

ORGANOMETALLICS

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Editor's Page

Our cover molecule, (cyclobutadiene)iron tricarbonyl, was not the first cyclobutadiene–metal complex to be prepared, but, with its unsubstituted C_4H_4 ligand, it was the first one whose chemistry could be developed in great breadth. The first cyclobutadiene–metal complexes, reported in 1959, were (tetraphenylcyclobutadiene)iron tricarbonyl and the dimeric (tetramethylcyclobutadiene)nickel dichloride. However, 3 years earlier, the possible existence of stable transition-metal complexes of the unstable, theoretically interesting cyclobutadiene had been predicted, on the basis of theoretical considerations, by H. C. Longuet-Higgins and L. E. Orgel. In 1956 the use of theory in the prediction of as yet unknown organometallic compounds was noteworthy; now, with the great advances in modern computational chemistry, it is commonplace. The early days of cyclobutadiene–metal complexes were exciting ones: first the prediction, then the preparation of the first such complexes, and then, 6 years later, the preparation of our cover molecule, whose chemistry was developed so brilliantly by Rowland Pettit and his students. It is an interesting story!

I have started this issue's cover essay with an account of the discovery of our cover molecule's acyclic cousin, (butadiene)iron tricarbonyl, by Hans Reihlen in 1930. This is another example, like that of Zeise's salt, of the discovery of a molecule years before the chemical community came to appreciate it. Only after the discovery of ferrocene, the Big Bang of organometallic chemistry, were these two molecules "rediscovered" and exploited.

The cover molecule illustration was kindly provided by Professor Arnold L. Rheingold.

Dietmar Seyferth
Editor

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