improve significantly high temperature creep strength (14). Obviously there is scope for an improvement in the high temperature mechanical properties of other alloy systems by platinum-group intermetallic dispersion strengthening. In particular it would be interesting to speculate whether small additions of zirconium or hafnium to the ductile phase compositions in the niobium–iridium (rhodium) and tantalum–iridium (rhodium) systems would: (a) improve oxidation resistance by the formation of complex mixed oxide scales of the type $Zr(Hf)O_2.Nb_2O_5$, having some plasticity and; (b) improve the overall creep properties of the alloys by selective dispersion of intermetallic compounds of the form $Zr(Hf)_x(PGM)_y$. Certainly Barrett and Corey (15) have suggested that fine dispersions of inert platinum group metals in oxides which have very high volume ratios would form a unique basis for a protection system.

Apart from exploiting these intermetallics as high temperature materials, a number of alternative applications can be suggested based on the prediction that low temperature ($<400°C$) properties are comparable with those of the compounds Mo_5Ru_3 and W_3Ru_2 (16, 17). These two compounds produced as thin films have hardness values comparable with sapphire and are virtually inert in the presence of toxic etchants up to temperatures around 550°C. Ficalora et al (13) reported similar results, although mainly qualitative, on the chemical inertness of $HfPt_3$ in various etchants. Equally attractive is the possible application of the platinum-group intermetallics as bearing and electrical contact materials utilising their high melting point and corrosion and wear resistant properties and as general wear resistant coatings for high quality cutting tools and extrusion or wire drawing dies.

It seems evident from the literature that the high temperature intermetallics of the platinum group metals are still somewhat novel and that their potential has yet to be fully appreciated.

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Palladium for Electrical Contacts

The use of electrodeposited palladium instead of gold on electrical contacts appears economically attractive at the present time. At the Annual Technical Conference of the Institute of Metal Finishing held recently at Windermere, in a session devoted to noble metals, this was one of the topics discussed.

In a paper, "High Speed Plating Solutions for Selective Electroplating", F. I. Nobel and R. T. Hill of Lea-Ronal dealt with the special plating solutions required to produce the desired results when plating both selectively and continuously. For palladium plating it has been established that proprietary solutions, at present being successfully used in barrel and rack plating operations to plate electrical contacts, can be modified for use in spot plating machines by increasing the metal content from about 8 to 10 grams per litre to 15 to 25 grams per litre. With the correct conditions 5 microns of sound bright palladium, as good as barrel plating, can be deposited in 15 seconds.