

## Book Review

**B. Pullman, N. Goldblum (Eds.): Metal-Ligand Interactions in Organic and Biochemistry.** Dordrecht, Holland-Boston, USA: D. Reidel Publishing Company 1977. VIII + 396 and VIII + 400 pp., resp., price: Dfl. 100,-/US-\$39.50 per vol.

The two volumes contain the contributions to the 9th International Symposium on Quantum Chemistry and Biochemistry, held 1976 in Jerusalem. If one regards the recent development in quantum chemistry and biochemistry, one may recognize that the main interest in these disciplines has been shifted from the properties of isolated molecules to the more realistic situation of including environmental influences, and the 44 papers of the two volumes take this development into account.

An essential preference of the two volumes is that they contain experimental as well as theoretical works, and so it is easy to get detailed information (including references to older papers) on the desired subject. According to the specific interest of biology and biochemistry the bindings of some metals such as iron, copper, zinc, cobalt, and alkaline metals with ligands are treated within a large scope, but one can also find information about the binding of lanthanides to lysozyme. From the ligands under consideration we should point out nucleic acids and their constituents, amino acids and proteins, and organic molecules with possible significance for biochemistry and pharmacology. Further topics are the investigation of the interaction of cations with water, phosphates, ion porphyrins and peptides. The experimental contributions cover all powerful methods of elucidation of molecular structures and mechanisms: Infrared, Raman, ORD, NMR, PMR, and UV spectroscopy. With respect to the conformational analysis of some proteins one can also find X-ray studies. If one compares these spectroscopic means with the space they take in the two volumes, one observes that the UV spectroscopic data are not treated to the same extent as other spectroscopic methods.

With respect to the application of the results to biology and medicine, it is noteworthy that these aspects also cover sufficient space, and it is to be hoped that in future symposia they will play a dominant role. The papers on theoretical research cover semiempirical as well as *ab initio* calculations, and it is striking that the *ab initio* calculations play an essential role among the contributions. The quantum chemical calculations are supplemented with thermodynamic data and classical models. So the reader is not confronted with the problem of a gap between theoretical and experimental considerations.

Summarizing one can point out that the two volumes on metal-ligand interactions in organic and biochemistry can be considered as an important compendium for the scientists active in the fields of theoretical chemistry, biochemistry, biophysics, and pharmacology; and that they present a good survey of the actual problems. As the volumes offer contributions of both theoretical and experimental content, they may mutually stimulate the research in both domains.

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