Media Reviews

American National Biography. Published under the auspices of the American Council of Learned Societies; John A. Garraty and Mark C. Carnes, General Editors. Oxford University Press, New York, 1999. 24 volumes, 23,040 pp. 19.5 × 25.9 cm. $2,500. ISBN 0-19-520635-5.

This definitive, authoritative, and comprehensive biographical dictionary presenting the lives that have directly or indirectly shaped the life of the United States is the product of a decade of the most recent historical scholarly writing, editing, and editorial development. As the first American biographical dictionary of such extensive scope to appear in more than 60 years and the first resource of its kind to recognize fully the multitude of contexts—social, cultural, ethnic, political, military, religious, and technological—it is a publishing event of national significance that will be of interest not only to historians and a general audience but also to scientists, chemists, chemical educators, and historians of science.

The American Council of Learned Societies (ACLS), the foremost private humanities organization in the United States, is a nonprofit organization representing 61 learned societies in the humanities and social sciences. Established to promote study, research, and positive productive relationships among national societies that are dedicated to these fields, it continually promotes the creation of reference works, of which, its latest, the American National Biography, it considers to be "the crowning achievement of its efforts at the end of the twentieth century."

The ANB was conceived as the successor to an earlier ACLS project, one of the first undertaken after the council's founding in 1919, the Dictionary of American Biography (DAB), first published in 20 volumes between 1926 and 1937, with 10 supplementary volumes extending the series to 1980. In 1986 John A. Garraty, Professor of History at Columbia and Editor of DAB Supplements 4–8 dating from the early 1970s onward, proposed that the ACLS should sponsor an entirely new biographical work. He argued that because the supplements dealt with more recent periods of American history, they could not serve to update the roughly 15,000 articles in the original nor could they conveniently include the many important figures who had been omitted from the original. (In recent decades historians intent on examining the past "from the bottom up" have emphasized the experiences of ordinary men and women, often members of ethnic groups or racial minorities that were neglected by previous scholars). Garraty was later joined as General Editor of what was to become the ANB by Mark C. Carnes, Professor of History at Barnard College, the coeducational liberal arts college affiliated with Columbia University.

Since the original publisher of the DAB, Charles Scribner's Sons, had been taken over by a larger firm that was not interested in producing a new biographical dictionary, the ACLS sought a publisher with the capacity for undertaking such a vast project, to carry it off with the requisite professional standards, and to deal with the potential for an electronic edition. The ACLS chose Oxford University Press (OUP), with its long record of academic publishing and its exceptionally strong list of authors in American history. Although the OUP invested several million dollars and many years of labor by a huge staff, the ACLS was forced to raise more than three million dollars to pay the authors and editors. In a striking example of the potential for private–public–governmental collaboration in major humanities efforts, the Rockefeller Foundation, the Andrew W. Mellon Foundation, and the National Endowment for the Humanities provided funds in the form of sizable grants.

Biography is indispensable to historical understanding, but while the value of a national biographical reference work has endured, its character has changed considerably since the DAB was published. During the last six decades the number of professional historians has increased dramatically, and the discipline has expanded its horizons with the development of new research methods, the discovery of new primary sources, and the growth of new fields of study such as the history of African–Americans and other minorities, women, immigrants, workers, and others. Thus virtually all aspects of the past are now seen from a different perspective and with new interpretations.

Compared to the DAB, the ANB has substantially broadened the criteria for the inclusion of subjects. An American was redefined as "someone whose significant actions occurred during his or her residence within what is now the United States or whose life or career directly influenced the course of American history." "Significance" now included "achievement (superior accomplishment as judged by contemporaries), fame (celebrity or notoriety), or influence (effect on one's own time despite lack of public notice)." Even some "ordinary" persons were included if they left behind autobiographies, diaries, or other artifacts that have attracted posthumous attention. At the margins, priority was given to persons, especially women and minorities, about whom new information or new ways of interpreting old data had become available.

