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BOOK NOTES

Life of a Scientist, Robert S. Mulliken, Springer-Verlag, New York, NY, 1989. xv + 256 pp. Hard Cover (Typeset), $49.50.

Edited by B. J. Ransil, this posthumously published autobiography covers Mulliken's life up to 1983 and is supplemented by a complete bibliography of his publications, a chronological summary of his life, and a good selection of high quality photographs. The book's subtitle, "An Autobiographical Account of the Development of Molecular Orbital Theory", incorrectly suggests that it is largely a technical account of the development of Mulliken's scientific work, when in fact the volume is full of human interest, though the brevity of Mulliken's comments often leave the reader wishing for more detail. In this respect, the book forms a sharp contrast with the "scientific autobiography" written several years ago by Mulliken's contemporary, John Slater, whose account was virtually devoid of personal information and was in many ways a final plea for the superiority of his $X\alpha$ - SCF method for the computation of molecular properties,

Short, but tantalizing remarks on Mulliken's philosophical

and aesthetic views appear, almost without warning, in the middle of discussions of more mundane matters. Typical examples include his passing comments on his mental state shortly after graduation from MIT in 1917 with a B.S in chemical engineering:

> I decided that life rationally considered seems pointless and futile, but it is still interesting in a variety of ways, including the study of science. So why not carry on, following the path of scientific hedonism? Besides, I did not have the courage for the more rational procedure of suicide ...

or his inquiry about a Swedish spectroscopist named Heurlinger during his first trip to Europe in 1925:

> ... whose university dissertation in 1919 showed great promise for an understanding of molecular spectra, but [I] learned that he had unfortunately become insane. I was extremely sorry to learn this, but thought I could understand why it had happened, because even before the new flow of insight offered by quantum mechanics, there was already such an overwhelming vista of exciting possibilities of new research and understanding using the old quantum theory.

Nevertheless, in keeping with the subtitle, the main thrust of the narrative is the evolution of Mulliken's scientific thought. This is presented as a logical sequence stemming from his doctoral work, done under William D. Harkins at the University of Chicago, on the separation of isotopes by distillation. This led, in turn, to an interest in isotope effects on the electronic spectra of diatomic molecules, to an interest in understanding molecular band spectra in general, to the concept of molecular orbitals and, finally, to the interpretation of chemical bonding in terms of these orbitals.

Since Mulliken's role as the cofounder, along with Friedrich Hund, of the method of molecular orbitals is well known, it is hardly necessary to emphasize the relevance of this autobiography to all chemists having an interest in the development of 20th century chemical thought. It is, however, worth noting that Mulliken, like Slater, inhabited a borderline world which in many ways overlapped more strongly with the physics community than with the chemical community. As a consequence, upon reading this book, the average chemist, unfamilar with the world of spectroscopy, will encounter a succession of names largely foreign to the conventional chemical pantheon of heroes. Given the present impact of MO theory on the daily thinking of synthetic organic chemists, this fact is a valuable historical example of how strongly one field of scientific activity can impact on another - however unrelated they might at first appear to be.

Aleksandr Porfir'evich Borodin, A Chemist's Biography, Springer-Verlag, New York, NY, 1988. xii + 171 pp. Hard Cover (Typeset), $79.50.

This is an English translation by Charlene Steinberg and George B. Kauffman of a Russian biography of Borodin written in 1950. Although it is nice to have this material available in English, there are some definite problems with the decision to simply translate, rather than revise, the original Russian edition. Among these is the difference in the intended markets for the two versions. The original Russian edition was apparently targeted at the general reader and, while emphasizing Borodin's chemical career, rather than his musical career, did not go into great detail concerning the chemistry involved, as only a few formulas appear in the body of the text. However, both the printing of the English translation by a major publisher of technical and scientific books, and its pricing, suggest that the intended targets for the English version are professional chemists and chemical libraries. The translators have attempted to compensate for this lack of technical detail through the addition of extensive notes at the end of each chapter, but this necessitates a continuous thumbing back and forth between the text and the notes in order to unravel the chemistry being discussed, and it would have been an improvement if much of this material had been directly incorporated into the body of the text.

True to its original publication date, the book also reflects Russian political concerns of the 1950's. The usual obligatory reference to the infinite historical and political wisdom of Lenin is present, as well as a preoccupation with German plots to rob Russian scientists of their just due. This is particularly apparent in the discussion of Butlerov's contributions to organic structure theory, and here the translators have failed to balance the situation in their notes. Though several articles dealing with the question of Butlerov's contributions have appeared since the publication of the original Russian edition, none of them are referenced by the translators. Instead, they reinforce the German plot scenario by citing the current nonsense literature on Kekulé's supposedly fabricated dream-accounts of the origins of his own ideas on structure. Of course, it can be argued that by not revising the text so as to remove these anachronisms, the translators have reproduced an interesting "period piece".

