

## NCW 2007: The Many Faces of Chemistry

## JCE Resources for Chemistry and Careers

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by Erica K. Jacobsen

Much has been written about careers in chemistry and other specialized areas. A cursory Internet search reveals a vast array of Web sites and books dedicated to career profiles, career tests, and more. However, even with this enormous amount of information available, it can be difficult to convey the richness of a particular career to students, or for someone to really understand what someone does day-to-day in his or her job. Take a look at the categorization of the articles in this resource paper. You'll notice a sea of "informational" and "book review" labels, and a lack of "demonstration" and "experiment". The articles in this resource paper are excellent background information for educators. But, please consider them as a jumping-off point. How could you go beyond merely sharing information? How could you or a guest speaker effectively demonstrate a career? How might your students briefly experience a career? *JCE* would love to hear about what you've tried.

As has been done with past NCW themes (1), this annotated bibliography collects the best that past issues of *JCE* have to offer for use with this year's National Chemistry Week. The American Chemical Society theme for 2007 is "The Many Faces of Chemistry" and focuses on the diversity of chemistry-related careers along with the diversity of people engaged in those

careers. Each item has been characterized as an **activity**, **book review**, **experiment**, **informational**, or **Web-based resource**; several fit more than one classification. The most recent articles are listed first. An indication of the levels the article may serve are included. Articles that appeared adaptable to other levels, but not designed explicitly for those levels, are labeled "poss. h.s." "poss. elem.", and so forth. Since all references are to *Journal* articles, they appear in abbreviated form, including only year, volume, page.

### Special *JCE* Online Supplements

The full text of all articles described in this resource paper are available to subscribers in this issue of *JCE Online*.

### Literature Cited

- Jacobsen, E. K. *J. Chem. Educ.* **2006**, *83*, 1444–1446; **2005**, *82*, 1443–1446; **2004**, *81*, 1390–1396; **2003**, *80*, 1106–1109; **2002**, *79*, 1162–1167; **2001**, *78*, 1316–1321; **2000**, *77*, 1256–1267.

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## ★ Resources for Chemistry and Careers

**Thirteen Career Profiles.** *JCE* Staff and 13 invited authors; **2007**, *84*, 1561.

Activity/Informational; h.s./coll./poss. elem.

Thirteen people from chemistry-related careers answer interview questions about their work. Each profile includes resources for finding out more about the career, and related *JCE* articles.

**Faces from the Past.** Williams, K. R.; **2007**, *84*, 1587.

Informational; h.s./coll.

"From Past Issues" column that describes a career series *JCE* published in 1938.

**A Local Section's Attempt To Recruit "The Many Faces of Chemistry"**. Bopegedera, A. M. R. P.; **2007**, *84*, 1589.

Activity/Informational; h.s./coll.

Describes an ACS Local Section's annual "Career Event", designed to educate students about chemistry-related career options.

**News from Online: The Many Faces of Chemistry.** Michalovic, M.; **2007**, *84*, 1592.

Informational; h.s./coll.

Describes Web sites with examples of scientists from traditionally underrepresented groups and their work.

**Careers in Chemistry.** Buntrock, R. E.; **2007**, *84*, 1607.

Informational; h.s./coll.

Letter to the Editor that encourages educators to mentor their students for careers in chemistry.

**Biographical Snapshots of Famous Women and Minority Chemists.** Located at <http://www.jce.divched.org/JCEWWW/Features/eChemists/Bios/index.html> (accessed Jun 2007).

Web-based resource; h.s./coll.

Contains brief biographies of women and minority chemists, along with references and links to other WWW sites.

**Summer Reading (Nontraditional Careers for Chemists: New Formulas in Chemistry by Lisa M. Balbes).** Pagni, D.; Frech, C.; Coppola, B.; Kovac, J.; Harris, H.; **2007**, *84*, 916.

Book review; h.s./coll.

Reviews a book that helps chemists explore their professional options in 12 areas through individual profiles.

**Serendipity: Genesis of the Electrochemical Instrumentation at Princeton Applied Research Corporation.** Flato, J. B.; **2007**, *84*, 656.

Informational; h.s./coll.

Describes the path of a scientist just out of graduate school and working at an electronic instrument company in the 1960s.

**Success Strategies for Women in Science: A Portable Mentor (Continuing Professional Development Series).** Pritchard, P. A.; reviewed by Chapman, S.; **2006**, *83*, 848.

Book review; coll./poss. h.s.

Reviews a book that contains advice for science professionals at any stage of their careers, and particularly for women near the end of their formal training.

