

# mind•full: a brainsnack for future leaders with ethical appetites

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## pledges, oaths, & scientists

Recent scientific research, such as the decoding of the human genome, has created a greater awareness of the seemingly limitless potential of science. With this understanding, many people have begun to reevaluate the personal social responsibility of scientists. Many individuals, organizations, governments, and more are researching or have established a pledge or oath for scientists, much like a physician's oath. The content and function of these oaths and pledges vary from lofty pronouncements to detailed prescriptions for behavior. Some see them as purely symbolic, others say their main use is educational. For example, Student Pugwash USA has a pledge that encourages the socially responsible use of science and technology, complemented by activities to help young scientists recognize the importance of individual responsibility. And other national and international initiatives exist.

Discussions on how to implement such commitments are stirring up debates over how much responsibility each scientist holds. While some scientists may not directly contribute to the misuse of their discoveries or ideas, many people still think scientists should remain aware of and draw attention to possible implications. Therefore, a sort of contract with society is essential. Others feel that while scientists, for the most part, work for the greater good, they are not directly responsible for how society chooses to use their discoveries. Therefore, they oppose the idea of placing responsibility on scientists.

Besides specific codes of professional conduct, most of these pledges and oaths are not mandatory and have little regulatory authority. Opponents feel that the fast pace of science will surpass the effectiveness of such voluntary statements. Others feel that, in the absence of stringent regulations on scientific conduct, pledges and oaths help ensure that scientists will continue, throughout their careers, to weigh the implications of their actions and to "blow the whistle" on possible misuses, increasing public trust as well.

The mission of Student Pugwash USA is to promote the socially responsible application of science and technology in the 21st century. As a student organization, Student Pugwash USA encourages young people to examine the ethical, social, and global implications of science and technology, and to make these concerns a guiding focus of their academic and professional endeavors.

The **mind•full** series encourages readers to explore crucial ethical dilemmas associated with the application of science and technology.

STUDENT



PUGWASH

U S A

## go figure!

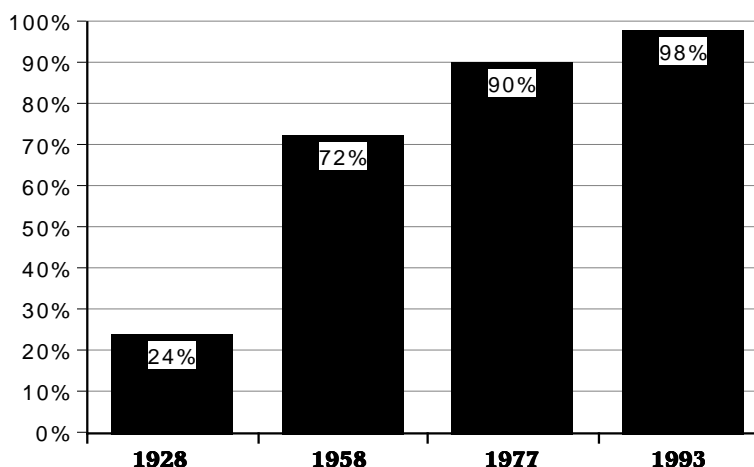
The medical profession's Hippocratic Oath, which dates back to about 400 BC, and more recent versions, like the World Medical Association's Declaration of Geneva, still stand as moral compasses for those who take them. A study done by Robert D. Orr, MD, of Loma Linda University Medical Center and one of his medical students, Norman Pang, in 1993, surveyed the deans of all 157 allopathic and osteopathic schools of medicine in the US (including Puerto Rico) and Canada to assess current practices regarding oath administration. They compared their data from the 150 responding schools to results from prior surveys. According to their study, there was an increase in the use of professional oaths at the time of graduation from medical school during the 20th century.

As mentioned, newer versions of the Hippocratic Oath exist. To examine different types of content, they used analysis done by Leon Kass that identified various content items. Interestingly, they found that out of all the versions available, only 43 percent include a vow to be accountable for one's actions.

## of oaths

year	# taking oath/total respondents
1928	19/79
1958	69/96
1977	115/128
1993	140/150

**Source:** "The Hippocratic Oath: Is it Still Relevant?" Robert D. Orr, MD and Norman Pang. Available September 21, 2000, at: [www.llu.edu/llu/bioethics/update/u141b.htm](http://www.llu.edu/llu/bioethics/update/u141b.htm).



