Media Reviews

Scientific Computing: An Introductory Survey. By Michael T. Heath. WCB/McGraw-Hill,1997. 448 pp. Softcover, ISBN 0-07-027684-6. (A Solutions Manual is also available.)

This book, as indicated by its title, provides a fairly complete survey of numerical/scientific computing written at a very accessible level. The target audience would include undergraduate students with a computer-science, math, physics, or engineering background, as well as graduate students and scientists in other disciplines requiring training in scientific computing. This book is not an in-depth treatise; it presents all of the concepts in a detailed but concise manner. As such, it would also serve as a useful reference for computational scientists who need a reminder or overview of a particular problem or method.

Heath does not simply provide the algorithms and concepts of numerical analysis and applied mathematics, but also shows the application and limitations of applying these ideas in a digital computing environment. The first chapter begins by discussing approximation, various sources of errors, and the challenges faced in expressing continuum mathematics in a discrete computational language. These concepts are then carried throughout the book and used to help the reader understand the differences between the various methods presented.

The best feature of this book, and what makes it significantly different from many other publications, is that it does not overwhelm the reader with pages of computer code. There are many such books available, but this book is practical in the sense that it does not require one to rewrite programs or subroutines, but rather provides a guide to the vast array of existing software. This has several advantages: it does not require an in-depth knowledge of programming, it lessens the probability of introducing errors in the computer code, and it makes the execution of the solutions much quicker and easier. Each chapter presents an introduction to a given problem, methods for solving the problem, and finally the software available to implement the various methods. This organization is followed consistently throughout the book and makes the presentation much more understandable. By providing this general guide to mathematical software and libraries, this book does not restrict its rea dership to a specific group of users (C vs. Fortran, MATLAB vs. Mathematica, etc.). Many times students begin using specific computational software based on what is available within their department or research group, but these choices may not always be optimal. This book educates the reader about the many possible computational packages available, many of which they may have not been exposed to, and the specific advantages that one may offer over another.

The only real problem with this book is that it is an overview and would quite often require supplementary materials. Some topics (e.g., fast Fourier transforms and random numbers) are presented at a very rudimentary level and might have been omitted in favor of more detail on other topics. Each chapter is completed with review questions, exercises, and computer problems. The computer problems are quite extensive and varied in terms of complexity. These would provide useful in-class examples or homework problems. One other nice feature is that the problems may be tackled using any of the suggested subroutines or software packages. This universality again makes the book accessible to a much larger audience.

In short, this book is what it says it is, an introductory survey of scientific computing. Although not exhaustive in its explanations, it provides references for further information and presents numerous examples to enable the reader to grasp the concepts. Also, because the book focuses on using existing software, it fills a niche that has largely been overlooked.

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Named Organic Reactions. By Thomas Laue and Andreas Plagens, John Wiley & Sons: Chichester, England, New York, 1998. Structural formulas, reaction schemes. x + 288 pp. 15.6 × 23.5 cm. $69.95, hardcover. ISBN 0-471-97142-1.

Originally published in German as Namen- und Schlagwort-Reaktionen der Organischen Chemie (B. G. Teubner: Stuttgart, Leipzig, Germany, 1995), this handy source book by Thomas Laue and Andreas Plagens of the Technische Universität Braunschweig has now been felicitously translated into English by Claus Vogel of the Universität Magdeburg. According to the authors, “Name reactions are still an important element of organic chemistry .... used as short expressions in order to ease spoken as well as written communication .... [They] are a perfect aid for learning the principles of organic chemistry.”

Their book is not intended to replace an organic chemistry textbook but is “a reference work on name reactions, that is also suitable for easy reading and learning, as well as for review for an exam in organic chemistry.” This compact collection contains accounts of 112 (the authors claim that it contains 134) significant named reactions from classical and modern organic chemistry, alphabetically arranged from the acyloin ester condensation to the Wurtz reaction and ranging in length from one page (Delépine reaction) to more than six or seven pages (Diels–Alder and Grignard reactions, respectively). Ninety-eight of the reactions bear the names of their discoverers, while the remaining 14 are named for the type of reaction such as diazo coupling, glycol cleavage, haloform, hydroboration, malonic ester synthesis, ozonolysis, and vinylcyclopropane rearrangement. The selection has been made based on their importance for modern preparative organic chemistry and for today’s organic chemistry courses.

