

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

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## beyond nuclear weapons?

Nuclear disarmament is being raised as a viable option by an increasing number of experts, military officials, and leaders around the world. Today, most people who address these issues in nongovernmental organizations, the government, and academia focus primarily on whether and how to achieve a nuclear-weapons-free world. It is also an important exercise to explore now what benefits and threats to peace and security there might be if a nuclear-weapons-free world is achieved.

A nuclear-weapons-free world is a worthy end in and of itself. It will remove the threat of a global disaster through accidental or intentional use of nuclear weapons and may provide new opportunities for peace. Yet, most people recognize that the threats we face today might continue to create an unstable environment, even in a nuclear-weapons-free world. These include: conventional arms and warfare; chemical, biological, and other weapons of mass destruction; ethnic conflict; disputes over increasingly scarce natural resources; and discrepancies between developed and developing countries.

Critics say that a nuclear-weapons-free world is impossible, because the weapons cannot be “disinvented” and because “rogue” countries or terrorist groups might acquire one or more nuclear weapons. Some argue that it is not possible to abolish nuclear weapons until the world is free of war of all sorts. Others see nuclear disarmament as the first step towards a war-free world. Most contend that a nuclear-weapons-free world will be a much different place than our world today. They believe that increased international communication, interrelatedness of economies, and advances in standards of living for many people are ways to ensure that a nuclear-weapons-free world is a better, if not perfect, world. This publication asks you to suspend your disbelief about prospects for a nuclear-weapons-free world and imagine what the world would be like if nuclear weapons no longer existed.

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.

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# go figure!

If we are able to disarm to zero nuclear weapons, it will mean a massive shift in resources among some of the world's most technologically advanced countries. The Brookings Institution estimates that the US alone has spent roughly four trillion dollars on its nuclear weapons program since it began. No one knows the impact that freeing up this vast amount of resources will have on society.

Nuclear disarmament may not necessarily mean an end to war, however. One estimate claims that 458,000 military deaths occurred on average each year in the 20th century. UNICEF claims that during the 1980s two million children died as a result of war and 4-5 million were disabled. These types of statistics may continue unabated unless leaders find a way to combat intrastate and interstate wars, as well as the root causes of conflict and inequities that lead to those wars.

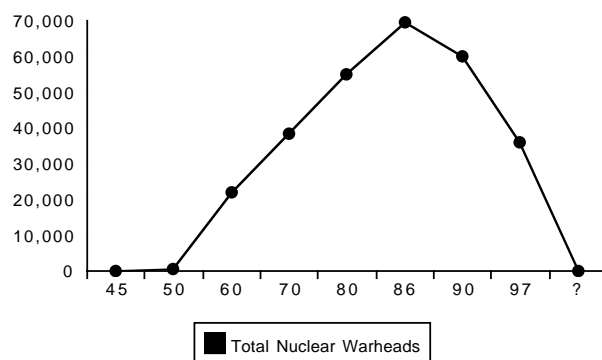
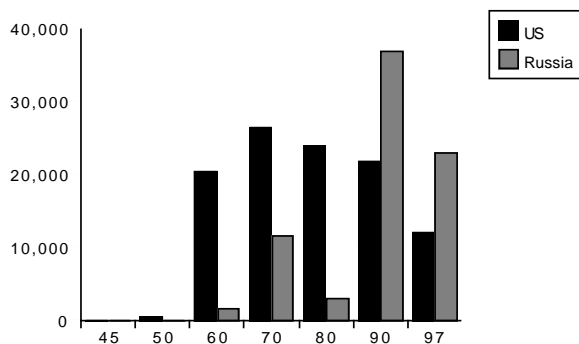
**wars in 20th century using nuclear weapons: 1**  
**wars in 20th century not using nuclear weapons: 249 and counting**  
**wars in a nuclear-weapons-free world: ?**  
**wars in a war-free world: 0**

