

### Book review

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*Topics in Current Chemistry Vol. 75; Organic Chemistry and Theory*; Springer-Verlag, Berlin, Heidelberg, New York, 1978, US\$39.00.

If the Editors of this series made more effort to obtain a unified theme within a volume they might sell more copies. With a volume title "Organic Chemistry and Theory" I had anticipated that it would contain articles on the applications of quantum theory to organic chemistry. In fact, none of the four topics falls into this category and one of them, "Excited states of transition metal complexes", is outside the scope of the title on any interpretation.

What we have therefore are four widely disparate articles, both in their subject matter and in their level of treatment. The other three are: "Photochemical reactivity of keto imino ethers"; "Computational methods of correlation energy"; and "Chemical chirality".

A great deal of effort is currently being put into developing quantum chemical methods that go beyond the Hartre—Fock limit. The old standby of configuration interaction is conceptually simple but technically difficult. The various sub-classes like INO, PNO, POL-CI, CEPA — I will not try to explain the abbreviations — select classes of configurations from optimized basis orbitals and are quite subtle. The perturbation methods require the languages of second quantization and diagrams for their interpretation and these require conscientious study.

I have not seen a better brief summary of the present position than in this article by Hubac and Carsky. I believe that one would need a good foundation of quantum chemistry to tackle the article and for this reason it is certainly misplaced in this volume. I hope that it comes to the attention of the theoretical chemistry fraternity.

The other three articles were of less interest to me personally. They also could be best buys in their chosen fields but I found no evidence for that. The article on chirality I found particularly obscure. I never did discover the need to define the chiral genus of an ensemble of molecules as one half the minimal number of cuts of covalent bonds needed to racemize its double by exchanges of molecular parts.

In summary, it is a useful volume for the library but is unlikely to have much demand for personal purchase.

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