

of the chain theory. In 1911 Werner first obtained optical isomers of complexes that could be asymmetric only with an octahedral configuration, and this convinced most of his remaining critics, but it was not until 1935 that the planar configuration of platinum complexes was conclusively proved by the resolution of compounds that would be asymmetric if square, but not if they were tetrahedral (10).

Werner refused invitations to chairs in several other universities, and he built up a great research school at Zürich, where more than 200 doctorates were obtained under his immediate supervision. His students generally worked on complex compounds, and they were largely responsible for the rapid advance in the chemistry of all the platinum metals in the early years of the twentieth century. His great capacity for work enabled Werner to give several courses of lectures as well as supervise as many as twenty-five research students at one time. They also had to work hard, and he expected to find something new every time he visited them—twice a day! But outside the laboratory he had a friendly disposition, and he took a personal interest in the subsequent careers of his students, who came from many countries (11).

In his address on receiving the Nobel

Prize in 1913 Werner outlined the history of his theory, and gave ample credit to his former rival, Jørgensen, whose discoveries had formed the experimental basis of the theory in its early days (12). Experimental verification continued after 1913, and within a decade the co-ordination theory formed an essential part of the electronic theory of valency, but Werner did not live to see this come about.

In 1915 he began to show symptoms of arteriosclerosis, and he died on November 15th, 1919, at the age of 52.

References

- 1 G. B. Kauffman, *Chymia*, 1960, **6**, 180–204
- 2 C. W. Blomstrand, *Ber.dt.chem.Ges.*, 1871, **4**, 51
- 3 G. T. Morgan, *J. Chem. Soc.*, 1920, 1639–48
- 4 G. B. Kauffman, *J. Chem. Educ.*, 1966, **43**, 155–165
- 5 A. Werner, *Vjschr. naturf. Ges. Zürich*, 1891, **36**, 129–169
- 6 A. Werner, *Z. anorg. Chem.*, 1893, **3**, 267–330
- 7 *Ibid.*, 321
- 8 A. Werner and A. Miolati, *Z. phys. Chem.*, 1893, **12**, 35–55
- 9 A. Werner, "New Ideas on Inorganic Chemistry" (trans. E. P. Hedley), London, 1911, 158
- 10 W. H. Mills and T. H. H. Quibell, *J. Chem. Soc.*, 1935, 839–846
- 11 J. Read, "Humour and Humanism in Chemistry", London, 1947, 262–282
- 12 A. Werner, *J. Chim. Phys.*, 1914, **12**, 133–152

Supported Platinum Metal Catalysts

A REVIEW OF RUSSIAN RESEARCHES

While a great volume of literature is nowadays flowing from workers in the field of catalysis throughout Europe and the United States, a significant amount of work is also being published on this subject in the Soviet Union. The difficulty of keeping abreast with developments is great enough in the more generally understood languages, but is even more onerous with Russian papers. The recent enterprise in publishing full translations of Russian journals has, however, helped materially, a good example being an exhaustive review on supported platinum metal catalysts. This quite massive paper, by E. I. Gil'debrand, first published as

"Katalizatory na Nositoryakh" (*Trudy Inst. Khim. Nauk, Akad. Nauk Kaz. S.S.R.*, 1965, **13**, 67–117), and now available in English (*Internat. Chem. Engng.*, 1966, **6**, (3), 449–480), surveys over two hundred and forty published papers, the great majority of them of Russian origin.

Many aspects of the whole field of catalyst theory and practice are covered, starting with methods of preparation and the role of the support in determining catalytic properties, and going on to deal with methods of investigating the structure of supported catalysts and with both theoretical views and experimental data on their activity.