## NCW 2007: The Many Faces of Chemistry

## ★ Resources for Chemistry and Careers, continued

**And Gladly Teach: A Resource Book for Chemists Considering Academic Careers, 2nd Edition.** Schwartz, A. T.; Archer, R. D.; El-Ashmawy, A. K.; Lavallee, D. K.; McGuire, S.; Richmond, G.; Eikey, R.; reviewed by Kovac, J.; **2006**, *83*, 705.

Book review; h.s./coll.

Reviews a book that functions as a guide to preparing for and securing a university faculty position. Includes personal essays by young faculty members.

**STEMming the Tide: Using Career Week Activities To Recruit Future Chemists.** Bopegedera, A. M. R. P.; **2005**, *82*, 1505.

Activity/Informational; coll./poss. h.s.

Describes Career Week activities used on the college level to advise and direct chemistry majors toward careers in chemistry.

**Teaching High School Chemistry as a Second Career. Summary of a Presidential Symposium.** Scharberg, M. A.; **2005**, *82*, 1281.

Informational; h.s./coll.

Summarizes a symposium featuring presenters that made a successful career transition to teaching high school chemistry.

**Realizing Workplace Skills in Instrumental Analysis.** Kalivas, J. H.; **2005**, *82*, 895.

Experiment/Informational; coll./poss. h.s.

Describes a lab course that connects fundamental chemistry curriculum with real world skills required in chemical industry jobs.

**COACHing Women to Succeed in Academic Careers in the Chemical Sciences.** Richmond, G. L.; **2005**, *82*, 351.

Informational; coll.

Describes programs and workshops implemented by COACH, an organization dedicated to increasing the number and success of women chemists in academia.

**Are We Serious about Preparing Chemists for the 21st Century Workplace or Are We Just Teaching Chemistry?** Kerr, S.; Runquist, O.; **2005**, *82*, 231.

Informational; h.s./coll.

Lists characteristics described as "valued" by industrial managers and discusses a university's effort to adjust their program to better prepare chemists for the workplace.

**The Professorial Career of Clifford R. Haymaker: A Life of Chemistry Imagined and Bequeathed.** Eisch, J. J.; Haworth, D. T.; **2003**, *80*, 275.

Informational; h.s./coll.

Describes the life and career of the late C. R. Haymaker, an organic chemist and professor who was blind from birth. Many other biographies have appeared in *JCE*; the author cites only this one as a recent, inspiring example. Readers are encouraged to find others using the *JCE Online Index* (suggested search terms: career, biography, life).

**Workplace Skills Taught in a Simulated Analytical Department.** Marine, S. S.; **2001**, *78*, 1448.

Informational; coll.

Describes a two-year chemical technology program that uses the format of an industrial analytical department to give students an environment to practice workplace skills.

**Want Ads, Job Skills, and Curriculum: A Survey of 1998 Chemistry Help-Wanted Ads.** Headrick, K. L.; **2001**, *78*, 1281.

Informational; coll./poss. h.s.

Summarizes a study of chemistry-related positions in want ads. Relates the data to what employers are looking for compared to what universities teach.

**Job\$ in the Drug Industry: A Career Guide for Chemists.** Friary, R.; reviewed by Schedler, D. J. A.; **2000**, *77*, 1282.

Book review; h.s./coll.

Reviews a book that discusses why one might consider a career in the drug industry, what the job might entail, and how and where to find such a job.

**Chemical Achievers: The Human Face of the Chemical Sciences.** Bowden, M. E.; reviewed by Kauffman, G. B.; **1999**, *76*, 172.

Book review; h.s./coll./poss. elem.

Reviews a book that is a source of pictorial material about famous chemical scientists suitable as a classroom aid.

**So You Want A Job!** Schwartzman, G.; **1991**, *68*, 940.

Activity/Informational; coll./poss. h.s.

Author shares 20 chemistry knowledge questions he has used when interviewing candidates for the position of analytical chemist.

**A Careers in Chemical Information Workshop.** Slutsky, B.; **1991**, *68*, 43.

Informational; coll./poss. h.s.

Describes a workshop that advised participants of career options and possible employers in the field of chemical information.

**Workshop for Teachers on Opportunities in Chemistry: Today and Tomorrow.** Kice, J. L.; **1988**, *65*, 602.

Informational; h.s./coll./poss. elem.

Describes a book for high school teachers that helps to show students the benefit of chemistry to society along with career possibilities. A free pdf version of the book is available at <http://books.nap.edu/openbook.php?isbn=0309037425> (accessed Jun 2007).

**Cosmetic Science. A Career Option for Majors in Chemistry.** Lichtin, J. L.; Radd, B. L.; **1987**, *64*, 619.

Informational; h.s./coll.

Briefly describes the field of cosmetic science, including educational preparation and job responsibilities.

