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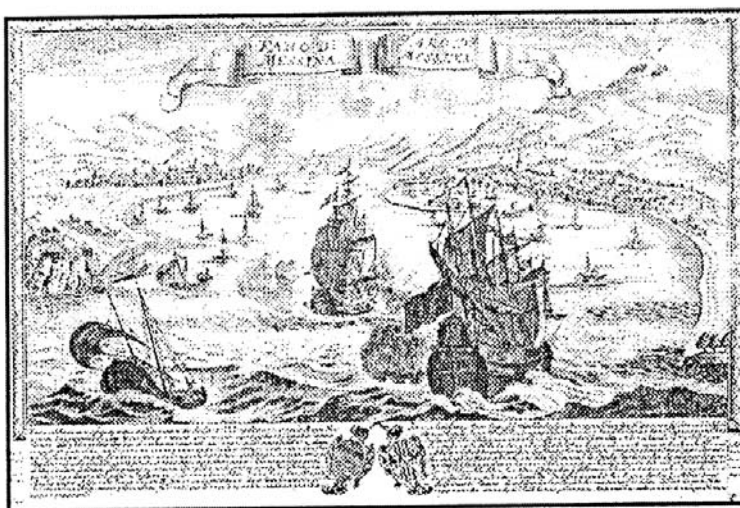
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WORKSHOP ON PLATINUM CHEMISTRY

ABSTRACTS



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## **PERSPECTIVES IN SQUARE PLANAR SUBSTITUTION REACTIONS**

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The general behaviour of platinum(II) complexes undergoing nucleophilic substitution of the coordinated ligands has been established since several years ago. The normal mechanism can be described as an asynchronous associative substitution even if examples of dissociative mechanism are known. A sequence of reactivity has been established and more or less confirmed with a large number of substrates. A limited amount of data exist about the trans and cis kinetic effects and steric restrictions to substitution, and some case has been reported of "anchimeric assistance" and "electrophilic catalysis".

To predict new studies in this area is just a matter of phantasy. However, a number of points of interest are already clear.

A possibility exist to investigate more nucleophiles, on building up appropriate substrates and systems; mention can be made to oxygen donors (the nucleophilicity of hydroxide is still a matter of discussion), many sulphur donors, ion pairs and triplets, cationic donors, metal complexes acting as nucleophiles or producing electrophilic catalysis to nucleophilic substitution.

Synthetic aspects are obviously related to this subject.

Also the amount of data concerning different classes of leaving groups is limited and it may be of interest to investigate systems where strong donors such as phosphines and arsines undergo nucleophilic displacement. In a number of cases the problem seems to be more thermodynamic than kinetic, i.e. conditions have to be found to force the equilibria to the desired direction.

An open area is that concerning polynuclear complexes, from the study of bridge splitting reactions to that of the reactivity of bimetallic systems. Recent developments in the synthesis of new possible substrates (such as the "A-shaped" dimers) offer a number of possibilities. With an adequate instrumentation it may be of interest to apply the kinetic methods to investigate heterogeneous systems, such as those provided by resins containing the reactive substrates. Also the study of the role of an increasing steric hindrance on the reaction mechanism(s) would be of relevant interest.

Finally, a thema which can be developed is the use of kinetic tools to acquire more and precise knowledge of the chemical bonds. An example will be presented.

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