but not palladosis; there is the well-known toxicity of many of the heavy elements, but the beneficial use of platinum complexes in chemotherapy (7) (but not so much those of palladium or other metals) and of gold (but not silver) in treating arthritis. It would be surprising if there were not some underlying connection.

So next time you touch gold, or drive a car with a platinum catalyst beneath it, or take your temperature with a mercury-in-glass thermometer do remember: you are now directly in touch with some consequences of the principles that shape the Universe and are determining its evolution.

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The Author

Geoffrey Bond has retired from Brunel University and is Emeritus Professor. He is also Visiting Professor at the University of Salford. His major interests are in metal-catalysed reactions of hydrocarbons, supported oxides and kinetics of catalysed reactions.

Platinum Films in Gasochromic Switched 'Smart' Windows

The solar light and heat allowed into a building can be controlled by WO_3-film 'smart' windows. Optical modulation is used to 'switch' such films to control the frequencies transmitted. Switching can be done in different ways. WO_3 films prepared by sputtering have fast colouring/bleaching kinetics, but textured surfaces. Sol-gel-made films have higher visible transmittance in the bleached state and thicker films are easier to make.

Now work from the National Institute of Chemistry, Ljubljana, Slovenia, and the Fraunhofer Institute for Solar Energy Systems, Freiburg, Germany, combines sputtering and sol-gel methods: to make WO_3 film, with platinum catalyst sputtered on the surface and atomic hydrogen (gasochromism) to 'switch' them (U. Opara Krašovec, B. Orel, A. Georg and V. Wittwer, *Solar Energy*, 2000, **68**, (6), 541–551).

Sol-gel WO_3 films were made by dip-coating. Adding an ormosil gave thicker, less brittle films of improved coloration. The sol-gel/Pt(sputtered)WO_3 films change colour as quickly as Pt/WO_3 sputtered films, and faster than WO_3 sol-gel films with Pd. In H_2/Ar gas mixtures the films colour in H_2 concentrations as low as 0.002 per cent. This may give simpler switchable 'smart' windows.