An editorial advisory board of fourteen scholars from twelve leading universities and two historical societies helped to develop the basic design of the project, the nineteen senior editors identified and shaped the substantive areas to be covered, and the 232 associate editors recruited the authors and reviewed their manuscripts to produce what is undoubtedly this generation's major reference work in American biography. Nearly 30,000 potential subjects from all walks of life, going back to the Viking explorers of the New World, were classified into categories, mostly occupational, and considered for inclusion by associate editors, each assigned to a topical category. More than 17,500 men and women, including persons who died as recently as 1995, were finally selected for biographies. For these persons, essays of from 750 to 7,000 words, including bibliographies and archival sources and alphabetically arranged from theatrical producer Alexander A. Aarons to scientist and television pioneer Vladimir Kosma Zworykin, were commissioned from almost 6,100 authors drawn from nearly every discipline and every state in the nation (The original DAB was written by only about one-third the number of contributors, viz., 2,243 authors). Reviewing, revising, fact-checking (by 91 fact-checkers), and copyediting (by 36 copyeditors) was a necessary but time-consuming and expensive process.

Among the numerous scientists included are 192 persons classified as chemists, ranging alphabetically from Roger Adams to William Gould Young and chronologically from early luminaries such as Robert Hare (1781–1858), Joseph Priestley (1733–1804), Benjamin Silliman (1779–1864), and James Woodhouse (1770–1809) to recently deceased chemists such as John Christian Bailar, Jr. (1904–1991), Joseph Oakland Hirschfelder (1911–1990), and Linus Carl Pauling (1901–1994). In keeping with the emphasis on minorities, five women (Katharine Burr Blodgett (1898–1979), Rachel Littler Bodley (1831–1888), Mary Elliott Hill (1907–1969), Mary Engle Pennington (1872–1952), and Ellen Henrietta Swallow Richards (1842–1911)), some entries written by women, and at least two African–Americans (1997 American Chemical Society president Henry Aaron Hill (1915–1979) and Percy Lavon Julian (1899–1975)) are included. The seven chemical engineers include such well-known names as Herman Frasch (1851–1914) of sulfur production fame, Eugene Jules Houdry (1892–1962), and 1912–1913 American Chemical Society president Arthur Dehon Little (1863–1935). The sixteen chemical industry leaders include familiar names such as Henry Belin du Pont (1898–1970), Caesar Augustin Grasselli (1850–1927), Elon Huntington Hooker (1869–1938), Edward Mallinckrodt (1845–1928), Edward Mallinckrodt, Jr. (1845–1928), and Roy Joseph Plunkett, the discoverer of polytetrafluoroethylene (1910–1994).

Additional occupational classifications under which chemists or chemistry-related persons are found, the number of entries, and, in some cases, typical examples include: biochemists (54); crystallographer (only one, Robert Brainard Corey); educators (almost 800 entries); explosives manufacturers (4); geochemists (2); historians of science (34, including chemistry bibliographer Henry Carrington Bolton and first American Chemical Society president (1876) John William Draper); industrialists (101, including Edward Goodrich Acheson, several du Ponts, and Herbert Henry Dow); inventors (223, including 1924 American Chemical president Leo Hendrik Baekeland, Frederick Gardner Cottrell, George Eastman, Charles Goodyear, Charles Martin Hall, and 1932 Nobel chemistry laureate Irving Langmuir); metallurgists (15); mineralogists (12, American Chemical Society presidents Frederick Augustus Genth (1880) and John Lawrence Smith (1877)); Nobel laureates (106); phytochemist (only one, Edward Kremers); pharmaceutical industry leaders (7, including George Wilhelm Merck), rubber industry leaders (11, including Benjamin Franklin Goodrich and Franklin Augustus Seiberling); science educators (34); scientific organization administrators (55, including Elmer Keiser Bolton, Vannevar Bush, and Vladimir Nikolaevich Ipatieff); and spectroscopists (2).

