

galleries. Each job is described and illustrated, including methods of supplying food, clothes, tools, etc., and management of the work place. The book contains a translation of the medieval German of the text into modern German by Dr. Ing. Heinrich Winkelmann, the former director of the Mining Museum in Bochum. The supplementary, 53-page volume, "Schwazer Bergbuch Commentarium", by Erich Egg, the former Director of the Tiroler Landesmuseum Ferdinandeum in Innsbruck, gives valuable comments on the book and its history. It is thought that the book was written as a document for a mining conference called the "Synode" that was held in Schwaz in 1557. Previous conferences were held in 1494, 1496, 1498, 1500, 1501, 1507, 1510, 1512, and 1513.

The book contains 100 colored drawings and is available in two different bindings: the standard edition (facsimile and commentaries bound together) at a price of 780 DM, or the facsimile volume in leather binding (with the commentary volume in a separate half leather binding) at 1,560 DM. Both editions are gold decorated. The book is certainly a welcome addition to the mining library. *Fathi Habashi, Department of Mining and Metallurgy, Laval University, Quebec City, Canada G1K*

The Right Place at the Right Time, John D. Roberts; *From Cologne to Chapel Hill*, Ernest L. Eliel; *From Design to Discovery*, Donald J. Cram, American Chemical Society, Washington D.C., 1990. xix + 299 pp; xxi + 138 pp; xxi + 146 pp. Cloth (Typeset). \$24.95 each.

These three volumes are the first of a projected 22-volume series edited by Jeffrey I. Seeman of the Philip Morris Research Center. Originally solicited as chapters for a single book intended to document the development of contemporary organic chemistry, the length of the contributions soon caused the project to mushroom into the present series. Seeman not only conceived the original project but also obtained corporate funding to help subsidize the final version. On all counts he is to be commended, as he has not only single-handedly doubled the number of known chemical autobiographies, but has provided future historians of organic chemistry with a veritable treasure trove.

As for the autobiographies themselves, they are as variable as the authors. From the standpoint of human interest and anecdote, the most successful of the three under review is doubtlessly the volume by John Roberts, with Eliel's contribution not far behind. The least successful is the volume by Cram, who, after confessing to a middle-age angst of dwelling on the past, proceeds to write a review article on his current research (indeed one of my colleagues borrowed the book to use as a reference in writing a grant proposal).

What is most interesting, however, is what all three accounts have in common. All are written for chemists rather than for the general public and the reader is plunged into the details of the author's research with little or no preliminary

preparation. Indeed, so focused are the accounts, that even non-organic chemists may find themselves a bit lost at times. This apparent inability to place one's work in a larger historical perspective, and even to spell out its ramifications for the structure of chemistry as a whole, is not, I suspect, a failing of the authors alone, but is typical of chemists in general. This view is reinforced by the fact that all three authors became involved in the conceptual issues which later made them famous as a result of much more limited experimental projects, chosen either because they were manageable in terms of the equipment and chemicals available at the time or because they were simple extrapolations of projects assigned them as students or postdocs. There are no tales of reading the great literature of chemistry, identifying key conceptual issues and explicitly setting out to resolve them. Rather these larger issues evolved gradually out of the more mundane and more limited experimental projects. This observation is not intended as a criticism of the authors, but rather to draw attention to the fact that they are telling us (albeit indirectly) something very important about the way chemistry is done - something of which philosophers of science, who continue to use theoretical physics as their model of the scientific method, should take note.

Finally, all three authors express a certain nostalgia for the excitement of the 1950's and 1960's which seems to have vanished in this decade of declining chemistry enrollments, dwindling research funding, and increasing emphasis on applied rather than fundamental research - a nostalgia best expressed in Roberts' title "The Right Place at the Right Time". *William B. Jensen, University of Cincinnati, Cincinnati, OH 45221.*

LETTERS

Kasimir Fajans

Today I received a copy of the Spring 1990 issue of the *Bulletin for the History of Chemistry*. This issue is particularly interesting to me for the second part of the biography of Professor Kasimir Fajans because I knew him since the 1920's when he was Professor at the University of Munich and I was a scientific research associate at the Kaiser-Wilhelm-Institut in Berlin-Dahlem. Evidently all the other articles in the issue of the *Bulletin* have been and, in fact, always are of great interest and satisfaction to me.