Each section begins with the name of the reaction, followed by a subtitle giving a one-sentence description, a formula scheme depicting the overall reaction, and an initial paragraph with an introductory description. The major portion of each section presents clearly outlined reaction mechanisms, side-reactions, and variants, and modified procedures with respect to product distribution and yields. Recent and older examples of the application of the particular reaction or method are given along with references to the original literature; these examples are not intended to deal with every aspect but are chosen from a didactic viewpoint for advanced students. In addition to the reference to the very first publication to show the origin of the reaction’s name and how it was explored or

developed, review articles are cited, together with recent articles. A 4-page (2 columns per page) index facilitates location of material.

Thumbnail sketches of the discoverers would have added another dimension for those interested in the history of organic chemistry, but sketches would have added to the length and cost of the volume. For example, British historian of chemistry Peter J. T. Morris is currently writing a commissioned article on relatively unknown discoverers of name reactions and is particularly interested in the few women chemists in this category. Thumbnail sketches would have disclosed that the discoverers of the Hunsdiecker reaction (which is included) and the Piloty–Robinson reaction (not included) were wives of the chemists involved. Most of the principal name reactions of organic chemistry are represented in Laue and Plagens' collection, an exception being the Ullmann reaction (coupling of two aromatic nuclei on heating aryl iodides with activated copper), of which I am reminded only by my recent review of Ullmann's Encyclopedia of Industrial Chemistry in The Chemical Educator (in press).

As a result of reviewing Named Organic Reactions, the next time I stub my toe during nocturnal wanderings in the dark and exclaim "Hell–Volhard–Zelinskii," I will do so with the additional insight that "an a-hydrogen of a carboxylic acid can be replaced by bromine or chlorine to give an a-bromo- or a-chlorocarboxylic acid, respectively." And for lesser catastrophes, where the Heck reaction will suffice for my expletive, I'll recall "the palladium-catalyzed carbon–carbon coupling of an alkyl, aryl, or vinyl group to an alkene."

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Polymer Chemistry: An Introduction, 3rd edition. By Malcolm P. Stevens. Oxford University Press: New York, Oxford. Figures, tables, charts. xix + 551 pp. 17.0 × 24.2 cm. $70.00. ISBN 0-19-512444-8.

Polymer chemistry is an interdisciplinary science, drawing on organic, inorganic, physical, and analytical chemistry as well as biochemistry and making occasional incursions into physics, engineering, and even business economics. According to the late polymer chemist Carl Shipp ("Speed") Marvel, "Polymer chemistry has become such an important part of chemical technology, and polymers have come to play such a role in everyday living, that no chemist can consider himself adequately trained in his science without some introduction to this field." Indeed, most chemists and chemical engineers are concerned with some aspect of polymer science and technology. A 1985 U.S. Department of Labor study reported that almost 60% of the chemical industry work force was involved with synthetic polymers, and the Divisions of Polymer Chemistry; Polymer Materials; Rubber; and Cellulose, Paper, and Textile Chemistry are some of the American Chemical Society's largest in terms of membership. Because of these facts, my colleague and frequent coauthor, the late polymer chemist Raymond B. Seymour (1912–1991), often referred to our time as the polymer age.

Yet, when the first edition of this popular introductory text for an undergraduate or beginning graduate level polymer chemistry course was published by Addison-Wesley in 1975, polymers were among the most neglected topics in both the undergraduate and graduate curriculum, and only a few chemistry departments offered an elective course in the subject. However, since then, the ACS Committee on Professional Training has included polymer chemistry among the elective courses that undergraduate students should be "strongly encouraged" to take, and a "Recommended ACS Syllabus for Introductory Courses in Polymer Chemistry" outlined topics to be included and listed textbooks and audio courses available, including the first edition of Stevens' book (Seymour, R. B. J. Chem. Educ. 1982, 59, 652–653). A second edition was published by Oxford University Press in 1990.

Malcolm P. Stevens, Professor of Chemistry at the University of Hartford, where he has taught since 1971, previously taught at Robert College in Istanbul and at the American University of Beirut and also worked at the Chevron Research Company. His combination of academic and industrial experience is reflected in the excellent coverage of both the theoretical fundamentals and the practical applications of the subject in the third edition of the book under review here. He assumes that students using the book have completed undergraduate courses in organic and physical chemistry and are familiar with the more commonly used spectroscopic and chromatographic methods of analysis and characterization.