An extremely important feature of any encyclopedia or biographical dictionary is the amount of detail in the index or indices. The five easy-to-use indices, totalling 628 triple-column pages, occupy almost 70% of the final volume. These are devoted to subjects (biographees) (108 pp), contributors with a list of biographies by each (183 pp), subjects by birthplace in the United States (50 states and the District of Columbia) (94 pp), subjects by birthplace outside the United States (90 countries, "Unknown Country," and "At Sea") (23 pp), and subjects by almost every conceivable occupation and realm of renown even eccentrics and brothelkeepers (220 pp). (Because many of the biographees had more than one occupation or achieved fame in several areas, they are found under several rubrics.)

The ACLS and OUP intend to use the latest advances in computer technology to accomodate virtually limitless additions and revisions, thus keeping the ANB, in both print and electronic editions, the most current and comprehensive reference work of American biography well into the twenty-first century. They have established a Center for American Biography "to update and enlarge the ANB so that generations ahead can continue to turn to a standard, reliable source of biographical information." Additional information on this "living record of influential American lives" is available at OUP's web site: www.oup-usa.org/anb.

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Techniques and Experiments for Organic Chemistry, 6th edition. By Addison Ault. University Science Books: Sausalito, CA, 1998. 600 pp. Hardcover $65.00, ISBN 0-935702-76-8

I found this book to be very informative, suitable both for taking into the laboratory to consult on immediate practical matters, and also for reading later to amplify the theoretical side. It contains scores of practical hints, tips, and pieces of information, which contribute to much time being saved in the laboratory.

The preliminary section on safety is useful but I feel would have been improved greatly if more stress were laid on the need to get medical attention, particularly with incidents involving chemicals in the eye or larger spillages on the skin. Section 3 (p 21), on cleaning up glassware, which should be compulsory reading for all students, reinforces the need to work in a clean, tidy, and methodical manner. The next section, on the collection and disposal of waste, is excellent, as students need to be made aware of the requirement to dispose of all waste materials in a safe fashion. I think also that the clear and concise paragraph on waste disposal, which comes at the end of each experiment in Part 2, is an excellent feature of the book.

Both the practical and theoretical aspects of basic laboratory techniques are described in detail, but in easy to understand language; I feel that this discussion of technique is the strongest section of the book. These pages contain very informative pieces on separation, filtration, recrystallization, and extraction, and everything that most people would wish to know about distillation can be found here.

In the section on determining physical properties, traditional methods of characterizing substances are dealt with at length and much of the information is presented in tabular and graphical form which makes for a clear understanding. I was looking forward to reading the pages on spectroscopic methods used in characterization, but unfortunately most of these pages were missing! Characterization using chemical methods, although obviously less used nowadays, is dealt with at length and is clearly presented.

Part 2 of the book contains a variety of experiments, most of which use standard glassware and equipment of the type found in most laboratories. Although split into three sections, the experimental part of the book lacks an overall contents page which makes reference more difficult than it might be. The

layout is clear, but could be improved by listing all the necessary reagents with a brief risk assessment and outlining any safety features such as use of a fume hood at the beginning of each experiment. Also, I feel in the interest of completeness that a synthetic experimental procedure should conclude with the calculation of percent yield and the collection of any spectra, melting point data, etc. The appearance of the whole book would be improved with extra and more modern looking illustrations.

In summary, I found *Techniques and Experiments for Organic Chemistry* to be informative, but the techniques section is stronger than the experimental section.

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The Systematic Identification of Organic Compounds, 7th edition. By R. L. Shriner, C. K. F. Hermann, T. C. Morrill, D. Y. Curtin, and R. C. Fuson. John Wiley & Sons: New York, 1997. £36.50. ISBN 0-471-59478-1.

Not so long ago, when undergraduates were asked to identify an organic unknown, they would be facing elemental tests using sodium fusion, solubility tests for acids and bases, and a variety of other functional group and colorimetric tests. Many university courses have tended to move away from these classical tests in their undergraduate laboratories, but such tests can still play a useful role in teaching undergraduates about functional group chemistry. Indeed, these types of experiments readily combine with the teaching of practical techniques.

Most undergraduates are brought up on a diet of general practical methods, such as melting- and boiling-point determinations, organic functional group chemistry, chromatography, and modern spectroscopic interpretation. Whatever type of course you are involved with, classical or more modern, and wherever you study, you will find what you need in this book!