**Encouraging Young Women to Pursue Science and Engineering Careers through Chemistry.** Levine, D.; **1985**, *62*, 837.

Informational; h.s./coll.

Describes FEMME, a pre-college summer program that encourages females to pursue careers in science. Lists laboratory experiments used in the program.

**Career Choice: Chemist or Chemical Engineer.** Holt, D.; **1981**, *58*, 494.

Informational; h.s./coll.

Discusses differences in the work and preparatory education of chemists and chemical engineers.

**Chemistry Careers in Industry: Accent the Positive.** Hill, B. W.; **1975**, *52*, 224.

Informational; h.s./coll.

Discusses how and why chemistry students should and can be made aware of careers in chemistry outside academia. Suggests ways to incorporate these ideas into already existing courses.

**A Sociological Analysis of Work and Leisure Patterns Among Chemists, Professors, and Dentists.** Reeves, J. B.; **1973**, *50*, 454.

Informational; coll./poss. h.s.

Briefly describes a study that investigated the relationship between the work and leisure habits of chemists, professors, and dentists.

**The Relevancy of Science Curriculums to Professional Careers in Industry.** Skolnik, H.; **1971**, *48*, 566.

Informational; h.s./coll.

Makes a case to increase the interdisciplinary aspects of already existing chemistry coursework to make it more relevant to the workplace.

**On the Permanence of Your Job as a Chemist.** Conquest, V.; **1948**, *25*, 566.

Informational; h.s./coll.

Discusses aspects of training and personal characteristics that are valuable to employers and help to increase one's job security. Interesting from a historical perspective.

**The Chemist at Work.** Grady, R. I.; Chittum, J. W. **1938**, *15*, 167.

Informational; h.s./coll.

Introduction to a series of 24 articles written by people involved in different careers in chemistry. See Apr, May, Jun, Aug, Sep 1938 tables of contents on *JCE Online*<sup>W</sup> for links to the articles.

**Chemistry as a Life Work.** Norris, J. F.; **1927**, *4*, 1399.

Informational; h.s./coll.

An address that discusses why one might choose chemistry as a career, what is required for success, and which questions to ask yourself when coming to a decision.

## Additional Resources

**ACS: Chemistry Career Profiles.** <http://acswebcontent.acs.org/careers/profiles.html>. Contains nearly two dozen chemistry-related career profiles with photos.

**ACS: Chemical Careers in Brief.** <http://www.chemistry.org/portal/a/c/s/1/acdisplay.html?DOC=vc2%5C3wk%5Cwk3.html>. Contains two- to four- page career "briefs" focusing on 30 different career areas within the chemical sciences. Includes four briefs in the Spanish language.

**ACS: Committee on Technician Affairs.** <http://www.chemistry.org/committees/cta>. Promotes the awareness of chemical technology careers, programs, and activities; as appropriate, works with Technician Affiliate Groups (TAGs) <http://membership.acs.org/t/tech/tags.htm>, professional organizations affiliated with ACS Local Sections and the ACS Division of Chemical Technicians. The Committee and TAGs are eager to share resources with high schools.

**NSTA: "All in a Day's Work: Careers Using Science"** by Megan Sullivan for *The Science Teacher*. NSTA Press, Arlington, VA. 2007. 80 pages. ISBN 978-1-93353-107-6. \$15.95 (NSTA non-member); \$12.76 (NSTA member). Collection of more than 30 "Career of the Month" columns originally published in *The Science Teacher*. Includes all sciences, rather than only chemistry.

all URLs accessed Jun 2007

### JCE Resource Papers

#### Good Classroom Resources, Well Described, Theme Based

Looking for theme-based references to *JCE* articles, complete with suggestions for their use?

The resource papers listed here have been constructed around National Chemistry Week and Earth Day themes by Erica K. Jacobsen of the *JCE* staff. These are great references—in print or online at *JCE Online*.

- ☆ *JCE Resources for Chemistry and Recycling*; 2007, *84*, 212–213
- ☆ *JCE Resources for Chemistry and the Home*; 2006, *83*, 1444–1446

- ☆ *JCE Resources for Chemistry and Soils*; 2006, *83*, 199–200
- ☆ *JCE Resources for Chemistry and Toys*; 2005, *82*, 1443–1446
- ☆ *JCE Resources for Chemistry: Health and Wellness*; 2004, *81*, 1390–1396
- ☆ *JCE Resources for Chemistry and the Atmosphere*; 2003, *80*, 1106–1112
- ☆ *JCE Resources for Chemistry and Cleaning*; 2002, *79*, 1162–1167
- ☆ *JCE Resources for Chemistry and Art*; 2001, *78*, 1316–1321
- ☆ *JCE Resources in Food Chemistry*; 2000, *77*, 1256–1267