## & pledges

*Countries identified by signatories to Student Pugwash USA's pledge:*

- Algeria•Argentina•Australia•Austria•Bangladesh•Belgium
- Bosnia-Herzegovina•Brazil•Brunei•Bulgaria
- Canada•Colombia•Costa Rica•Croatia•Czech Republic
- Egypt•England•Finland•France•Germany•Ghana•Greece
- Guatemala•Hong Kong•Hungary•Iceland•India
- Indonesia•Iran•Ireland•Israel•Italy•Japan•Kenya
- Macedonia•Malaysia•Malta•Mexico•Mozambique
- New Guinea•New Zealand•Nigeria•Norway•Pakistan
- Palastine•Panama•People's Republic of China•Peru
- Philippines•Portugal•Romania•Russia•Scotland
- Sierre Leone•Singapore•Slovakia•South Africa
- South Korea•Spain•Sri Lanka•Sweden•Switzerland
- Taiwan•Thailand•The Netherlands•Togo•Turkey
- United States•Uruguay•Yugoslavia•Zimbabwe

### Student Pugwash USA's pledge

**TOTAL SIGNATURES: 5,130**  
**NUMBER OF COUNTRIES: 71**

**Source:** Student Pugwash USA's in-house database of signatories to the Student Pugwash USA pledge as of September 21, 2000. You can sign the pledge at: [www.spusa.org/pugwash](http://www.spusa.org/pugwash).

## in control or out of it ?

The establishment of pledges, oaths, and codes of conduct for specific professions is an ancient tradition, dating back to at least 2200 BC, with Hammurabi's Building Code. In the 21st century, this practice is becoming widespread as more scientific professional societies pay serious attention to the misuse of science. A pledge is a voluntary, formal promise that encumbers the individual making the pledge. An oath is more of a solemn commitment to be a particular sort of person. Codes of conduct are more detailed sets of rules and usually are complementary to oaths or pledges. Many guidelines include aspects of all three.

### learn the lingo

**code**—a systematic collection of regulations and rules of procedure or conduct.

**oath**—a solemn, formal declaration or promise to fulfill a pledge, often calling upon God or a god as witness.

**pledge**—a formal promise to do something, as the performance of an obligation or duty, or to refrain from doing something.

**responsible**—legally or ethically accountable for the care or welfare of another.

**Source:** *The American Heritage Dictionary, Second College Edition.* Boston: Houghton Mifflin Company, 1985.

Taking a pledge or oath is a personal and serious commitment. For this reason, Student Pugwash USA, like others with such initiatives, focuses its attention on seeking quality pledges instead of a mild formula. Many people are opposed to signing such declarations because they recognize that their future professional endeavors may include jobs which they believe could conflict with the pledge or oath's message. For instance, engineering students may see the military as a potential employer, or chemists may plan to work for a company that indirectly pollutes the environment. However, even though those individuals have not signed a declaration, the pledge or oath still did its job: to instigate individuals to think about how their work may affect society. For those that do sign them, especially students first entering the "real world," they can serve as a sort of reference point to anchor them in broader society.

Student Pugwash USA supports tapping into the optimism of young people before they become too jaded or too entrenched in a particular profession. Their pledge illustrates the mission of Student Pugwash USA, which is to promote the socially responsible application of science and technology in the 21st century. It was written in celebration of the 1995 Nobel Peace Prize to Professor Joseph Rotblat and the Pugwash Conferences on Science and World Affairs. At the award ceremonies in December 1995 in Oslo, Student Pugwash USA presented Pugwash with a gift—a "down payment" of 2,042 pledges, one for every nuclear weapons test that had been conducted to date. The pledge was then mentioned in Professor Rotblat's acceptance speech. It also has been mentioned by Professor Rotblat in a recent editorial in *Science*. And it has been highlighted in other publications like the *Chicago Tribune*, *Physics World*, and more.