## zero tolerance?

### nuclear warheads, by year

	US	Russia	UK	France	China	Total
45	6	0	0	0	0	6
50	369	5	0	0	0	374
60	20,434	1,605	30	0	0	22,069
70	26,492	11,643	280	36	75	38,526
80	23,916	30,062	350	250	280	54,858
90	21,781	37,000	300	505	435	60,021
97	12,000	23,000	260	450	400	36,110

	Total Nuclear Warheads
45	6
50	374
60	22,069
70	38,526
80	54,858
86	69,490
90	60,021
97	36,110
?	0



**Source:** *Bulletin of the Atomic Scientists*, "Global Nuclear Stockpiles: 1945-1997," available on the Web, February 1998, [www.bullatomicsci.org/issues/nukenotes/nd97nukenote.html](http://www.bullatomicsci.org/issues/nukenotes/nd97nukenote.html). Based on statistics from Robert S. Norris and William Arkin of the Natural Resources Defense Council. Number of wars in 20th century from *World Military Expenditures, 1996*, Ruth Sivard. Washington, DC: World Priorities, Inc., 1996.

# in control or out of it ?

There are many options for ensuring that a nuclear-weapons-free world stays nuclear-weapons-free. Most people envision the existence of some kind of nuclear weapons convention—an international treaty that would include provisions for verification based on the models of the existing 1997 Chemical Weapons Convention and the 1972 Bacteriological (Biological) and Toxin Weapons Convention. One group, the Lawyers' Committee on Nuclear Policy, has drafted a model nuclear weapons convention as a way to stimulate the debate. Such a treaty will take into account ways to ensure disarmament, methods for controlling nuclear materials and technologies, the means for verifying treaty provisions, and how to handle any questions or concerns that arise over possible violations of the treaty or the possibility of a terrorist or "rogue" state acquiring a nuclear weapon. In addition, it will be important to strengthen the existing chemical and biological weapons conventions, since in many ways it is easier for a state to acquire these weapons, often called the poor-man's nuclear weapons, than to develop a nuclear-weapons program.

In a nuclear-weapons-free world, it also will be important to look at international agreements covering other aspects of security. In this respect, lessons can be learned from current nuclear-free regions of the world, such as Latin America and Africa. In particular, there will need to be greater openness and transparency regarding conventional weaponry and a decided effort to not replace nuclear weapons with a renewed conventional-weapons arms race. There are treaties and agreements aimed at lowering conventional forces, such as the Conventional Forces in Europe Treaty and the ill-fated Contadora Process in Central America, which could be used as examples. These treaties and other confidence-building measures aimed at increasing cooperation between states and military organizations will be increasingly important.

The role of the United Nations in a nuclear-weapons-free world is uncertain. Most discussion currently focuses on the role of the UN in preventive diplomacy, peacekeeping, peacemaking, and peace enforcement. Some see the institution as having increased power for conflict prevention and resolution, perhaps through a revised Security Council. Some people favor giving the UN a greater means of enforcement. Others, such as George Rathjens and Carl Kaysen, favor a standing UN volunteer force that could be deployed to areas of tension.

## nerds' words

**convention**—a formal written agreement between states that creates legal obligations for the parties involved.\*\*

**nwfw**—a nuclear-weapons-free world.

**preventive diplomacy**—action to prevent disputes from arising between parties, to prevent existing disputes from escalating into conflicts and to limit the spread of the latter when they occur.\*

**peacemaking**—action to bring hostile parties to agreement, essentially through such peaceful means as those foreseen in Chapter VI of the Charter of the United Nations.\*

**peace-keeping**—the deployment of a United Nations presence in the field, hitherto with the consent of all the parties concerned, normally involving United Nations military and/or police personnel and frequently civilians as well.\*

**wfw**—a war-free world.

**Source:** \**An Agenda for Peace: Preventive Diplomacy, Peacemaking and Peace-keeping*, Report of the Secretary-General pursuant to the statement adopted by the Summit Meeting of the Security Council on 31 January 1992, A/47/277 - S/24111, 17 June 1992.