Herman Mark, University of Texas-Austin

The Hofmann Sodium Spoon

Two days after reading your interesting little end-piece on the Hofmann sodium spoon, I came across the following in Edward Frankland's *How to Teach Chemistry. Hints to Sci-*

ence Teachers and Students (London, 1872), pp. 7-8:

Drive out hydrogen by an alkali metal. First illustrate by throwing a piece of potassium on the surface of some water; then collect hydrogen displaced by sodium, carefully guarding against explosions (fig. 6). The "sodium spoon", and use of wire gauze, unless quite new, is objectionable; it is safer to use short pieces of leaden tube, 1/4 in. diam., closed at one end and filled with sodium, lying in the pneumatic trough beneath an inverted gas-jar full of water ...

I don't quite understand the contraption mentioned by Frankland and, in any case, the item illustrated looks more like a thin toasting fork. No doubt Frankland aired his objections to the teachers in the original lectures, but the editor (Chaloner) takes it for granted that any science teacher reader will understand.

William H. Brock, Beckman Center for the History of Chemistry

A warning about the "sodium spoon". I had one that I resurrected from a 1930's lab drawer (literally untouched in an old high school), and I finally used it. Granted, I used a rather larger chunk of sodium - about half the size of the basket - but what happened could have happened with any size sample. A student did it and, in a word, I came the closest in my 30 years as a teacher to a disastrous accident. The explosion shattered a liter beaker, but (now I know that God watches over drunks, babies and chemists) the student was unharmed. He was a good athlete and dove to the floor.

Joseph D. Ciparick, New York City

I just got the Fall 1990 issue of the *Bulletin for the History of Chemistry* and thought you might be interested in the following: 1. We have one of the sodium spoons in our old apparatus here at Harding. It measures 29.6 cm long, with a 2.5 cm diameter basket. 2. The sodium holder is also in the 1906 catalog for the Arthur H. Thomas Company. 3. The 1893 catalog for the Emil Greiner company does not have the sodium holder, though it does carry other "Hofmann" apparatus.

William D. Williams, Harding University

Hydrogen Bonding

Congratulations on an especially fine issue of the *Bulletin*. The article on hydrogen bonding caught my eye first because I had a lecture course from Worth Rodebush as a first-year graduate student at Illinois. He was a terrible lecturer at that time. The only thing I have retained is his directions for pronouncing French: "Begin, and anytime you feel like stopping, stop."

Paul R. Jones, University of New Hampshire

I recently received issue seven of the *Bulletin* ... I enjoy each issue quite a bit. The hydrogen bonding article will be most helpful since I try and give my high schoolers as much historical flavor as I can.

John Park, Diamond Bar High School

EVENTS OF INTEREST

* DaCapo Press has reissued a paperback reprint of Douglas McKie's classic biography of Antoine Lavoisier for \$14.95, and Dover Press has now released its cloth reprint of the Hoover translation of Agricola's *De re metallica* in a paperback edition for \$17.95.

* Dr. O. Bertrand Ramsay delivered the Fourth Annual Oesper Lecture on the History of Chemistry on 8 March 1991 at the University of Cincinnati. The subject of the lecture was "The Role of the Use of Molecular Models in the Historical Development of the Theory of Molecular Structure". The lecture was followed by the opening of a new museum display entitled "The Evolution of Molecular Models from Dalton to Drieding". Most of the artifacts in the display are part of a collection of historically significant models assembled by Dr. Ramsay and recently donated to the Oesper Collection. For further information, contact Dr. William B. Jensen, Department of Chemistry, University of Cincinnati, Cincinnati, OH 45221, (513) 556-9308.

* The Beckman Center for the History of Chemistry plans to conduct the first of a series of annual workshops for high school chemistry teachers on the history of chemistry the week of 21-26 July 1991. Each workshop will focus on the history of one of the subjects normally taught in the high school chemistry course. Participants will hear lectures on the subject by guest lecturers, attempt to evaluate how the historical material might be adapted to classroom use, and participate in group projects directed at assembling a teaching resource packet. The topic of this year's workshop will be the history of the periodic table and atomic structure and the guest lecturer will be Dr. William B. Jensen of the University of Cincinnati. For further information contact the Beckman Center for the History of Chemistry, 3401 Walnut Street, Philadelphia, PA 19104-6228.

* The 1991 Annual Meeting of the History of Science Society will be held in Madison, Wisconsin, on 31 October - 3 November 1991. The meeting will run concurrently with the Society for the History of Technology's annual meeting and the joint HSS-SHOT conference on Critical Problems and Research Frontiers in History of Science and Technology. The number of regular HSS sessions will be reduced somewhat because sessions of interest to HSS members will be incorporated into the other meetings. Proposals for sessions and individual papers are due on 1 April 1991. For guidelines on submitting