At UNESCO's World Conference on Science in July in 1999 Budapest, Hungary, Professor Rotblat made a call for UNESCO's support for all scientists to take a type of Hippocratic Oath upon graduation, declaring that "scientists must now accept responsibility for their deeds." Formal adoption has not yet been successful, however, UNESCO Director General Federico Mayor agreed that "the question of ethics is a crucial one." A preliminary version of the Draft

Declaration on Science and the Use of Scientific Knowledge states, "All scientists should commit themselves to high ethical standards. The possible development of a pledge similar to the Hippocratic Oath for all scientific professions should be considered as an expression of this commitment."

Student Pugwash USA chapter members at UC-Berkeley succeeded in working with campus bureaucracies to encourage the engineering department to adopt their version of the pledge into graduation ceremonies at the engineering school. While it does not encourage compromising the text of its pledge, Student Pugwash USA celebrates the fact that hundreds of engineering students are consciously making such a commitment. Student Pugwash USA is currently investigating ways to incorporate the pledge into graduation ceremonies at other US campuses. The Graduation Pledge Alliance, founded in 1987 at Humboldt State University in California, is a national effort coordinated by Manchester College since 1996. Their pledge has been adopted at dozens of schools across the country ranging in size from Manchester College to Harvard University to the University of Kansas.

Because it is not enough to rely upon the assumption that those taking a pledge or oath will abide by such pronouncements, education for scientists on social awareness is essential. Many organizations and institutions are beginning to offer more and more courses and services that explore this. For instance, the Pugwash Conferences on Science and World Affairs recently has proposed an early warning committee to look ahead and identify dangerous trends in science. And many colleges and universities are offering an increased number of courses that explore the links between science, technology, and society.

## ... remember your humanity

### Student Pugwash USA pledge

I promise to work for a better world, where science and technology are used in socially responsible ways. I will not use my education for any purpose intended to harm human beings or the environment. Throughout my career, I will consider the ethical implications of my work before I take action. While the demands placed upon me may be great, I sign this declaration because I recognize that individual responsibility is the first step on the path to peace.

**Source:** Available September 25, 2000 at: [www.spusa.org/pugwash](http://www.spusa.org/pugwash)

### National Society of Professional Engineers Engineers' Creed

As a Professional Engineer, I dedicate my professional knowledge and skill to the advancement and betterment of human welfare. I pledge: To give the utmost of performance; To participate in none but honest enterprise; To live and work according to the laws of man and the highest standards of professional conduct; To place service before profit, the honor and standing of the profession before personal advantage, and the public welfare above all other considerations. In humility and with need for Divine Guidance, I make this pledge.

