

Good morning! Welcome to session three of our conference. My name is Chris Petersen and I am the Faculty Research Assistant in the OSU Libraries Special Collections, where for eleven years it has been my good fortune to work very closely with the Ava Helen and Linus Pauling Papers.

The topic for this session, “The Scientist as Public Citizen,” is particularly apt considering that, at this time fifty years ago, Linus and Ava Helen Pauling were nearing completion of their historic “Appeal by Scientists to the Governments and People of the World.” This most public of efforts, in which the signatures of over 11,000 scientists were gathered in protest of above-ground nuclear testing programs, marked the crescendo of the Paulings’ lives as activists for peace and civil liberties. Six years later Linus Pauling would receive the Nobel Peace Prize for his and his wife’s efforts to marshal scientific opinion against above-ground nuclear testing. So as with our marking yesterday of the sixtieth anniversary of the publication of Pauling’s landmark textbook *General Chemistry*, today we are proud to celebrate the fiftieth anniversary of the United Nations Bomb Test Petition.

In 1977 Linus Pauling was asked by a documentary film crew to speak to the notion that we’ll be discussing today – the scientist as public citizen. Upon first listening, his response is striking in how generic it seems, almost banal in fact.

(quote)

“I think that scientists have a special responsibility. I think, of course, that scientists should be citizens -- do their job as citizens in the way that other citizens do. But there are so many questions that come up now that are of importance to the world -- social, political, economic questions, even the matter of voting on issues such as controlling nuclear power plants -- in which science plays a very important part that it is, I believe, important that scientists express their opinions. That...scientists tell their fellow citizens what the facts are, as they understand them, but also express their own opinions, after having thought about the questions.”

(unquote)

To my ears, this doesn't exactly come across as the type of rhetoric that might inspire a legion of followers to run through brick walls at Pauling's behest.

But imbued within the words – which, by 1977, Pauling had likely uttered thousands of times before – lies a remarkable story of courage and sacrifice, of huge opportunity costs endured, by a once apolitical man motivated to fulfill the special responsibilities of the scientist as public citizen. Three moments in time serve well to illustrate the impact and consequences that Pauling faced as a result of his efforts to educate the world about practices that he found barbaric.

February 9, 1931. Pasadena, California. Linus Pauling is twenty-nine years old and married. His second child will be born tomorrow. He has just turned down a full professorship to the Massachusetts Institute of Technology, two years after rejecting a similar offer from Harvard. He holds the scientific world within the palm of his hand.

In two months the first of his seminal series of papers describing the nature of the chemical bond will be published. The papers will be collected into a book – first edition published in 1939, second edition published in 1940 – that is quickly recognized as a classic, a touchstone of twentieth-century science.

He will be elected the youngest member of the National Academy of Sciences, receive his first honorary doctorate at age 32 and will chair the Caltech Division of Chemistry and Chemical Engineering at age 36. The grant money flows in and construction on the Caltech campus is booming. A.A. Noyes is quoted as saying, “Were all the rest of the chemistry department wiped away except Pauling, it would still be one of the most important departments of chemistry in the world.”

September 4, 1945. A train traveling from Chicago to Boston. Nearly one month has passed since the atomic bombings of Hiroshima and Nagasaki, Japan. Linus sends a letter to Ava Helen in which is contained the first written record of his reaction to nuclear warfare. (quote) “I think that Union Now with Russia is the only hope for the world.” (unquote)

By his own later accounts, Pauling is deeply shaken by the detonations of Fat Man and Little Boy. Shortly after the end of World War II, and prompted considerably by Ava Helen, Linus begins to study the ramifications of this new nuclear age. His scientific acumen is such that he is able to discern, from data published in the professional literature, the mechanics by which nuclear weapons operate and their terrible explosive force. He is troubled by the conclusions that he reaches and grows increasingly concerned as ever larger weapons are tested, and fragments of scientific nomenclature, like Carbon-14 and Strontium-90, flow into the popular lexicon. He begins to speak out more forcefully and in 1947 makes a pledge to mention the need for world peace in every public lecture that he delivers. Pauling is exemplifying the notion of the scientist as public citizen. A heavy price will be paid.