Now in its seventh edition, this text has expanded and evolved with the years to include all the functional group tests you have heard of and probably many more you haven't. The included tables of data cover nearly everything from melting points to chemical shifts in monosubstituted benzenes. There are experimental details for derivative preparation, chromatographic procedures, and for making up and running samples for most spectroscopic techniques. There are even flow charts to explain how to go about identifying an unknown compound, and sample report forms to help you summarize your information.

This is a truly comprehensive textbook and reference source. If you are an undergraduate and need a book that covers spectroscopic interpretation, this book has what you need and more. If you require a book about laboratory techniques and functional-group identification, again, this has what you need. Indeed, the combination of material means that this might be the only book needed for an undergraduate organic chemistry practical course.

Although some of the pictures of apparatus appear rather dated by contemporary standards and the book is totally black and white, the layout, presentation, and explanations are all excellent. The procedures are very clear and well thought out and reasonable notice is taken of safety matters and waste disposal. Some worked examples and problems are provided, including mixed problems which combine classical tests with spectroscopic methods, and some solely spectroscopic problems.

An increasing number of research and professional chemists would never use classical methods for structural identification because the amounts of material available are too small. In addition, most researchers would argue that any organic compound could be identified by spectroscopic methods alone. From this point of view, the exercises and spectroscopic data are a little limited and angled more to undergraduate teaching. For example there is a lack of information about more advanced NMR techniques, little information about coupling constants in different systems, but more detail than you might expect on aromatic systems.

Spectroscopy forms a relatively small part of this text in comparison to the sections on classical tests, though its contemporary importance suggests that it may need to occupy more space in future. There are also still some odd anomalies which are probably leftovers from previous editions; for example, space is given in the report forms for "odor," yet the authors remark "we cannot in good conscience recommend that you examine the odor of an organic compound," though notably this caution occurs after the report form itself!

However, the small amount of outdated material can not detract from the fact this is a truly excellent textbook. Considerable care has been taken to put such a comprehensive and well laid out text together. There is something for everyone who practices organic chemistry. Although the undergraduate may not use all the material provided, everything they might wish for is here, ready if needed. For more advanced practitioners and teachers of practical chemistry at all levels, this is also a great textbook to have around for planning laboratory classes, finding procedures, and for reference.

In the UK, the price of this book is £36.50. While this book costs more than most textbooks that cover only spectroscopic interpretation, it contains an abundance of information. As a laboratory manual for undergraduates, it is excellent; as a reference text for more advanced students, it is still very useful.

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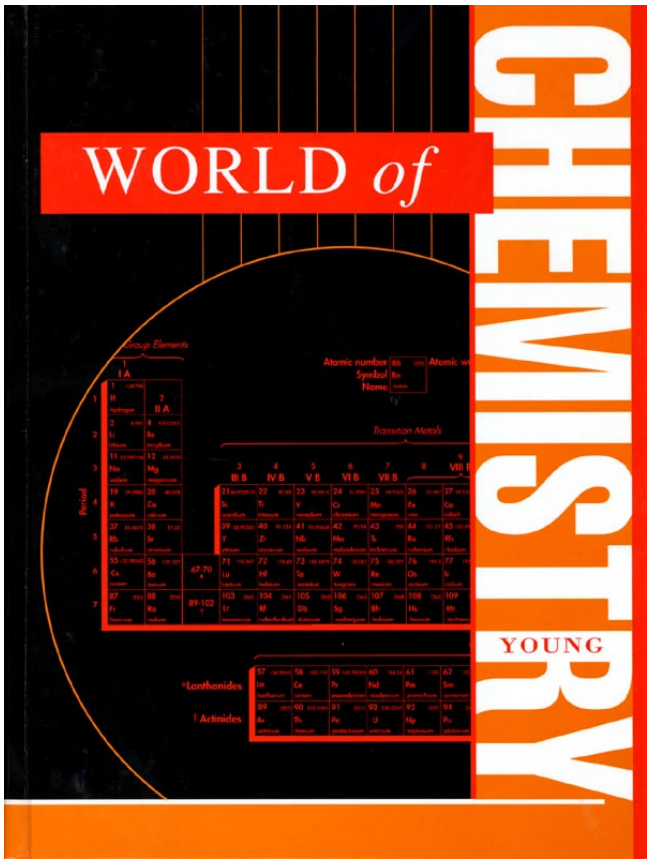
World of Chemistry. Robyn V. Young, Editor; Suzanne Sessine, Assistant Editor; Gale Group: 2700 Farmington Hills, MI, 48331-3535, 2000. Figures, tables, illustrations. ix + 1360 pp. 21.8 × 28.5 cm. $85.00. ISBN 0-7876-3650-9.