**Source:** Available September 25, 2000 at: [www.nspe.org/ethics/eh1-cred.asp](http://www.nspe.org/ethics/eh1-cred.asp)

### Wolfendale's Oath

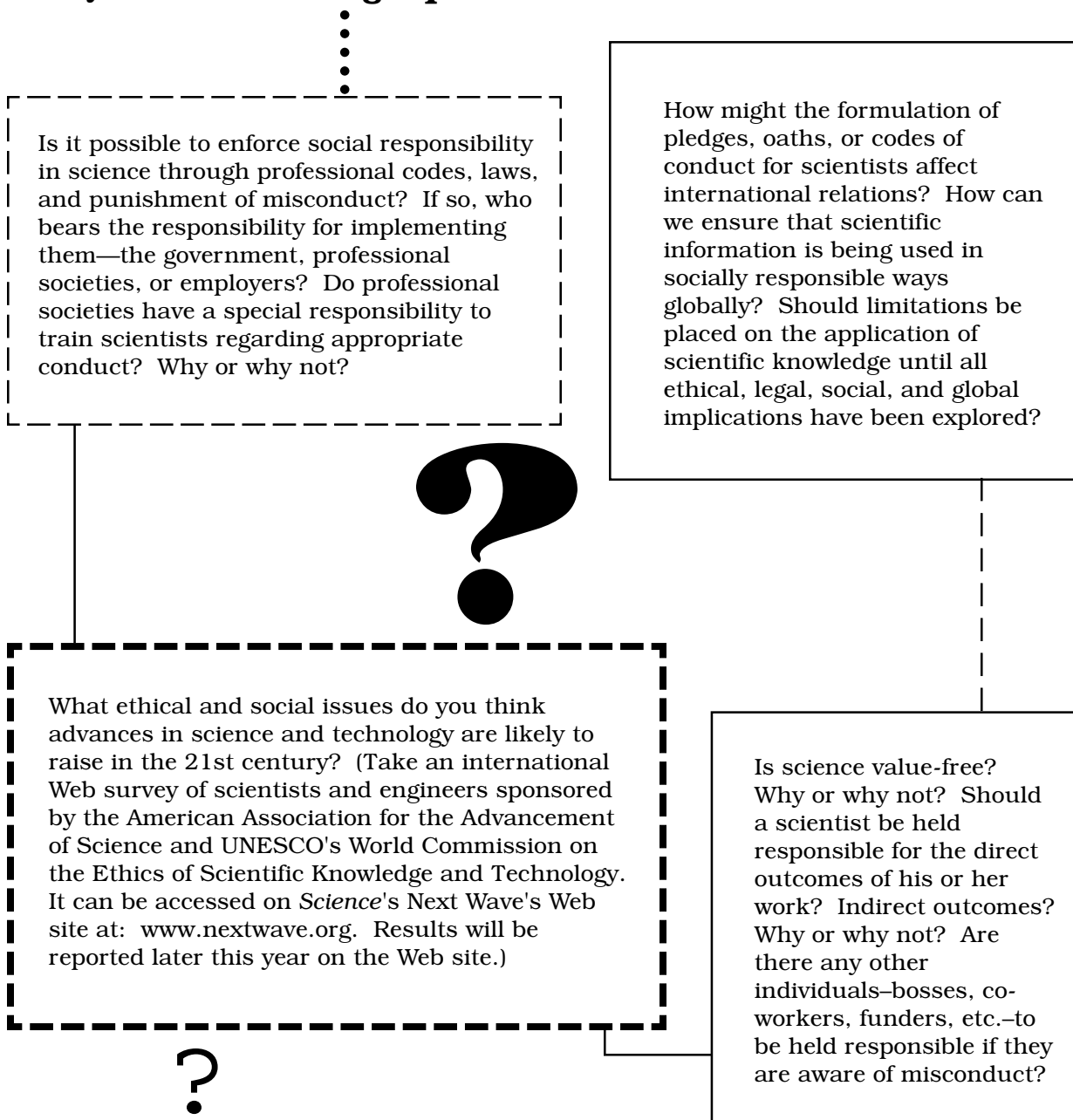
In all my scientific work I will be honest and I will not do anything which in my view is to the obvious detriment of the human race. If, later, I find that my work is being used—in my view—to the detriment of the human race, I will endeavour to stop these developments.

**Source:** *Should There be an Oath for Scientists and Engineers?*, American Association for the Advancement of Science's Committee on Scientific Freedom and Responsibility, September 27, 2000, meeting booklet. The European Physical Society (EPS) council is currently considering adopting this oath proposed by EPS president Sir Arnold Wolfendale. It is not yet available for signing by individuals.

# (anything but a) conclusion

What obligations to society do scientists have? Is science value-free? As scientific discoveries continue to be everyday front-page news, a close eye will remain on the scientists conducting the research. Scientists, professional societies, institutions, and the public will continue to grapple with appropriate methods—such as pledges, oaths, and codes—for preventing the misuse of science. However, debates on the form, content, and usefulness of such declarations will remain at the forefront of these discussions.

How do **you** answer the **tough questions**



Would pledges, oaths, or codes of conduct place special responsibility on scientists to follow policy-making regarding the application of their discoveries? For instance, should geneticists involved in completing the human genome be responsible for assuring their discoveries are regulated to avoid any misuse? If so, how should governments assist in the adherence to, for example, a pledge involving scientists?

Should there be a pledge or oath in graduation ceremonies for science students? Why or why not? Do educational institutions have a special responsibility to provide social awareness training in science? Should it be mandatory that students take these courses? Why or why not?

What do you think scientists should do when their personal views conflict with public standards of what is unethical research? Do you think members of the public have enough scientific background to determine the conduct of a scientist?



Do you think the media influences the public's perception of ethical and unethical practices in science? If so, how? Do you think all cases of misconduct should be made public through the media? Why or why not? What role can the media play in promoting social responsibility among scientists?