June 22, 1960. Pasadena, California. Linus Pauling dictates the following note to self:

(quote)

“When my wife and I arrived in Los Angeles from Washington, D.C. on Wednesday, 22 June 1960, after I had testified before the Internal Security Subcommittee of the Committee on the Judiciary of the U.S. Senate on the previous day and the newspapers carried accounts of the hearing, our daughter-in-law, Mrs. Crellin Pauling, said that she had received a phone call. A man said to her, ‘Is this Mrs. Pauling? I want to tell you that your husband is a Communist and we are going to kill him.’ The speaker was, of course, referring to me.”

(unquote)

Pauling’s years of peace work have taken their toll. Though by now he is widely accepted as among the greatest scientific minds that the nation has ever produced, mainstream America is in no mood for his increasingly strident activism.

In 1952, Pauling’s plans for overseas travel are deemed not to be “in the best interests of the United States,” and his passport is revoked. Numerous publications declare Pauling to be a dangerous subversive – statements which ultimately lead to Pauling’s filing of seven separate libel lawsuits in an effort to clear his name. Consultancy contracts are cancelled and grant funds are harder to come by.

Pauling is called to testify before state and federal congressional committees. The House Un-American Activities Committee declares that

(quote)

“Dr. Linus Pauling is primarily engrossed in placing his scientific attainments at the service of a host of organizations which have in common their complete subservience to the Communist Party of the United States of America and the Soviet Union.”

(unquote)

Members of the Caltech Board of Trustees grow increasingly uneasy – particularly one businessman who warns Pauling not to (quote) “get too far out on a limb with some of these ‘questionable’ groups. Some of us have saws and can use them.” (unquote)

Pauling does have his allies though, particularly overseas. In a confidential meeting on November 13, 1962, Norwegian Nobel Committee chairman Gunnar Jahn tells Pauling that if his committee refuses to award Pauling the 1962 Nobel Peace Prize, then (quote) “there won’t be any peace prize this year.” (unquote) This is indeed what happens.

Eleven months later, October 10, 1963, Pauling receives word that he has been awarded the Nobel Peace Prize – the prize for 1962, that is.

Pauling is elated. He and his family travel to Oslo. Their arrival is boycotted by the United States Embassy. *Life* magazine editorializes that Pauling’s receipt of the award constitutes “a weird insult from Norway.” Caltech arranges no formal recognition of the honor and, after a forty-one year association, Pauling resigns from the Institute.

We return to 1977:

(quote) “I think that scientists have a special responsibility. I think, of course, that scientists should be citizens -- do their job as citizens in the way that other citizens do. But there are so many questions that come up now that are of importance to the world -- social, political, economic questions, even the matter of voting on issues such as controlling nuclear power plants -- in which science plays a very important part that it is, I believe, important that scientists express their opinions. That...scientists tell their fellow citizens what the facts are, as they understand them, but also express their own opinions, after having thought about the questions.” (unquote)

It is clear that, coming from Linus Pauling, these words mean a lot.

Today we are lucky to have with us four people – two historians and two scientists – who will shed ample light on Linus Pauling, his era and the on-going legacy of scientists acting out as public citizens.

Tom Hager, author of the definitive Pauling biography *Force of Nature*, will discuss the mechanics of Pauling's peace activism and further delve into the consequences that Pauling faced as a result of his very public efforts. Dr. Lawrence Badash, emeritus professor of history at the University of California, Santa Barbara, will shed light on the times in which Pauling worked in his discussion of science in the McCarthy Era. Dr. Warren Washington, head of the Climate Change Research Section at the National Center for Atmospheric Research, will move the conversation to a more contemporary subject of very pressing concern – global warming. And Dr. Jane Lubchenco, Valley Professor of Marine Biology at Oregon State University, will close our session with her thoughts on the role of academic environmental scientists as advocates for science.