This latest edition follows the organization of the second edition, with the exception that heterocyclic polymers are dealt with in a separate single chapter (Chapter 15) rather than being divided between two chapters. Also, microbial polyesters are discussed in Chapter 12 rather than in Chapter 18. Like Gaul, the book is divided into three parts. The wide scope of the topics included can be glimpsed from the titles of the chapters:

- Part I, Polymer Structure and Properties: Chapter 1, Basic Principles; Chapter 2, Molecular Weight and Polymer Solutions; Chapter 3, Chemical Structure and Polymer Morphology; Chapter 4, Chemical Structure and Polymer Properties; Chapter 5, Evaluation, Characterization, and Analysis of Polymers.
- Part II, Vinyl Polymers: Chapter 6, Free Radical Polymerization; Chapter 7, Ionic Polymerization; Chapter 8, Vinyl Polymerization with Complex Coordination Catalysts; Chapter 9, Reactions of Vinyl Polymers.
- Part III, Nonvinyl Polymers: Chapter 10, Step-reaction and Ring-opening Polymerization; Chapter 11, Polyethers, Polysulfides, and Related Polymers; Chapter 12, Polyesters; Chapter 13, Polyamides and Related Polymers; Chapter 14, Phenol-, Urea-, and Melamine-formaldehyde Polymers (the shortest chapter, 14 pp); Chapter 15, Heterocyclic Polymers; Chapter 16, Inorganic and Partially Inorganic Polymers; Chapter 17, Miscellaneous Organic Polymers; Chapter 18, Natural Polymers (the longest chapter, 39 pp).

Among the new developments in a rapidly changing field featured are: "single site" metallocene catalysts for tailoring polyolefin structures, living free-radical polymerization, biodegradable bacterial polyesters, mass spectrometric methods for molecular weight determination, atomic force microscopy for characterizing polymer surfaces, soft ionization techniques coupled with time-of-flight mass spectrometers for measuring molecular weights and molecular weight distributions, supramolecular

assemblies such as polyrotaxanes, dendritic and hyperbranched polymers with molecular dimensions in the nanometer range, polymer recycling, characterization and testing methods, stereoregular polymers, commercially important addition and condensation polymers, and polymers exhibiting nonlinear optical properties.

Once again, references (1203 in all, some as late as 1997) at the end of each chapter are based in many cases on review articles or monographs so that students can find more detailed information on any given topic (original articles can be located from the review articles). Because Stevens believes that advanced undergraduate or beginning graduate students should be strongly encouraged to read the original literature, he has included references in many of the 253 end-of-chapter review exercises (a solutions manual is available).

The book is replete with 852 numbered and countless unnumbered structural formulas, chemical and mathematical equations, reaction schemes, 94 figures, and 73 tables. It includes a 2-page appendix of commonly used polymer abbreviations, a 9-page appendix of the polymer literature (handily divided into encyclopedias and yearbooks, handbooks, continuing series, journals, general journals, and specialty journals), and a 9-page appendix of sources of polymer chemistry laboratory experiments (divided into laboratory manuals, supplementary sources, and 167 articles published in the Journal of Chemical Education between 1950 and 1997). The last appendix is particularly useful for instructors who wish to design a polymer laboratory course or integrate polymers into existing laboratory courses. A detailed index (17 double-column pages) facilitates locating material.

The only current textbook that discusses polymer types according to functional groups, Polymer Chemistry: An Introduction is not only a useful, comprehensive, up-to-date, and eminently teachable text for advanced undergraduate and beginning graduate students; it is also suitable as an introduction for industrial chemists with no prior training in the subject or as a reference sourcebook for practicing polymer scientists.