In order to add a volume on "the central science" to its successful *World of...* product line (*World of Scientific Discovery*, 1994; *World of Invention*, 1998; and *World of Biology*, 1999), a series targeted at secondary-level students, the Gale Group, a prominent publisher of academic, educational, and business research references, assembled a panel of five subject advisors and commissioned a group of 46 contributing writers, almost half of them women. Manuscripts were accumulated between February and August 1999, and *World of Chemistry* appeared on December 19, 1999 — a publishing *tour de force* by any standards but made



particularly notable by virtue of its up-to-date coverage and scope.

This attractive, oversized, and copiously illustrated volume contains more than a thousand alphabetically arranged entries, from American pharmacologist John Jacob Abel to Austrian-born German Nobel chemistry laureate Richard Zsigmondy, that provide, in the words of David K. Lavallee of the State University of New York, New Paltz, who wrote the Introduction, "basic information about chemical terms and concepts, applications of chemistry encountered in everyday life, descriptions of the chemistry behind industrial and commercial products, natural phenomena, and biographical sketches of individuals who have made major contributions to the development of chemical ideas and inventions." In this book chemistry is considered in the widest possible sense and includes not only the traditional divisions of inorganic, analytical, organic, and physical chemistry but also biochemistry, polymer chemistry, cosmochemistry, geochemistry, atmospheric chemistry, marine chemistry, medicinal chemistry, pharmaceutical chemistry, nanochemistry, nuclear chemistry, astrochemistry, forensic chemistry, and biotechnology. Thus the user will find data on many exciting aspects of chemistry's contributions to our understanding of our planet, its atmosphere, biosphere, hydrosphere, and geosphere as well as technological applications of chemistry to other fields.

The detailed structures of very large molecules such as DNA, RNA, and enzymes, the laboratory synthesis of complex natural biomolecules, and the analytical determination of submicroscopic amounts of elements and compounds are described. Also featured are the highly sophisticated technological instruments and techniques that make such advances possible such as NMR spectrometers, X-ray diffractometers, neutron activation analysis, chromatographs, mass spectrometers, lasers, electrochemical devices and electron, field-ion, and scanning tunneling microscopes. But simple pieces of apparatus such as the burette, centrifuge, manometer, and pipette are not neglected.

Topics of current interest like acid rain, cold fusion, DNA fingerprinting, food additives, Gaia theory and chemistry, genetic engineering, metallocenes, nuclear fission and fusion, ozone layer depletion, pollution, PAHs, PBBs, PCBs, and superacids are discussed. Also included, with explanations of their chemical composition, structures, and methods of development, are new types of matter discovered during the 20th century such as the fullerenes, synthetic polymers, plastics, superconductors, and nanostructures. The encyclopedia focuses heavily on industrial applications of chemistry, with explanations of the chemical principles underlying such everyday products as automobiles, clothes, cosmetics, foods, antacids, anti-inflammatory agents, artificial fats, artificial sweeteners, batteries, computer chips, glass, gunpowder, herbicides, DDT, liquid crystals, psychotropic drugs, soaps and detergents, vitamins, and waxes.