Our first speaker is biographer and science writer **Tom Hager**. Tom has written or edited five books on medicine and science. After earning master's degrees in both medical microbiology/immunology and journalism, his professional career has included stops at the National Cancer Institute and the University of Oregon. He is the founding editor of *LC Magazine* and has contributed over one-hundred articles to publications ranging from *American Health* to the *Journal of the American Medical Association* to the *Wall Street Journal*. He has written three books on Linus Pauling including the definitive biography, *Force of Nature: The Life of Linus Pauling*, published in 1995. Tom has also collaborated closely with the OSU Libraries Special Collections in the development of three major documentary history websites devoted to Pauling's life and work. His most recent book, titled *The Demon Under the Microscope*, is an entertaining account of the discovery of sulfa drugs following World War I. His talk today is titled "The Scientist as Celebrity: Linus Pauling, The Media, and the Bomb." Please join me in welcoming Tom Hager.

Our next speaker is **Dr. Lawrence Badash**, Professor Emeritus of History of Science at the University of California, Santa Barbara. Dr. Badash has been a NATO Postdoctoral Science Fellow at Cambridge University, a Guggenheim Fellow, Visiting Professor of International Studies at Meiji Gakuin University in Yokohama, Director of the University of California Institute on Global Conflict and Cooperation's Summer Seminar on Global Security and Arms Control, a lecturer on the nuclear arms race at the Inter-University Center of Postgraduate Studies in Dubrovnik, Croatia, a Council member of the History of Science Society, a Member-at-Large of the Section on History and Philosophy of Science of the American Association for the Advancement of Science, and a member of the Executive Committee of the Forum on Physics and Society of the American Physical Society. Badash is a Fellow of the American Physical Society and of the American Association for the Advancement of Science.

His research is centered on the physical sciences of the past century, especially the development of radioactivity and nuclear physics; on the role of scientists in the nuclear arms race; and on the interaction of science and society. Badash has authored or edited six books, and is currently finishing a book on the science and politics of the nuclear winter phenomenon. His talk today is titled "Science in the McCarthy Period: Training Ground for Scientists as Public Citizens." Please join me in welcoming Dr. Lawrence Badash.

Our next speaker is **Dr. Warren Washington**, a senior scientist and head of the Climate Change Research Section in the Climate and Global Dynamics Division at the National Center for Atmospheric Research

We are proud to note that Dr. Washington earned a bachelor's degree in physics and a master's degree in meteorology from Oregon State University, followed by a Ph.D. in meteorology at Pennsylvania State University. Washington's areas of expertise are atmospheric science and climate research, and he specializes in computer modeling of the earth's climate. His book *An Introduction to Three-Dimensional Climate Modeling*, co-authored with Claire Parkinson, is a reference on climate modeling.

From 1978 to 1984, Dr. Washington served on the President's National Advisory Committee on Oceans and Atmosphere. Washington held the office of President of the American Meteorological Society (AMS) in 1994, and for twelve years served on the National Science Board, which provides oversight over the National Science Foundation and advises the Executive Branch and Congress on science related matters. From 2002 to 2006, Washington served as chair of the National Science Board.

Dr. Washington's talk is titled "The Evolution of Global Warming Science: From Ideas to Scientific Facts." Please join me in welcoming Dr. Warren Washington.

Our final speaker today is **Dr. Jane Lubchenco**, Valley Professor of Marine Biology at Oregon State University. A member of the OSU faculty since 1978, Dr. Lubchenco leads an interdisciplinary team of scientists who study the marine ecosystem off the west coast of the United States. This team is learning how the ecosystem works, how it is changing and how humans can modify their actions to ensure continued benefit from ocean ecosystems.

Dr. Lubchenco is Past-President of the International Council for Science and a former President of both the American Association for the Advancement of Science and the Ecological Society of America. Like Dr. Washington, Dr. Lubchenco has served on the National Science Board. She also co-chaired Oregon Governor Ted Kulongoski's Advisory Group on Global Warming, and has been either the founder or an active participant in numerous groups, including the Aldo Leopold Leadership Program, the Millennium Ecosystem Assessment and the Communication Partnership for Science and the Sea.

Dr. Lubchenco is one of the "most highly cited" ecologists in the world. She is an elected member of the National Academy of Sciences, the American Academy of Arts and Sciences, the American Philosophical Society, the Royal Society, and the Academy of Sciences for the Developing World. She is the recipient of numerous decorations including a MacArthur Fellowship, a Pew Fellowship and eight honorary degrees. Her talk today is titled "Advocates for Science: The Role of Academic Environmental Scientists." Please join me in welcoming Dr. Jane Lubchenco.