Should the content of scientific pledges, oaths, and codes of conduct include ways to address the issue of low representation of minorities and women in science? How or why not?



Would you be able to sign a pledge that commits you to social responsibility? Have you ever witnessed misconduct or a situation that you considered to be unethical? What were the implications involved? How did you handle it? If not, think of specific examples of misconduct, ways to prevent them, and appropriate penalties and protections for the individuals involved (ie, the scientists, their bosses, co-workers, etc.).

**moral manuscripts**

- "*The Century of Evaluation*," Gerard Toulouse—an edited version of the Cecil Powell memorial lecture given at the general conference of the European Physical Society, September 1999, a great commentary on the concern about ethics and how scientific academies play their role. *Europhysics News*, November/December 1999.
- "*A Hippocratic Oath for Scientists*," Professor Joseph Rotblat—read about Professor Rotblat's plea for the formulation of an oath for scientists. *Science*, November 1999, Volume 286, Number 5444, page 1475.
- "*A Hippocratic Oath: Is it Still Relevant?*," Robert D. Orr, MD—read more about the study on how many oath-taking medical schools there really are. *Center for Christian Bioethics*, March 1998, Volume 14, Number 1. Available September 21, 2000 at: [www.llu.edu/llu/bioethics/update/u141b.htm](http://www.llu.edu/llu/bioethics/update/u141b.htm).
- *The Imperative of Responsibility: In Search of an Ethics for the Technological Age*, Hans Jonas—a classic. University of Chicago Press, 1984.
- *On Being a Scientist: Responsible Conduct in Research*, second edition, Bruce Alberts, Kenneth Shine, Robert White. Washington, DC: National Academy Press, 1995. Available at: [www.nap.edu/readingroom/books/obas/](http://www.nap.edu/readingroom/books/obas/).
- *Overview and Examples of Professional Codes of Ethics*, Sandra Ionno and Constance Lassiter—executive director and then-pledge program coordinator of Student Pugwash USA give brief introduction to professional codes of conduct and summarize various pledges that exist. Available at: [www.spusa.org/pugwash](http://www.spusa.org/pugwash).
- *Professional Ethics Report*—a quarterly update on current ethics issues and cases being addressed in the professional world published by Scientific Freedom, Responsibility, and Law Program in collaboration with the Professional Society Ethics Group, American Association for the Advancement of Science. Back issues available at: [www.aaas.org/spp/dspp/sfirl/per/per.htm](http://www.aaas.org/spp/dspp/sfirl/per/per.htm).
- "*Remember Your Humanity*," Professor Joseph Rotblat's Nobel Peace Prize acceptance speech in which he mentions Student Pugwash USA's pledge! Available at: [www.pugwash.org/award/Rotblatnobel.htm](http://www.pugwash.org/award/Rotblatnobel.htm).
- *Research Ethics: A Reader*, Deni Elliot and Judy E. Stern (editors)—a thorough overview of the ethical dilemmas research scientists face today. Hanover, NH: University Press of New England for the Institute for the Study of Applied and Professional Ethics at Dartmouth College, 1997.
- "*Rotblat Makes a Hit With a Call for a Hippocratic Oath*"—read about Professor Rotblat's presentation at UNESCO's 1999 World Conference on Science. Available August 22, 2000, at: <http://helix.nature.com/wcs/2diary/27-2c.html>.
- "*Science's Fantastic Growth Prompts Call for Ethics Code*," Karen Brandon—an article focused on Professor Rotblat's call for UNESCO's support for a type of Hippocratic Oath. Look for a few quotes from Student Pugwash USA alums and chapter members. *Chicago Tribune*, Sunday, August 8, 1999.
- *Science and Engineering Ethics*—a multi-disciplinary quarterly journal. Available at: [www.opragen.co.uk](http://www.opragen.co.uk).
- "*The Social Conscience of Scientists*," Professor Joseph Rotblat—applause for Professor Rotblat's support for a scientists' oath and Student Pugwash USA's pledge. *Physics World*, December 1999, Volume 12, Issue 12.

