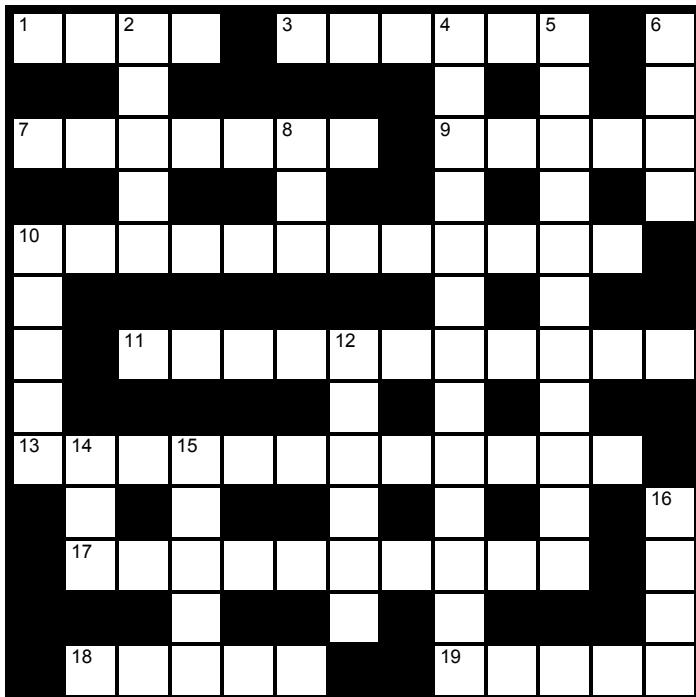


Metals_13x13_2008-10-16

B.B. Huria



Across

- 1 In a ferrous alloy, the outer portion that has been made harder than the inner portion, or core. (4)
- 3 Deformation produced on a body by an outside force. (6)
- 7 The only commercial ore of aluminum. (7)
- 9 A sheet of metal whose length is many times its width. (5)
- 10 A copper-zinc alloy containing 95% copper and 5% zinc. (7,5)
- 11 Coating steel with zinc for rust proofing purposes. (11)
- 13 Maximum stress that a material will stand before permanent deformation occurs. (7,5)
- 17 Heating before some

further thermal or mechanical treatment. (10)

- 18 A substance having metallic properties and composed of two or more chemical elements of which at least one is a metal. (5)
- 19 An individual crystal in a polycrystalline metal or alloy, including twinned regions or subgrains if present. (5)

Down

- 2 A layer of solidified metal or dross on the wall of a pouring vessel often when metal has been poured. (5)
- 4 Forming austenite by heating a ferrous alloy into the transformation range (partial ____ or above the transformation range (complete ____).

(13)

5 Heating a ferrous alloy to a suitable temperature above the transformation range and then cooling in air. (11)

6 The central cavity formed by contraction in metal, especially ingots, during solidification. (4)

8 Chemical symbol Sn. Principal use as a coating on steel; also as a constituent in alloys. (3)

10 Device for holding the metal in the proper position, during rolling, or slitting. (5)

12 Composite sheet produced by bonding either corrosion-resistant aluminum alloy or aluminum of high purity to base metal of structurally stronger aluminum alloy. (6)

14 A surface defect, appearing as a seam, caused by forging over hot metal, fins, or sharp corners and then rolling or forging them into the surface, but not welding them. (3)

15 An iron-base alloy usually containing carbon and other alloying elements. (5)

16 (Chemical symbol Fe.) A magnetic silver white metal of high tensile strength, ductile and malleable. (4)