

## Book review

**Roy McWeeny: Coulson's Chemische Bindung** (translated into German by R. Janoschek). Stuttgart: Hirzel 1984. 474+XIV pp.

Coulson's *Valence* is undoubtedly a classic of quantum chemistry literature. When it was published in 1951, nothing comparable was available. A whole generation of chemists learned the theory of chemical bonding from this book. Its success rests on the fact that the essence of chemical bonding was qualitatively and convincingly explained with little mathematical prerequisites. In the third English edition of 1979, R. McWeeny has tried to save the spirit of the original and to adjust it at the same time to present day needs. Now a German translation by R. Janoschek is available.

Two questions are to be asked: Is the adaption of Coulson's *Valence* to present day needs possible and if yes has it been successful? Is there a need for a German translation? To answer the first question, it must be pointed out that quantum chemistry has significantly changed its emphasis since 1951. At that time qualitative statements reflected the state of the art research, because no comprehensive and accurate computer calculations were feasible on molecules. Today such statements can be representative for research only if they use the computational capabilities. No doubt, McWeeny knew this and tried to account for it when he undertook the extensive revision of the book. However, it has not become a book on semiempirical and *ab initio* calculations. Instead we find Hückel method, Löwdin orthogonalization, Dewar delocalization energy and structure of noble gas compounds in the new spectrum of contents. Only in the last chapter the SCF method is introduced in *ab initio* and semiempirical form on 15 pages. One cannot expect new aspects for quantum chemists from such a book.

Why did R. Janoschek translate this book after all? Certainly because it is still Coulson's *Valence* whose original was translated into German by F. Wille in 1969. From the didactic point of view it is still generally attractive for chemistry students, even if it has vastly lost importance for the training of theoretical chemists. However, the translator has left his own mark on the book in a bold and brilliant fashion. In innumerable footnotes, R. Janoschek has critically discussed McWeeny's text in order to bring it closer to our present day knowledge. This is remarkable because McWeeny is undoubtedly one of the most competent quantum chemists.

I have taken this volume with interest and I am not disappointed. We still need qualitative statements in chemistry. In this sense, this book will be helpful to the experimental chemist for the understanding of quantum chemistry, but without the goal to reach present day research.

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