\*\**Ethnic Conflict in World Politics*, Ted Robert Gurr and Barbara Harff. Boulder: Westview Press, 1994.

National legislation may be just as important as international legislation, particularly in creating an environment favoring zero nuclear weapons. Protection of whistleblowers will be an essential step in this regard. In addition, the nuclear-weapons states will need to totally revise their military strategies away from reliance on nuclear weapons and to do so in a way that does not foster instability through increased reliance on conventional weapons.

### **socially unacceptable?**

Most people focus on the technical aspects of verifying a nuclear-weapons-free world. These include monitoring: whether a country tests a nuclear weapon; the amount of fissile material a country produces; and the development of advanced weapons capabilities—such as ballistic missiles—that could be used as delivery vehicles for a nuclear weapon.

There is a growing recognition, however, that in order to truly verify a nuclear-weapons-free world, traditional technical verification would need to be supplemented by a new form of verification, which some people call “societal verification.” The main aspect of societal verification, according to Joseph Rotblat, is “inducing the citizens of the countries signing the treaty to report to an appropriate international authority any information about attempted violation going on in their country.” In other words, whistleblowing would become an expected part of a citizen’s responsibility, written into and protected by international and national law.

### **is peace possible?**

Many people debate the question of whether a nuclear-weapons-free world is the first step toward a war-free world or if a war-free world is a prerequisite for a nuclear-weapons-free world. This chicken-and-egg debate often clouds the main point. If nuclear weapons were abolished, or if they existed only in very small quantities, the world would be a much different place than it is today. Many people believe that the amount of international cooperation needed for significant disarmament would create an atmosphere of greater trust and international cooperation. This, in turn, could help decrease tensions around the world as leaders begin to turn their attention to matters other than the nuclear stalemate.

However, others argue that we must pursue any steps toward nuclear disarmament in the context of general and complete disarmament (as called for in Article VI of the 1968 nuclear Non-Proliferation Treaty). Without significant steps to decrease all weapons, some fear that highly advanced conventional weapons may replace nuclear weapons and a new arms race will begin based on other weapons technologies.

A war-free world may seem impossible to some. But others point to once war-torn areas of the world where war is now unthinkable, such as Western Europe, as examples of how paradigms can shift.