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DOSE. The Dictionary of Substances and Their Effects, 2nd edition. Edited by Sharat Gangolli. The Royal Society of Chemistry, Cambridge, England, 1999. Seven volumes with access to online electronic chemical safety database. £1295 (set of hardcopy volumes plus site-wide license to electronic database). ISBN 0-85404-803-0

The Dictionary of Substances and Their Effects (*DOSE)* is a comprehensive compilation of health and safety data on over 4000 chemicals. In the safety field, which is becoming increasingly cluttered with books offering such data, this work is one of the best. It is comprehensive, authoritative, published by the Royal Society of Chemistry in the UK, and is excellent value for the money. *DOSE* consists of both hardcopy and an electronic database accessible through the Internet. The current version of the electronic database suffers from one serious drawback, discussed below, but this is otherwise an excellent product.

The hardcopy portion of *DOSE* consists of seven chunky hardback books, each nearly one thousand pages. The electronic database contains the same data, and Internet access to it can be gained via a username and password. Alternatively, if site-wide access is required, this can be provided to all users in a specified IP domain. The obvious primary advantage of the electronic version is that it offers a way for users who do not have ready access to the book to find safety data.

At first sight the package might appear expensive. After all, who wants to spend a couple of thousand dollars on books? In the safety field, though, even slim texts amounting to little other than a gentle rephrasing of government regulations often cost hundreds of dollars.

Furthermore, the headline price is misleading. A single purchase of *DOSE* gives a potentially very large number of users access to the electronic database. The “site” to which access is granted is apparently interpreted by the publishers as all buildings belonging to a particular organization within a radius of several miles. Most universities would thus be covered completely by a single purchase of *DOSE*. In view of the quality of information in the database, and number of compounds it contains, this represents extremely good value.

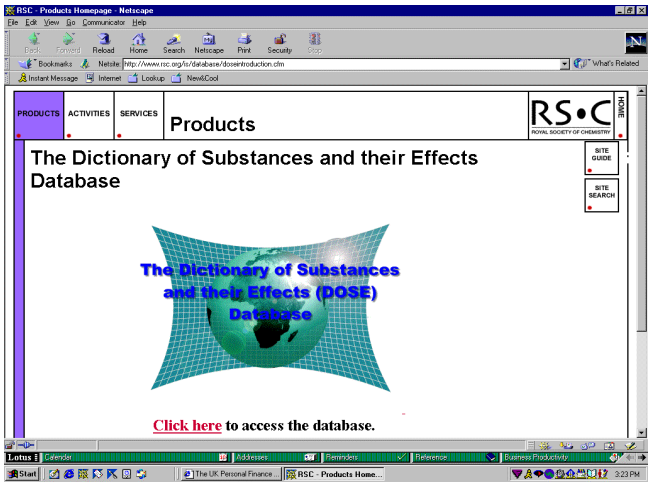
The database contains roughly 4100 chemicals, and the electronic version may be searched using various criteria. Searches would most likely be by chemical name, molecular formula, or CAS number, but it is possible also to use the EINECS number, RTECS number, UN number, molecular formula, or molecular weight. In addition, free-text search employing wildcards and Boolean terms is available. Searching is rapid and seems reliable. As Departmental Safety Officer I found the depth of information very welcome.

In hardcopy form the entry for each chemical is typically 1–2 pages of close-spaced type. However, far more space is devoted to those chemicals that present serious health risks. An example of a chemical record (for benzene) is available at http://www.rsc.org/is/database/doseexs.htm

The electronic database is potentially extremely useful; however it has one major drawback—and it is a crucial one. When one logs into the database, the first document downloaded is the front page in which one can fill in the relevant search terms or scan the various lists which it contains. Within this document is the entire list of chemicals, CAS numbers, EINECS numbers, RTECS number, and UN numbers in the database.

In all, this one page amounts to some 1068 kB of data which, even with a fast Internet link, takes some time to download. Once the document has been retrieved there is a further pause (24 seconds on my slow Pentium PC) during which the document is presumably being formatted before it can be displayed. This delay is frustrating enough in the UK, where links from universities into the RSC are reasonably fast, but would make use of the database from countries outside the UK very irritating.

But there is worse to come. When one has done a search, collected the data one wants, and returned to the search page to look up another chemical, the whole home page loads again. Even if this reload takes advantage of a local cache, the process requires considerable time. This is a crippling problem for an otherwise an excellent product, but could be avoided if the home page loaded with only a minimal amount of information. If the user then wished to search by chemical name, or by CAS number, or EINECS number the single list required could be downloaded. If the database is to be widely used, especially by those outside the UK, the RSC must



modify the interface so that downloading takes a few seconds, not as long as a minute.

