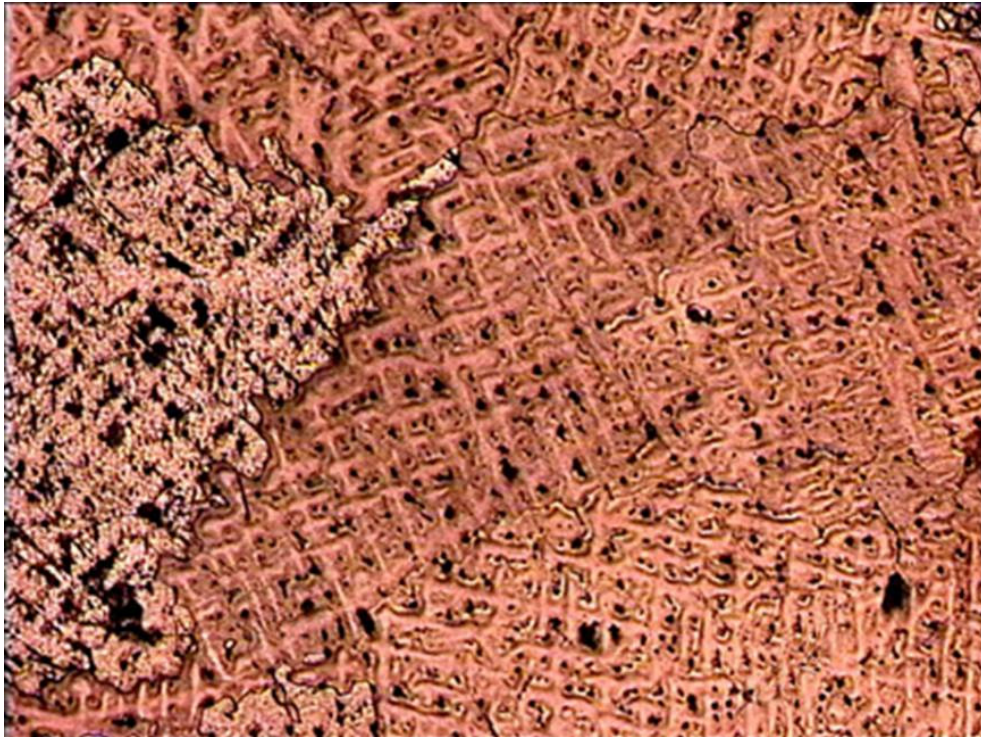


a: Image width 1.3mm



b: Image width 0.13mm

Figure S23. 10% Sn + 2% Pb bronze, water-quenched, showing a dendritic structure with abnormal $\alpha+\delta$ eutectoids. Lead droplets are present mainly in the eutectoids and can hardly be recognised.



a: Image width 1.3mm



b: Image width 0.13mm

Figure S24. 10% Sn +2% Pb bronze, air-cooled, showing a dendritic structure with $\alpha+\delta$ eutectoids. Lead droplets are present in the regions of the eutectoids and can hardly be recognised.