### **old thinking or simple reality?**

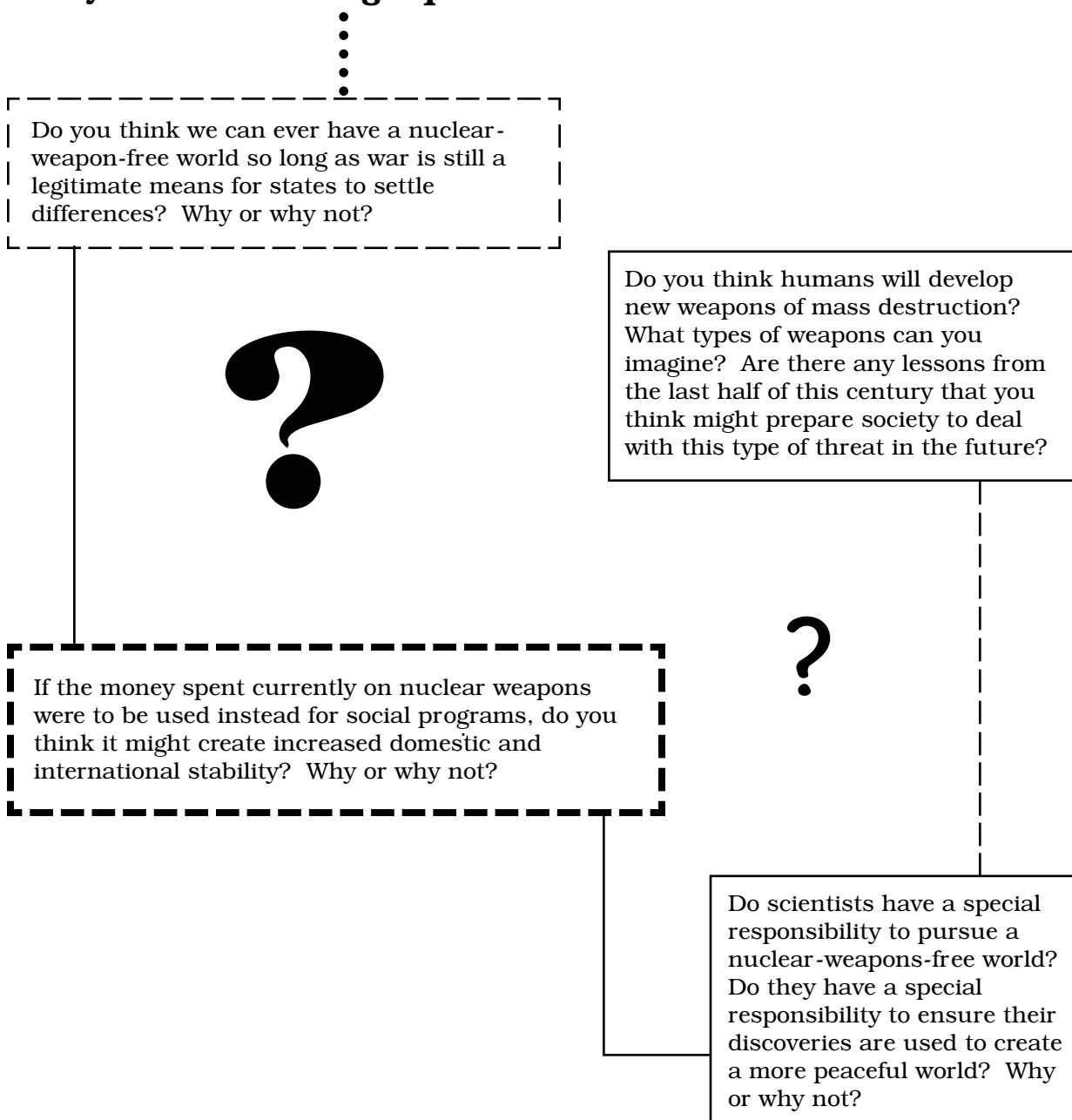
The concept of deterrence—threatening to impose an unacceptable level of damage on another country who might launch an aggressive attack against one’s country or one’s allies—has been the bedrock of most Cold War nuclear planning. In many ways, it is reliance upon this idea that has led many to doubt whether a nuclear-weapons-free world is possible. Proponents of deterrence argue that we must keep some residual nuclear weapons to prevent a nation from “breaking out” of any future nuclear-weapons-free treaty regime or in the event that a rogue nation or terrorist group develops a nuclear bomb.

Others point out, however, that this concept of deterrence did not prevent the vast majority of armed conflicts in the second half of this century. They claim that it is dangerous to assume that one’s opponent will act rationally, which is the fundamental basis for deterrence theory. For example, Professor Rotblat believes that if Hitler had a nuclear weapon he would have used it at the end of the war, even if it meant Germany were to be hit with a nuclear weapon in retaliation. As a result, some people argue that it is time to move beyond the concept of deterrence and to seek a means of cooperative security that does not rely upon the threat of massive retaliation to guarantee security.

# (anything but a) conclusion

The possible nuclear-weapons-free world of the future holds great promise, but also many perils. As we enter a new millennium many people wonder whether we will be able to learn the lessons of this century and use them to build a more stable and secure society for all people. Challenges will remain and perhaps intensify. Countries will continue to compete for economic opportunity, environmental resources, and international prestige. Intrastate and ethnic conflict will continue to have severe impacts on lives around the globe. However, it is also probable that a nuclear-weapons-free world may create opportunities for peace and cooperation that we have not yet explored.

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



.....  
• Environmental degradation weakens the  
• security of all people, according to the 1988  
• Dagomys Declaration of the Pugwash  
• Council. In a future nuclear-weapons-free  
• world, what role do you think conflict over  
• resources, such as oil, water, etc., will play?  
.....