Happily, I can report that the problem is being dealt with. After I contacted the publishers, they responded that, having realized that speed of access is crucial, they are working to provide a suitable fix.

This is one of the best databases available of safety information on chemicals; it deserves to be widely used. Indeed, I have proposed that my own University Safety Office buy it. To compete with other databases on the Internet, the RSC needs now to resolve the problem of download time. Once they have done this, I expect *DOSE* to become a standard in the field of safety.

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The Best of Annals of Improbable Research (AIR). Edited by Marc Abrahams. W. H. Freeman: New York, 1998. Illustrations. vii + 208 pp. 21.5 × 27.5 cm. $14.95. Softcover. ISBN 0-7167-3094-4.

In the general public's view, science and humor are antithetical, and scientists are considered to have no sense of humor. Of course, we chemists and chemical educators know from personal experience that this assumption is unjustified, and we are well acquainted with the cartoons of Sidney Harris and others that we have photocopied and used as pasquinades posted on bulletin boards, office doors, or laboratory walls. Also, scientific spoofs and science-related humor regularly appear in journals and magazines and have often been collected into hardbound and paperbound volumes.

My first encounter with a scientific spoof occurred during my second year of teaching (my first year of teaching at what was then Fresno State College). Brother Myron Collins, a student in my Fall 1956 Advanced Inorganic Chemistry course, handed me a typewritten copy of an apparently anonymous paper titled "The Endochronic Properties of Resublimated Thyotimoline," written in typically learned scientific style and format, complete with tables, graphs, footnotes, and references. It discussed the effect of hydrophilic (water-loving) groups in increasing the solubility of compounds and described experiments with a remarkable substance that was so soluble that it dissolved **before** the solvent (water) was added! Because the paper involved the extrapolation of data by unthinking rote to obtain this unusual result, I made frequent reference to it in my General Chemistry lectures, especially in connection with the iodine clock demonstration (Landolt reaction) [1, 2]. Since the time required for the solution to become blue decreased with increasing concentration of the reactants, by extrapolation of the plot of time versus concentration, I was able to demonstrate the effect of thoughtless extrapolation—at sufficiently high concentrations, the solution should turn blue **before** the reactants were mixed!

Years later, after I had learned of the existence of the *Journal of Irreproducible Results*, the forerunner of the journal featured in the volume reviewed here, under the pseudonym Namffuak B. Egroeg (my name spelled backwards) I submitted the thyotimoline article, which I considered an ideal paper for the periodical, to the editor, Alexander Kohn, a professor of virology at the Tel Aviv University Medical School. He responded angrily that the article had been written and published previously by Isaac Asimov [3] and accused me of being a plagiarist attempting to appropriate Asimov's intellectual property and pass it off as my own. Despite my protests, he refused to accept my explanation (where was his sense of humor?), and despite my later favorable review [4] of his book on the role of chance in scientific discovery [5], I fear that from his perch in heaven (he died in 1994) he still looks down on me as an unmitigated scoundrel.

The history of *Annals of Improbable Research* (*AIR*) began on April 1, 1955 with the publication of the first issue of the *Journal of Irreproducible Results* (*JIR*), consisting solely of a single spoof, "Kinetics of Inactivation of Glassware" (included in the *AIR* collection), describing the many ways in which test tubes, pipettes, Petri dishes, and other scientific glassware can be broken. The article's author, Professor Kohn, was later joined by a coeditor, Harry J. Lipkin, a professor of particle physics at the Weizmann Institute of Science, Rehovot, Israel. Eventually the demand for subscriptions to AIR, soon a major venue for scientific humor, became so great that the two editors, who had worked on it as a hobby, were unable to cope with the demands of the overly successful journal. After numerous editorial and business vicissitudes, *JIR* was sold in 1990, and the new publisher asked Marc Abrahams, an applied mathematician at Harvard University, to edit the journal, which he did until 1994.