**the ethics reel**

- *Dr. Strangelove or How I Learned to Stop Worrying and Love the Bomb*—a suspense comedy, directed by Stanley Kubrick and starring Peter Sellers, about an insane general that starts a process to nuclear holocaust that a war room of politicians and generals frantically try to stop.
- *Extreme Measures*—Hugh Grant stars as a British doctor in danger from making unwanted inquiries into what seems to be unethical experiments by a surgeon played by Gene Hackman.
- *Integrity in Scientific Research: Five Video Vignettes*—five videos exploring issues in science, such as: disclosure of privileged information, loyalty and honesty, legal obligations, authorship, and the use of animals in research. American Association for the Advancement of Science. For more information go to: [www.aaas.org/spp/video/video2.htm](http://www.aaas.org/spp/video/video2.htm).

**top picks**

- Student Pugwash USA (learn more about the pledge program and how you can promote social responsibility in your community)—[www.spusa.org/pugwash](http://www.spusa.org/pugwash)
- Online Ethics Center for Engineering and Science, Case Western Reserve University (a selection of ethical codes of conduct and endless amounts of information on case studies, learning resources, and more!)—[www.onlineethics.org](http://www.onlineethics.org)

**best of the rest**

- The American Chemical Society (code of conduct)—[www.acs.org/membership/conduct.html](http://www.acs.org/membership/conduct.html)
- Association for Computing Machinery (ditto)—[www.acm.org/constitution/code.html](http://www.acm.org/constitution/code.html)
- Centre for Applied Ethics (an interdisciplinary research center at the University of British Columbia with many codes of ethics, resources, on-line discussions, and more)—[www.ethics.ubc.ca/resources/professional/](http://www.ethics.ubc.ca/resources/professional/)
- Christian Medical and Dental Society, Texas Tech University School of Medicine (a look at physician's oaths, including the Hippocratic Oath)—[www.ttuhsu.edu/pages/students/cmds/oath-ttu-geneva.htm](http://www.ttuhsu.edu/pages/students/cmds/oath-ttu-geneva.htm)
- Ethics Updates (provides an awesome on-line discussion forum, along with updates on current literature)—<http://ethics.acusd.edu/>
- The Institute of Electrical and Electronics Engineers, Inc. (another code)—[www.ieee.org/about/whatis/code.html](http://www.ieee.org/about/whatis/code.html)
- Manchester College web site for Social Concerns (access information on instituting a Graduation Pledge Alliance campaign)—[www.manchester.edu/academic/programs/departments/Peace\\_Studies/files/gpa.htm](http://www.manchester.edu/academic/programs/departments/Peace_Studies/files/gpa.htm)
- The National Society of Professional Engineers (code, creed, and take the code of ethics exam)—[www.nspe.org/ethics/](http://www.nspe.org/ethics/)
- World Medical Association (their Declaration of Geneva and International Code of Medical Ethics)—[www.wma.net/e/policy/17-a\\_e.html](http://www.wma.net/e/policy/17-a_e.html)

# check it out !

# cyberspace

This **mind•full** was written by Heather Stewart, pledge program coordinator and accounts manager at Student Pugwash USA. Special thanks to Professor Joseph Rotblat, 1995 Nobel Peace Laureate and Emeritus Professor of Physics, University of London, and Gerard Toulouse, Research Director at the Ecole Normale Supérieure, for their comments. Any errors are the responsibility of Student Pugwash USA. ©2000 Student Pugwash USA.

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## but wait, there's more!

- **Chapter Organizing Guide.** Provides chapter members with an A to Z guide to getting a campus-based chapter up and running.
- **mind•full: a brainsnack for future leaders with ethical appetites.** Volume two issues available: pugwash conferences; exploring human genetics; science, technology, & culture; communications technologies; beyond nuclear weapons; nuclear energy; computers and human genetics; energy and international security; science, ethics, and education; environment and energy; war-free world. Volume three issues available: genetic testing; terrorism and weapons of mass destruction; women and science.
- **Jobs You Can Live With, Web Edition.** Our former print publication, *Jobs You Can Live With*, a comprehensive guide to getting a socially responsible job or internship, with a special focus on jobs at the intersection of science, technology, and society, is now in an online format.
- **Pugwatch.** The chapter newsletter.
- **See other resources on our Web site:**  
[www.spusa.org/pugwash](http://www.spusa.org/pugwash).

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