indicated by the table, the fracture elongations of the gold-bearing alloys at 1400°C are high enough to ensure appreciable ductility under industrial conditions.

Fracture Elongations of Gold-Rhodium-Platinum Alloys at 1400°C

Stress Level lb./sq. in.	3% Au-10% Rh-Pt	5%Au-10% Rh-Pt
750	27%	25%
1025	19%	27%
1167	50%	42%
1500	53%	45%

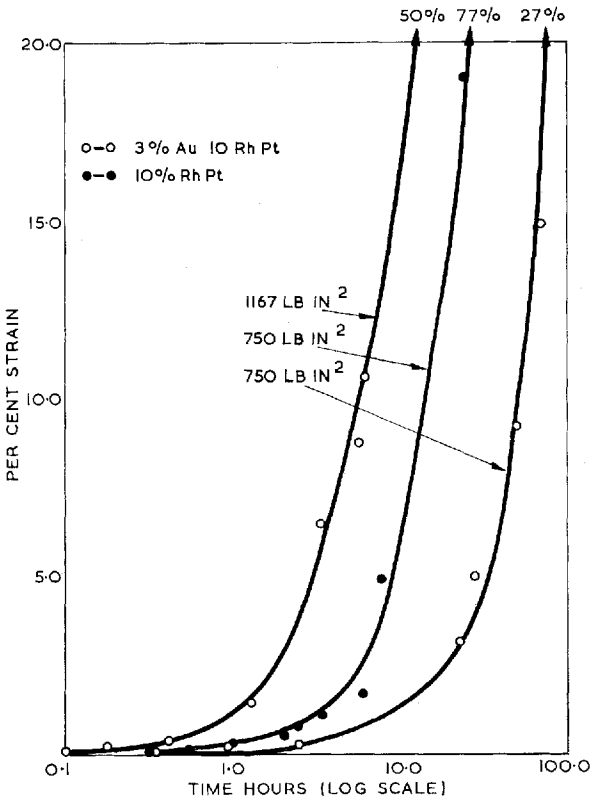

Fig. 11 Creep curves of the 3 per cent gold-10 per cent rhodium-platinum alloy and of the binary 10 per cent rhodium-platinum alloy tested at 1400°C

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Electrodeposition of Iridium

PROGRESS IN DEPOSITION FROM AQUEOUS SOLUTIONS

A recent paper by C. J. Tyrrell of International Nickel Limited (*Trans. Inst. Metal Finishing*, 1965, **43**, 161–6) proposed a bromide electrolyte for the deposition of iridium from aqueous solution. The electrolyte contains 5 g/l of iridium as the bromide and 8 g/l of hydrogen bromide. It is operated at 75°C at a cathode current density of 0.15 amp/sq.dm to give deposits which are crack-free to a thickness of 1 μ. Further deposition will produce cracked deposits, but nevertheless the coating remains smooth and bright to a thickness of 10 μ.

Dr Tyrrell also reports on his experiences with iridium chloride electrolytes, where he was unable to confirm the cathode efficiencies obtained by earlier workers. However, these variations may be explained by the work of G. A. Conn of Westinghouse Electric (*Plating*, 1965, **52**, (12), 1258). This author has found that the cathode efficiency of an iridium chloride electrolyte is markedly improved by increased anodic current density, and also by the introduction of auxiliary a.c. electrodes. When these electrodes were operating at a current density of 50 amp/sq.dm a.c. the cathode efficiency improved from 2 to 30 per cent. The maximum thickness obtained in these tests was 25 μ, and again cracking occurred with the heavier deposits.

Thus, while it appears that for thick crack-free deposits the fused cyanide electrolyte is still the only practical plating system, progress is being made with aqueous electrolytes, and thin coatings are now possible from stable aqueous electrolytes. J. H.