

higher alcohols including ethylene glycol.

Several papers given at this Congress were concerned with the mechanism of oxygenate formation, and the role of the additives (usually oxides having basic character). The formation of methanol is now definitely associated with ions in positive oxidation states, for example  $\text{Rh}^{2+}$ , and it is thought that these may play a part in the synthesis of ethanol and acetaldehyde over rhodium catalysts.

### Strong Metal-Support Interactions

The discovery by workers at Exxon some years ago that noble metals supported on titania and other transition metal oxides lost their ability to chemisorb hydrogen when reduced at about  $500^\circ\text{C}$  has stimulated research into the structural chemistry of supported metals. The effect was named Strong-Metal Support Interaction (SMSI). In a few instances only this is accompanied by an improvement in catalytic performance, the Fischer-Tropsch synthesis being one. The phenomenon continues to excite catalytic chemists, although it is now reasonably certain that it is caused by a simple blocking of the metal surface by the partially-reduced support.

Two of the papers presented highlight the fact that the unexpected in catalysis often occurs. The oxide supports previously found to give SMSI were all more or less easily reducible, and this has been held to be an essential property if SMSI is to take place. However, similar effects have now been discovered with platinum on magnesia, the reduction of which is notoriously difficult. It was also reported that palladium on titania was capable of selectively reducing non-conjugated dienes; palladium on normal supports can only achieve this after prior isomerisation to the conjugated form.

### Platinum and Cancer Chemotherapy

There may at first sight be no obvious connection between catalysis and cancer, but the link was forged in a masterly paper presented by John Turkevich of Princeton University. He showed that Cisplatin and other therapeutic

complexes react with the component bases of DNA to form adducts having greatly different catalytic activities for decomposition of hydrogen peroxide. From this he was able to conclude that the miscoded DNA responsible for uncontrolled cell growth probably contained a string of cytosine molecules, and he was thus for the first time able to offer an explanation of the phenomenon of cancer in molecular terms. It will be surprising if this work does not have a profound effect on cancer research for many years to come.

In conclusion, the 8th International Congress on Catalysis may be said to have been a worthy successor to its antecedents in providing a marked stimulus for all research workers in the field. Excellently organised by Dechema, it will long be remembered by all who attended as a source of great intellectual nourishment and a further demonstration of the key role which the platinum group metals continue to play in catalysis.

G.C.B.

### A Compilation of Catalysts

What is probably the first-ever comprehensive survey of the many catalysts used in the refining industry has recently been published in the U.S.A. ("OGJ Catalyst Report: '84", *Oil Gas J.*, 1984, **82**, (41), 55, 56, 58, 60-65, 68-72, 74-82, 84-86). The compilation which identifies some 700 different catalysts will be of considerable benefit to the refiner or design engineer requiring a clear picture of the many catalyst suppliers, manufacturers and licensors.

This interesting and useful survey demonstrates the high degree of specialisation in the catalyst supply and refining industries. The catalysts, many of which contain a platinum group metal, have been categorised into 18 specific process areas and over 20 pages of tables are required to present the assembled information. Legitimate concern about proprietary matters has been respected and where a contributor had reservations about identifying some aspect of a catalyst, most frequently the composition of the carrier/support or the active agents, this has been indicated in the tables. Nevertheless it is clear that platinum group metal-containing catalysts dominate several of the processing categories and make important contributions to others.