ruthenium molecules appeared to have a weaker bond.

From the practical viewpoint, the ability of titanium carbide to retain its identity in the presence of ruthenium at high temperatures suggests many intriguing possibilities. In view of the significance of titanium carbide as a cutting tool material, the mechanical properties of duplex noble metal alloys containing major quantities of carbide obviously require attention. Electrical contacts of ruthenium strengthened by a uniformly dispersed titanium carbide phase might have useful characteristics in the medium duty range, and such components could be produced by standard powder metallurgical techniques. One is also encouraged to consider instrument bearings, pivots and pen points which could profitably utilise the characteristics of these corrosion and abrasion resistant composite materials. The equilibrium diagram of the quasi-binary system Ru-TiC is similar to that of the Co-WC system so familiar to workers in the hard metal industry, and sintering in the presence of a small quantity of liquid phase appears to offer the possibility of high density components.

With the hexagonal close packed carbides of tungsten (6) and molybdenum (7) rhenium forms unbroken series of solid solutions which have interesting superconducting properties. Ruthenium also has a hexagonal unit cell, the parameters of which are close to those of rhenium, and it is tempting to inquire whether it behaves in a similar way to rhenium with respect to hexagonal carbides. The ability to change mechanical properties, gently and controllably without phase change or discontinuity, from those of a hard brittle carbide to those of a relatively ductile metal is a variable which has hitherto been unavailable to the practical metallurgist. In spite of the high cost of these rare hexagonal metals, the remarkable characteristics of their carbide solid solutions should, therefore, stimulate a good deal of speculative research.

A. S. D.

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Standard Platinum Resistance Thermometers

The revision of the International Practical Temperature Scale which resulted in the publication of IPTS–68 has led to a careful reappraisal of methods of temperature measurement to take into account the slight modifications from the former scale IPTS–48. This journal has already reported on the implications of such work on the use of rhodium-platinum thermocouples.

The U.S. National Bureau of Standards has now published NBS Monograph 126: "Platinum Resistance Thermometry", which describes the methods and equipment used there for calibrating standard platinum resistance thermometers to IPTS–68. The text of the scale, the authorised English version of which is given in Appendix 1, is clarified and its characteristics are described. A number of thermometer designs are illustrated in detail, together with possible sources of error in their use.

Three classes of reader will find this Monograph valuable. Users of platinum resistance thermometers will find guidance as to their mechanical and thermal treatments and to transporting them. Calibrators will find a full guide to the techniques of calibration, including the fixed points used to establish the scale of temperature. Those wishing to submit their own instruments to N.B.S. for calibration will learn of the methods employed there. F. J. S.