Not only are fundamental concepts, laws, and ideas discussed, but the people who developed them—chemists, physicists, chemical engineers, inventors, and industrialists—are also profiled. Although contributions of the Ancients such as Democritus and Maria the Jewess are considered, the 20th century is emphasized. The coverage is international, but especially good on contemporary American scientists. Of the more than 400 biographies, no fewer than 36 feature women and 13 African-Americans. In addition to the usual luminaries and Nobel laureates, many minor characters, whom I had not previously encountered, are included. The depth of coverage is not always commensurate with the importance of the subject. Thus George Washington Carver is allotted 3-1/2 pages, more than twice that given to Lavoisier, the founder of modern chemistry, making the volume a rich source of information on lesser-known scientists. Also, numerous personal details and anecdotes, unusual in a work of this sort, are related.

Arcane jargon has been avoided, and technical terms are clearly defined using standard vocabulary. Whenever possible and appropriate, chemical concepts are explained by use of analogies to familiar and common phenomena. Terms and names in boldface type direct the user to related entries, and there are cross-references to related entries not specifically mentioned in the body of the text. The book contains almost 400 structural formulas (formal charges missing in Lewis structures), figures, portraits, tables, and computer-generated models. In addition to the familiar portraits of chemistry's "greats" that are found in most books, many unusual ones are included. Informal pictures of Nobel laureates Walter Gilbert serving champagne and Kary Mullis in shorts holding a drink provide a humanizing touch.

A Sources Consulted section (7 double-column pages) includes a bibliography through 1999 of the most useful print (classified as books and journal articles) and electronic material (53 Websites from 1999) encountered during the compilation of the encyclopedia. An extensive Historical Chronology (29 double-column pages) lists important events in chemistry and related sciences and technologies, some as long as several sentences, from ca. 30,000 B.C. (Stone age cultures use pigments to color various artifacts) to 1999

(Ahmed H. Zewail receives the Nobel Prize in chemistry—an award not announced until October 12, 1999, a mere two months before publication of the encyclopedia!). A very detailed General Index (148 double-column pages) facilitates location of desired information.

In addition to its extensive coverage of lesser known scientists, particularly minorities and women, the hallmark of this reference sourcebook is its timeliness. However, there is no free lunch, and the Gale Group's policy of not providing individual contributors with galley or page proofs, coupled with the stringent publication schedule have, not unexpectedly, resulted in a large number of errors. A cursory examination revealed more than a hundred slips, mostly of the typographical variety: misspellings (usually of names), omission of words, run-together words, spaces within words, incorrect cases of letters in spellings, zeros in place of "O"s, and subscripts on the line with symbols in formulas.

Errors of fact are also present. For example, Cavendish did not discover argon but rather provided data for Ramsay and Rayleigh's discovery more than a century later (p 197), Reich and Richter discovered indium not iridium (p 1196), and Grignard reagents are organic halides of magnesium not manganese (p 1201). The Historical Chronology and index are especially rife with errors, pointing to inadequate proofreading on the part of the editorial staff rather than the contributors. The recent death (February 25, 1999) of Nobel laureate Glenn T. Seaborg, who is described as a physicist, a characterization that he particularly disliked, is noted, but, curiously, the earlier demise of Nobel laureates Geoffrey Wilkinson (September 26, 1996) and Vladimir Prelog (January 7, 1998) are not. Most of the errors would be recognized by the average chemist, but they might remain undetected by students, who should be cautioned to confirm the accuracy of spelling and other information by checking supplementary sources.

Although the editors have "not attempted to duplicate the degree of detail that is available in college-level textbooks or technical encyclopaedias designed for professional engineers or scientists," the coverage of most topics is fairly complete and suitable for university students and practicing scientists. Considering the very modest price, broad coverage, and timeliness and keeping in mind the weaknesses noted above, I recommend this one-volume encyclopedia as a "best buy" to anyone interested in science and its applications.

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Interpreting Organic Spectra. By D. Whittaker. Royal Society of Chemistry: Cambridge, England, 2000. viii + 262 pages. ISBN 0-85404-601-1. £22.50.

Among the activities former chemistry undergraduates remember most clearly are the workshop-style exercises in the identification of organic compounds by spectroscopic methods. This style of teaching remains one of the best ways of helping students to grasp the basic ideas of structural identification, and also reinforces the principles of connectivity, vibrational motion in molecules, electronic structure, isotopes, and electronegativity.