Disease and health issues may continue to drive a wedge between the “haves” and “have-nots.” Increased international contact might mean that a local infectious disease outbreak in one area could spread worldwide. What role do you think disease will play in international security in the future?

Is a nuclear-weapons-free world a nuclear-energy-free world? Can you have nuclear energy and still have a nuclear-weapons-free world? If so, how?



International communications may be eroding state sovereignty as information becomes available to more and more people. In what ways do you think TV, the Internet, and other telecommunications can create a more secure environment for the future? In what ways will these technologies threaten security in a nuclear-weapons-free world?

What do you think are the causes of ethnic and intrastate rivalry? What do you think can be done to decrease these conflicts in the future? Do you think their occurrence will increase, decrease, or be unaffected by the abolition of nuclear weapons?



Would you want to live in a nuclear-weapons-free world? What would you be willing to sacrifice for it? What would you hope to gain?

**peace pubs**

- *Building a Global Civic Culture: Education for an Interdependent World*, Elise Boulding—a visionary look at how to rebuild our world. Syracuse: Syracuse University Press, 1988.
- *Common Security: A Blueprint for Survival*—a landmark study by the Palme Commission on how to create peace through arms control. Check your library! New York: Simon and Schuster, 1982.
- *Ethnic Conflict in World Politics*, Ted Robert Gurr and Barbara Harff—a standard text. Boulder: Westview Press, 1994.
- *The Future of US Nuclear Weapons Policy*—an influential study by the Committee on International Security and Arms Control at the National Academy of Sciences. It involved several Pugwashites. Washington, DC: National Academy Press, 1997.
- *The Good Society: The Humane Agenda*, John Kenneth Galbraith—ideas on how the "haves" can have it without having it all, according to one review. Houghton Mifflin Co, 1996.
- "Model Nuclear Weapons Convention"—a draft of a possible convention on the prohibition of nuclear weapons, prepared by legal experts. Available from the Lawyers' Committee on Nuclear Policy, 666 Broadway, Room 625, New York, NY 10012. Tel: 212-674-7790; Fax: 212-674-6199; E-mail: lcnp@aol.com.
- *A Nuclear-Weapon-Free World: Desirable? Feasible?* Joseph Rotblat, Jack Steinberger, Bhalchandra Udgaonkar (editors)—a Pugwash book that explores a NFWF and led to the Canberra Commission. Boulder: Westview Press, 1993.
- *Nuclear Weapons: The Road to Zero*, Joseph Rotblat (editor)—the latest Pugwash book exploring a NFWF. Available mid-March. Boulder: Westview Press, 1998.
- *Peace and Security: The Next Generation*, George A. Lopez and Nancy J. Meyers (editors)—a collection of pieces from the *Bulletin of the Atomic Scientists*, provides a great overview of nuclear issues and thoughts about security. New York: Rowman & Littlefield Publishers, Inc., 1997.
- *Rogue States and Nuclear Outlaws: America's Search for a New Foreign Policy*, Michael Klare—this Pugwashite's views on how to decrease global discord and violence. New York: Hill and Wang, 1995.
- "Send in the Troops: A UN Foreign Legion," Carl Kaysen and George Rathjens—two Pugwashites describe a plan for a volunteer UN standing force. *The Washington Quarterly*, 20.1, pp. 207-228.
- "Statement on Nuclear Weapons by International Civilian Leaders"—a recent, high-level statement signed by 100 civilian leaders, including 44 past and present presidents and prime ministers, calling for the abolition of nuclear weapons. Available on the State of the World Forum Web site: [www.worldforum.org](http://www.worldforum.org).
- *War and Public Health*, by Barry S. Levy and Victor W. Sidel—an excellent overview of the link between war and disease and the impact war has on civilians. New York: Oxford University Press, 1997.
- *World Military and Social Expenditures, 1996*, Ruth Sivard—a standard resource on the number of deaths due to wars, the amount of money spent on the military, and other social indicators. Washington, DC: World Priorities, Inc, 1996.

