

Preface



Henri Brunner at age 65: the world of chirality and stereoselective catalysis

On October 4, Professor Henri Brunner of Regensburg University (Germany), member of our Editorial Board, celebrated his 65th birthday. On this occasion, it is the Editor's pleasure to issue a special volume of the *Journal of Organometallic Chemistry*.

When I joined the laboratory of Henri Brunner in the spring of 1971, he had just started as a young chair professor at the University of Regensburg. Chirality was a rather new phenomenon in organometallic chemistry by then. At that time, nobody could imagine how important stereoselective catalysis using chiral organometallics would become at the end of the century. Chiral ligands nowadays perform excellently in the stereochemistry of metal-catalyzed conversions. There is an increasing number of structurally sophisticated products (e.g. pharmaceuticals) that are being synthesized in this way. Stereoselective catalysis is the success story of organometallic chemistry. Henri Brunner is one of the great pioneers.

As a young 'Dozent' at Technische Universität München, Henri Brunner recognized optical activity in a series of tetrahedral cyclopentadienyl complexes of iron. They were shown to exist as pairs of enantiomers (Eike Schmidt, Hans-Dieter Schindler) that would

racemize under certain conditions. Stereochemical studies, with regard to configurational stability and reactivity, were performed by the Brunner research group in the early 70s. Diastereomeric cyclopentadienyl molybdenum complexes of square-pyramidal structure were discovered and studied in terms of their (intramolecular) epimerization (W.A. Herrmann, J. Wachter). What followed was an extraordinarily fruitful, truly pioneering research on optically active transition-metal complexes, covered by approximately 100 original publications. Quite a number of these were published in the *Journal of Organometallic Chemistry*.

In the 70s Brunner entered the field of chiral ligands, to which area he added, among others, the configurationally stable 'NORPHOS'. This ligand effects high enantiomeric excesses in a number of reactions and has been commercially available for some time. A great number of new chiral ligands of the *P*- and *N*-type (phosphines, Schiff bases, oxazolines, macrocyclic binaphthyl derivatives, dendrimeric phosphines) were developed in Henri Brunner's rapidly growing research group, concomitant with a plethora of catalytic applications (e.g. hydrosilylation, cyclopropanation, decarboxylation, Grignard cross-coupling, transfer hydrogenation). 'Multiplication of chirality' has ever since been the leading research motto, landmarking Brunner as one of the most innovative and productive present-day chemists on the interface between inorganic, organic, organometallic and catalytic chemistry.

Henri Brunner was born on October 4, 1935, in Burkhardtsdorf in the Erzgebirge. As a child he came to Niederbayern (Lower Bavaria) where he lived with his parents near the city of Deggendorf. After he had finished his high-school studies, he enrolled at the Universität München where he received his diploma in 1960 and a Ph.D. under the direction of Ernst Otto Fischer in 1963. His Ph.D. work was concerned with metallation reactions of dibenzenechromium as a means to functionalize this molecule. He then took a postdoctoral position at UCLA with Herb Kaesz, with whom he worked in the area of organometallic hydrides (e.g. $(C_5H_5)_2WH_2$). After he returned to Munich in 1964, Ernst Otto Fischer had just become the successor of Walter Hieber as chair of inorganic chemistry at Tech-

nische Universität München. In that institute, Henri Brunner started to work on his 'Habilitation', with the main focus being on organometallic stereochemistry (see above).

For his work on metal nitrosyl complexes and his early achievements of making stereochemically stable tetrahedral complexes (e.g. $(\eta^5\text{-C}_5\text{H}_5)\text{Fe}(\text{CO})(\text{NO})\text{X}$), he received the Carl Duisberg award of the Gesellschaft Deutscher Chemiker in 1970 and was offered the position of chair of inorganic chemistry at the then new Universität Regensburg (1971). He rejected offers from Universität Essen (1976) and the University of Florida at Gainesville (1980). In 1993, Henri Brunner received the prestigious German-French Alexander von Humboldt Award, which brought him into close scientific collaboration with Henri B. Kagan, his congenial French colleague in the field of organometallic stereochemistry. In 1993, he was awarded the Trinity University Distinguished International Lectureship (San Antonio/USA). The Max Planck Research Award for International Cooperation followed shortly later. The Horst Pracejus Award of the German Chemical Society went to Henri Brunner in 1999.

Henri Brunner's scientific leadership in an important area of modern chemistry was recognized early by the scientific community. For this reason, he was asked to serve on a number of Advisory Boards (Tetrahedron: Asymmetry; Monatshefte für Chemie; Bull. Soc. Chim. Belg.), and was elected chairman of the Advisory Board of 'Angewandte Chemie'. The Journal of Organometal-

lic Chemistry elected him an Editorial Board member in 1994. His two-volume 'Handbook on Enantioselective Catalysis' (with Wolfgang Zettlmeier) set standards in the field¹.

This short laudation would be incomplete if the academic teacher and scientific mentor Henri Brunner would not be recognized. His open-minded warm personality has made him numerous friends not only among his academic peers but also among his students. As his former student who received both the Ph.D. and the 'Habilitation' in his stimulating academic environment, I spent ten good years with Henri Brunner. On behalf of his many students, I express our greatest gratitude for his reliable support.

Chirality and stereoselective catalysis — these main topics characterize the scientific life work of Henri Brunner. We expect him to yield a number of contributions yet to come. The fact that he recognises chirality in every day life, can be seen in his beautiful picture book entitled 'Rechts oder links in der Natur und anderswo'. Here the beautiful world of chiral objects becomes a new, an emotional dimension². This task perfectly completes the fine intellectual performance of the scientist Henri Brunner.

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¹ Wiley-VCH, New-York, 1993.

² Right or left — in nature and elsewhere, Wiley-VCH, New-York, 1999.