With this in mind, David Whittaker has compiled the book *Interpreting Organic Spectra* based upon material used to teach undergraduates. The style, introductory discussions, and examples nicely capture and reflect the workshop-style organic structure identification course and could therefore be a valuable addition to the reading list of a typical chemistry undergraduate. It is the type of book that could be used as the primary text in this area for a first- or second-year undergraduate manual, reinforced by lectures and assisted problem solving. Alternatively, it would provide an excellent basis for individual study, to be worked through gradually with students reading each introductory section and following it up by trying all the problems. By the end of the book, any undergraduate should be able to rapidly extract the important structural information from IR, UV, MS, and ^{13}C and ^{1}H NMR spectra.

The book consists of five chapters that introduce the basic principles of infrared, ultraviolet, both ^{13}C and ^{1}H nuclear magnetic resonance spectroscopy, and mass spectrometry. The discussion is easy to read and understand, and contains most of the information that an undergraduate would require. Each chapter contains many examples that illustrate the important points of the method. The examples are followed by a series of unknowns, through which the student can work independently. These unknowns are well chosen and help to reinforce all the basic principles. In addition, the structures for each of the unknowns are provided at the back of the book.

Between the chapters that concentrate upon a single method, there are chapters of mixed examples, e.g., identifying unknowns using only IR and MS, or only IR and ^{13}C NMR, spectra. In fact, the entire book really builds up stepwise and culminates with problems involving IR, MS, UV, and both ^{13}C and ^{1}H NMR, in a fashion that parallels the way that real problems are faced in the organic research laboratory. It is therefore an ideal book for self-teaching or for the basis of a workshop-style approach.

My only misgivings are that some of the figures lack some detail in reproduction, especially on the scales of the spectra. Very few combined examples use UV spectroscopy, which indicates that the importance of UV spectroscopy in general is downplayed in the text. In addition, because the style of the book is very much as one might wish to teach such material, it lacks some of the more detailed information one might need for more advanced interpretation. It could also benefit from more tables of data and diagrams to assist the reader.

However, this does not detract from the book's primary purpose, but the price might. At £22.50 in the UK, though not particularly expensive, this softcover manual is priced at around the same level as major textbooks, but lacks the comparative polish and quality of coverage of such books.

Overall, despite the lack of detail, this book will really help students to digest, understand, and practice spectroscopic structure determination of organic compounds.

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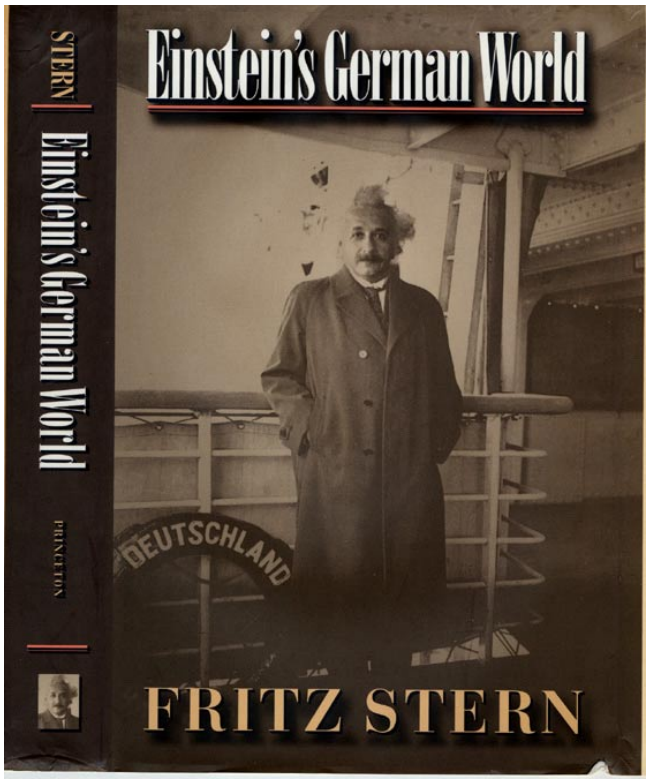
Einstein's German World. Fritz Stern. ix + 335 pp. Princeton University Press: Princeton, NJ, 1999. $24.95; £15.95. ISBN 0-691-05939-X.