In January 1995 the first issue of *Annals of Improbable Research: The Journal of Record for Inflated Research and Personalities*, edited by Abrahams, appeared as the bimonthly successor to *JIR*. Abrahams has described its contents as "about a third genuine, about a third concocted, and about a third of our readers [including sometimes this reviewer] cannot tell the difference." According to the editor, "Items marked with a star (*) are based on material taken straight from standard research (and other Official and Therefore Always Correct) literature. Many of the other items are genuine, too, but we don't know which ones." According to *Wired* magazine, "*AIR* is one of the finest contributions to western civilization."

AIR boasts an editorial board that should be the envy of any other periodical, scientific or otherwise: 68 authorities from 11 different countries and 50 fields from anthropology to urology, including 8 Nobel laureates (Jerome Friedman, Walter Gilbert, Sheldon Glashow, Dudley Herschbach, Sir John Kendrew,

William N. Lipscomb, Richard Roberts, and Mel Schwartz; the late Linus Pauling was a founding member of the board) and Marilyn Vos Savant, possessor of the world's highest IQ.

In *The Best of Annals of Improbable Research (AIR)* Abrahams has assembled a book-length, copiously illustrated collection of reprints of some of the juiciest tidbits from the magazine, beginning with "The Improbable History of *AIR*" (Chapter 1, two selections). Chapter 2 consists of 9 interviews (with James Watson, Roald Hoffmann, Herschbach, Roberts, Schwartz, David Baltimore, Pauling, Lipscomb, and Sidney Altman) from the magazine's section, titled "Nobel Thoughts: Profound Insights of the Laureates," of which Abrahams states, "Some of our favorite mail at *AIR* comes from parents and teachers who have seen their children get excited by these strange little discussions." Among the profound questions asked and answered are: "How do you deal with junk mail?" "Which do you prefer, pencils or pens?" "Do you buy new cars or used cars?" "Do you recommend that people read in the bathroom?" "To what extent did your schooling interfere with your education?" "Could you discuss the relative merits of beer and potato chips?"

Chapter 3, "Ig, Ig, Ig Nobel—A Different Kind of Prize" (7 selections), deals with the Ig® Nobel Prizes, a spoof of the Nobel awards that are known to persons completely unaware of the existence of *AIR*, which sponsors them (Abrahams is the awards creator and master of ceremonies). Ten Ig Nobel Prizes are awarded annually for achievements that "cannot or should not be reproduced." Plastic statuettes are presented to the recipients by genuine Nobel laureates every October at Harvard University's grand old Sanders Theater in the presence of an audience of about 1200 spectators, and the "lavish, oxymoronic" ceremony is broadcast live on the Internet (http://www.ignobel.org) and later on National Public Radio's "Talk of the Nation: Science Friday" and the C-SPAN TV network. It is covered by newspapers, radio, and TV news organizations around the globe as well as by all the major science journals. The chapter includes a complete list of Ig Nobelists from the prize's inception in 1991 through 1996, several entertaining acceptance addresses, and "We *Are* Amused," an editorial from the British science journal *Chemistry & Industry* praising the award and attacking Britain's chief scientific advisor, Robert May, "a pompous killjoy," and his criticism in the journal *Nature* of the awards.

Chapters 4 through 9 present articles arranged according to scientific field: "Astronomy, Physics and Food" (15 selections), "The New Chemistry" (8 selections), "Biology and Medicine" (15 selections), "Medicine and Biology" (14 selections), "Math and Models" (10 selections), and "Education, Scientific and Otherwise" (8 selections). Most of these chapters include "Scientific Gossip," "May We Recommend: Items that merit a trip to the library" (reference citations sent in by *AIR* readers to amusing articles in other journals), and "*AIR* Vents: exhalations from our readers" (letters collected from various issues of *AIR*). Chapter 10, "Irrepressible Research" (6 selections), contains such miscellaneous articles as "How to Write a Scientific Paper," "Furniture Airbags," "Internet Barbie and the Time Caplet," "Internet Adventures" (choice items from mini-*AIR*, a free monthly electronic supplement to *AIR*), "Project *AIR*head 2000" (items attempting to capitalize on the approaching year 2000), and "With God in Mind" (the relation between science and religion): "The important question is: will God enjoy this book? If we find an answer to that, it would be the ultimate triumph of human reason—for then we would know the mind of God." A four-page double-column index, rare in collections of this kind, makes the volume particularly user-friendly.

