

of sodium and of gold, the least and the most noble of metals. Gold has too many electrons to be a good catalyst, and it clings to them: rhodium, palladium and platinum have about the right number, but ruthenium needs more. Sodium loses its valence electron easily. Perhaps it is not too fanciful to imagine that by suitably combining pairs of metals of greater and lesser nobility it may be possible to synthesise alloys having just the optimum electronic structure required for the efficient

catalysis of a given reaction. But perhaps we may feel that it is a waste of effort to try to improve on what is already so good, and agree with Shakespeare when he said:

“To gild refined gold, to paint the lily,  
To throw a perfume on the violet,  
To smooth the ice, or add another hue  
Unto the rainbow, or with taper-light  
To seek the beauteous eye of heaven to  
garnish,  
Is wasteful and ridiculous excess.”

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## Platinum Drug Receives Governmental Approval for Anti-Tumour Applications

The platinum co-ordination complex  $\text{cis-Pt}(\text{NH}_3)_2\text{Cl}_2$  was first shown to have potent activity against animal cancers in 1969 by Professor Barnett Rosenberg and Loretta Van Camp at Michigan State University. After many years of toxicological evaluation and human clinical trials this compound has now received official approval as a drug by the U.S. Food and Drug Association (December 1978) and the U.K. Department of Health and Social Security (March 1979). The drug is marketed by the Bristol Myers Company under the name of Platinol in the U.S.A. and Neoplatin in the U.K. It has been specifically approved for chemotherapy of testicular and ovarian cancers although trials on other tumours are proving promising in the clinic. Similar approvals are being sought in nineteen other countries at the present time.

The Johnson Matthey Group and Rustenburg Platinum Mines have played an active role in the development of this drug which is likely to be the first of a new class of anti-

tumour agent. Professor Rosenberg's work was supported by the two companies from the very beginning while much of the chemical characterisation, analytical and stability data necessary for governmental approval was generated at the Johnson Matthey Research Centre.

Production development work and quality control studies were carried out at Matthey Bishop Inc. in the U.S.A. which houses the only approved production facility for the pure bulk drug.

Many groups throughout the world are at present working to advance platinum chemotherapy by developing superior drugs and by obtaining a better understanding of their mode of action. Clinical trials on several new compounds are scheduled for 1979.

An article by Dr. Eve Wiltshaw, of the Royal Marsden Hospital, on the clinical development of  $\text{cis-Pt}(\text{NH}_3)_2\text{Cl}_2$  will appear in the July issue of this journal.

M. J. C.