The physical production of the book is excellent and is up to the usual standards one has come to expect of Springer which, in the reviewer's opinion, produces some of the most attractively printed technical literature on the market today. The text is supplemented by a complete list of Borodin's chemical papers, his musical compositions, an appendix of translated documents, and a bibliography of other biographical writings dealing with his life. The book is also extensively illustrated.

Electrochemistry, Past and Present, John T. Stock and Mary Virginia Orna, Editors, American Chemical Society, Washington, DC, 1989. ix + 606 pp. Hard Cover (Camera-Ready Copy), $89.95.

This book is based on a three-day symposium organized by the volume's editors at the 195th National Meeting of the American Chemical Society in Toronto, Canada, on 5-11 June 1988. The 39 papers in the volume are subdivided into those dealing with the foundations of electrochemistry (12 papers), those dealing with organic and biochemical electrochemistry (four papers), those dealing with electroanalytical chemistry (16 papers), and those dealing with industrial electrochemistry (seven papers). Given the fact that most academic electrochemists now view themselves as analytical chemists, the section on the history of the more recent developments in electroanalytical chemistry is perhaps the most valuable part of this book and nicely supplements the earlier symposium volume on the history of electrochemistry, edited by George Dubpernell et al. and published by the Electrochemical Society in 1978, which dealt largely with the historical foundations of basic electrochemistry and the history of industrial electrochemistry.

As with all volumes of this sort, there is a certain unevenness in both the quality and intent of the papers. Several are really current technical reviews, rather than historical retrospects, and at least one is a plea for an alternative interpretation of electrochemical mechanisms. Nevertheless, it should prove valuable to future historians as a starting point for characterizing the state of academic electrochemistry in the 1960's and 1970's.

FROM THE CHAIR

The dawning of a new decade seems to inspire both individuals and institutions to reassess themselves. Where are they now? Where have they been? Where are they going? HIST is no exception and the evaluation is a rewarding one. In 1981, according to the ACS office records, our Division had 303 members. Currently, the total for all HIST members is at or over 800. In 1981, we ranked 30th of the (then) 31 divisions in size. Currently we are 28th of 32, three steps higher. All of this is most satisfying, but I believe we are still getting our act together and an even more glorious future awaits. HIST has a rather unique position among the Divisions - it is hard to imagine any chemist as not having an interest in at least some aspect of the Division's territory. (Probably only CHAS and PRFR can also make this claim). So why aren't we the single largest Division with, say, 10,000 members? Partly, I believe, because we have an image problem. We are viewed as grey-bearded types occupied with decaying volumes in musty rooms, as nattering on about "obsolete" matters, or as "liberal arts"-oriented types who really don't think like chemists, even to the cluttering up of the teaching of chemistry with non-essential background. In all such cases, we are perceived as having no relevance to the practice of modern chemistry. Obviously, we have our work cut out for us. It is not enough

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to quote the adage that those not knowing their history are doomed to repeat its mistakes. Some don't believe this and, mostly, nobody is listening. So obviously, our first goal is to get their attention. Now here's my plan...

I propose we work on two fronts: 1) Activities likely to gain wide attention, i.e., ones that will provoke conversation and advertise our existence, and 2) Projects that have personal utility to a large segment of our colleagues (probably most notably in the education area). More specifically, for the "activity", the Division might undertake to prepare a utilitarian, stripped-down handbook that could be entitled "Genealogy for Chemists", permitting the bulk of ACS members to trace their chemistry roots. This softcover handbook would be published as a Division undertaking and sold as inexpensively as possible. An informal evaluation suggests a 300-page compendium, possibly 3,000 names, the listing running to the time of WWII, and (probably limited to) those Ph.D. academicians who have trained chemists. Such a handbook would certainly provide hours of entertainment for our colleagues, would certainly lead to write-ups/reviews in a number of places, and could even provide useful data for seeking new and interesting correlations.

For projects of "personal utility", I would like to propose the following. In each of the more traditional areas of training, (i.e., general, organic, analytical, physical, inorganic and, possibly, bio-) the Division would undertake the preparation and publication of inexpensive, softcover, modest-sized (i.e., 200 pages or less) reference books providing brief background details for the significant names in that particular area of chemistry (possibly one per page). In addition to all the usual items of importance, i.e., date of birth, country, where educated, significant professional positions, major contributions, each entry would feature up to half-a-dozen brief items of