While walking with Fritz Stern to a West Berlin exhibit in April 1979 commemorating the centenary of the births of Einstein, Max von Laue, Otto Hahn, and Lise Meitner, French political philosopher Raymond Aron remarked that the



twentieth century "could have been Germany's century." By 1900 the Reich was Europe's pre-eminent power with a vital culture, unrivaled educational system, authoritarian academic–industrial–military complex, and extraordinary scientific accomplishments. The country was poised to achieve true greatness, but its prospects went unfulfilled, culminating in two world wars and the Holocaust.

In this collection of invited lectures and essays, previously published in German or English but revised in the light of new archival materials from Germany, the United States, Israel, and Switzerland, and updated with references as late as 1998, Fritz Stern, University Professor Emeritus at Columbia University, a prize-winning historian and the author of a number of books on the history of modern Europe, explores the ambiguous promise of Germany before Hitler, its appalling decline into moral nihilism during the Nazi régime, and aspects of its remarkable recovery since World War II.

Stern is eminently qualified both by personal circumstances and interest to undertake this balanced and insightful blend of history and biography that critically analyzes some of Germany's greatest Jewish scientists as well as German–Jewish relations and anti-Semitism during this period. Nobel chemistry laureate Fritz Haber was his godfather and a longtime friend of his parents. A member of the Editorial and Executive Committees of *The Collected Papers of Albert Einstein* since 1984 and a nephew of physicist Otto Stern, he met Einstein, Chaim Weizmann, and other prominent scientists profiled in the book and had unlimited access to family correspondence, privately held papers, and personal recollections. His father, Rudolf, was Haber's physician, worked at Haber's Kaiser Wilhelm Institute for Physical Chemistry (1921–1923), wrote an article on Haber, attended Mrs. Weizmann as a doctor, and was acquainted with Haber's closest friend, Richard Willstätter, as well as Weizmann, and other scientists and public figures. Stern's mother dedicated two of her books to Haber.

The central essay and longest of the book's nine chapters, "Together and Apart: Fritz Haber and Albert Einstein," occupies 106 pages, almost one-third of the volume. It explores their public and personal lives, notes their similarities, and contrasts their different responses to German life and their Jewish heritage. Haber, a convert to Christianity, developed the process for the fixation of atmospheric nitrogen, which was a prime example of German economic and industrial triumph and the source of munitions and fertilizers that allowed Germany to continue the war beyond the spring of 1915. Haber's introduction of poison gas into warfare earned him the revulsion of the civilized world, yet he was a fervent German patriot until the advent of the Nazis to power. Einstein, on the other hand, was an internationalist, a pacifist, and a proud although secular Jew.

Other prominent figures profiled include Paul Ehrlich, the founder of chemotherapy; physicist Max Planck, "the first servant of German science," who, although not Jewish, protested the anti-Semitic campaign waged against Einstein and others; Walther Rathenau, the ambivalent and conflicted industrialist and statesman who was assassinated in 1922; and Russian-born Chaim Weizmann, chemist, committed Zionist, and first president of Israel. Stern also examines the still-controversial manner in which both German and non-German historians have dealt with World War I. He considers also how Germans have dealt with their country's defeat, persistent conflicts over interpretations of Germany's past, the psychological cost of East and West Germany's reunification and the country's current challenges and future prospects, as well as the reconciliation between Germany and Poland (Stern was born in Breslau, Germany, now Wroclaw, Poland). It is unfortunate that no portraits of the many scientific luminaries dealt with in this book are included, but this would probably have added to its modest price.

This book is much more than academic history. It is a cautionary tale. My former wife's family delayed fleeing Germany until virtually the last moment (1939), blinded to reality by rationalizations: "This is Germany, the land of Beethoven and Goethe, the most civilized country in the world." According to Stern, "No country, no society, is shielded from the evils that the passivity of decent citizens can bring about. That is a German lesson of the twentieth century—for all of us."

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