Readers of *The Chemical Educator* will be particularly interested in the selections in the chemistry chapter, which begins with a discussion of "chemophobia": "Chemistry seems to intimidate people. Bubbling test tubes, obscure Germanicallystrungtogetherlonglonglongchemicalnameswithn umbersinthem4godknowswhatreason, rumors that those who go into the profession have higher mortality rates than anyone else—that is chemistry as viewed by much of the general public." "Apples and Oranges—A Spectroscopic Comparison," with its infrared transmission spectra of a Granny Smith apple and a Sunkist® navel orange, will provide you with a simple, devastating weapon to use the next time someone accuses you of comparing apples and oranges, and "Xerox Enlargement Microscopy (XEM)" describes a new revolutionary technique that achieves subatomic resolution levels with standard copying machines, thus making electron microscopes obsolete. In "Quantum Interpretation of the Intelligence Quotient (QI of IQ)," Nobel laureate Dudley Herschbach solves the long-running controversy about how to measure human intelligence. For chemical educators a "Science Demonstration: Scratch 'n' Smell for beginning and intermediate chemistry students" features a "handout prepared using microencapsulation techniques" that allows students to smell the characteristic odors of two chemical substances, H_2O and O_2, and "The Politically Correct Periodic Table" simplifies chemistry by containing only 60 elements, the remaining ones being banned because they are sources of pollution, toxicity, radioactivity, greenhouse gases, or hypertension or involve sexist nomenclature. "Scientist/supermodel Symmetra," an "Ann Landers with modeling experience and a knowledge of advanced chemistry," uses her "Ask Symmetra" column to solve people's personal problems by dispensing advice in the form of equations, while "Cindy Crawford Discovers: The face value of science" summarizes "important scientific discoveries that were reported in the pages of obscure research journals such as *Cosmopolitan*, *Vogue*, *GQ*, and the *New York Times*."

But there are numerous selections in the chapters dealing with sciences other than chemistry that will tickle the funny bone of chemists. Their contents can be gleaned from their titles, e.g., "The Aerodynamics of Potato Chips," "the Taxonomy of Barney [the purple PBS dinosaur]," "The *mickeymouse* Gene," "Arrivederci, Aroma: An Analysis of the New DNA Cologne" (for which the author Jon Marks of Yale University was awarded the 1996 Ig Nobel Prize for chemistry), and "the Medical Effects of Kissing Boo-Boos." "The Effects of Peanut Butter on the Rotation of the Earth," coauthored by 202 PhDs (most of the names are disguised forms of well-known personalities, living, dead, or fictional, such as I. V. Boesky, M. Louise Ciccone, D. D. Eisenhauer [sic], O. E. Holmes, Mycroft Holmes, R. M. Nixon, and Marge Thatcher) presents its conclusion and the entire article in one sentence: "So far as we can determine, peanut butter has no effect on the rotation of the earth."

I have presented only a brief sampling of the zany, whimsical, and wacky items and articles, both real and fabricated, that enliven the pages of this rib-tickling collection. Humor is an individual and personal matter (*chacun à son gout*), but this collection should contain something for

everyone—scientists, science lovers, science haters, and science teachers and students. Despite the occasional exception such as the late astronomer Carl Sagan, who thought that *AIR* was dangerous "because it causes people to laugh at scientists," and Charles Goodwin, who panned the book in a recent Internet review written in the form of a scientific paper [6], I think that most scientists will find the volume ideally suited for browsing or reading. By demonstrating in a light-hearted manner that science is a human activity and that its practitioners indeed have a lively sense of humor and can laugh at themselves, it can provide new and unusual insights and perspectives into the scientific enterprise and act as a safety valve to the seriousness of our everyday labors. It can also be a useful weapon in our arsenal to combat chemophobia and anti- science stereotyping, both in our students and the general population. Enjoy!

Because *The Chemical Educator* is an electronic journal, the following URLs related to *AIR* may be of interest to readers:

AIR website for up-to-date news and schedules: http://www.improbable.com or http://www.improb.com

AIR bits on Usenet: http://clari.tw.columns.imprb_research

To subscribe to mini-*AIR* send e-mail to LISTPROC@AIR.HARVARD.EDU. The body of the message should contain only the words: SUBSCRIBE MINI-AIR MADAME CURIE (You may substitute your own name for that of Madame Curie).

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