**check it out !****visions of a better world**

- *Star Trek: First Contact*—the Star Trek flick that shows how the world might one day unite.
- *Rollerball*—Sci-fi film that shows how business leaders create a violent game to replace war.

**top picks**

- United Nations (check out the peace and security and humanitarian affairs pages)—[www.un.org](http://www.un.org)
- Project on World Security (the Rockefeller Brothers Fund's interdisciplinary site designed to address emerging threats to international order, has great links to research institutes working on these topics)—[www.rbf.org/pws/](http://www.rbf.org/pws/)

**peace sites****best of the rest**

- Arias Foundation for Peace and Human Progress (an example of a regional organization promoting peace and cooperative security)—[www.arias.or.cr](http://www.arias.or.cr)
- Arms Control and Disarmament Agency (includes text of the existing arms control treaties and fact sheets)—[www.acda.org](http://www.acda.org)
- Bulletin of the Atomic Scientists (great articles on nuclear, chemical, and biological weapons issues as well as other insights, includes the most reliable statistics on numbers of nuclear weapons)—[www.bullatomsci.org](http://www.bullatomsci.org)
- Canberra Commission on the Elimination of Nuclear Weapons (a ground-breaking study on how to achieve nuclear disarmament)—[www.dfat.gov.au/dfat/cc/cchome.html](http://www.dfat.gov.au/dfat/cc/cchome.html)
- Carter Center (focuses on fighting disease, hunger, poverty, conflict and oppression through democracy and development)—[www.emory.edu/CARTER\\_CENTER/](http://www.emory.edu/CARTER_CENTER/)
- Federation of the American Scientists (great well-linked site that looks at nuclear, chemical, and biological weapons issues, the arms trade, and disease)—[www.fas.org](http://www.fas.org)
- The Internet and the Bomb (a guide to online resources)—[www.nrdc.org/nrdcpro/nuguide/guinx.html](http://www.nrdc.org/nrdcpro/nuguide/guinx.html)
- Monday Lobby (links to most Washington DC-based arms control and disarmament organizations)—[www.fas.org/pub/gen/mlg](http://www.fas.org/pub/gen/mlg)
- NGO Committee on Disarmament (links to NGO and UN sites, good updates on campaigns and treaties)—[www.igc.apc.org/disarm/](http://www.igc.apc.org/disarm/)
- Stockholm International Peace Research Institute (SIPRI remains one of the world's leading peace research institutes)—[www.sipri.se](http://www.sipri.se)
- Stimson Center (this page includes statements by former senior military leaders calling for the abolition of nuclear weapons)—[www.stimson.org](http://www.stimson.org)
- Todd's Atomic Web Page (this student Web page has the big guys beat, includes extensive links to other sites)—[neutrino.nuc.berkeley.edu/neutronics/todd.html](http://neutrino.nuc.berkeley.edu/neutronics/todd.html)

**cyberspace**

This **mind•full** was written by Sandra J. Ionno, Student Pugwash USA's executive director. Special thanks to Tom Milne, London Pugwash Office, for his comments. Any errors are the responsibility of Student Pugwash USA. © 1998 Student Pugwash USA.

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## but wait, there's more!

- **mind•full: a brainsnack for future leaders with ethical appetites.** Volume one available, includes: international weapons trade; emerging infectious diseases; access and the Internet; public's role in science; future of nuclear weapons; water quality and availability; war and disease; renewable energy. Volume two issues available: pugwash conferences; exploring human genetics; science, technology, & culture; and communications technologies. Coming this April: rethinking nuclear energy.
- **Jobs You Can Live With: Working at the Crossroads of Science, Technology, and Society.** The fifth edition of the Student Pugwash USA internship directory. It highlights approximately 200 organizations that work to promote the ethical use of science and technology and provides suggestions on how to go about the internship and job search.
- **Science, Technology, and Ethical Priorities: Proceedings of Student Pugwash USA's Ninth International Conference.**
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