Statisticians Assist in 1997 Nobel Peace Prize Winning Work

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ASA's new Discount Book Program

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Statisticians Contribute to 1997 Nobel Peace Prize Work

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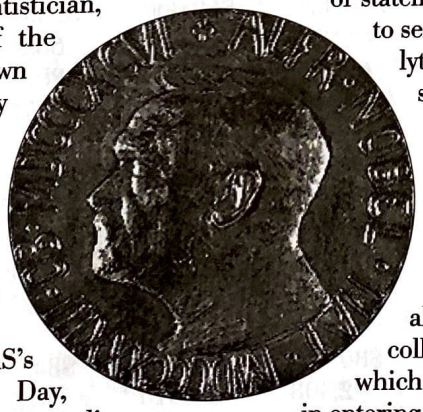
In late 1993, Jody Williams and Shawn Roberts, executive director and landmines research project director, respectively, of the Vietnam Veterans of America Foundation (VVAF), approached the American Association for the Advancement of Science (AAAS) to ask for help in preparing a book describing the total cost of land mines. To look over the problem and attempt to respond to VVAF's request, AAAS assembled a distinguished group of statisticians, including Herbert F. Spirer, then current chair of ASA's Committee on Scientific Freedom and Human Rights, later to be named an ASA Fellow (in 1995) for his work on human rights monitoring; Thomas B. Jabine, ASA Fellow, former chair of the SF&HR Committee, a world-renowned expert on sampling, surveys, and statistical policy; Fritz Scheuren, ASA Fellow, known mostly for his work on sampling, data confidentiality, and administrative records; biostatistician Alan Zaslavsky, of Harvard, ASA Fellow; Jim Vermillion, of the U.S. Agency for International Development; Morton Sklar, of AAAS; and Douglas A. Samuelson, a consulting operations research analyst and statistician, also a former chair of the SF&HR Committee, known as a consultant and policy analysis who, as Herb Spirer put it, "is creative, has had a lot of experience with real-world problems, and is willing to tackle just about anything."



Meeting in AAAS's offices on Veterans' Day, November 11, 1993, the group listened to Williams's and Roberts's presentation of the problem and vigorously discussed ways to approach the problem. Several members of the group took assignments to research various questions which had arisen during the meeting: how do we measure opportunity cost of resources destroyed? How do we place a value on lives lost or permanent disability? Can we really count accurately what resources were removed from productive use, and for how long? If not, how can we end up with any credible quantitative statements about this subject?

As the group's thinking progressed, the emerging consensus was that some sort of chain-of-conditional-expectations model was the most sensible structure: how large an area does a minefield render unusable? Given a classification of a country's land and structures into different categories of usage and value, and percentages of each category rendered unusable, what is the expected value of the (estimated) unusable resources? What is the market value of such resources in the region? If the land is usually used to grow Crop *X*, and the typical yield is *B* bushels per hectare, how many bushels per year of Crop *X* would have been produced had the land stayed productive, and what would that produce have been worth at the then-prevailing market price?

The group also agreed, after some discussion, that problematical numbers, such as economic valuations of life or of diminished functioning, would be better omitted: "Report what we know, and let's not argue over methods of valuation." Samuelson volunteered to write up this set of statements in a rigorous form, to serve as a basis for the analytical approach; and he did so, E-mailing it out to others in the group on December 24, 1993, which led to the others' calling it "Doug's Christmas Eve model."

Samuelson and Spirer also suggested that data collection be done in a way which allowed great flexibility in entering and retrieving comments and narrative, rather than forcing data collectors to follow a data base format. Therefore, they recommended that VVAF use a text retrieval system—the one they knew best was AskSam™—to store not only numerical data, but also the on-site surveyors' comments and observations. This made it possible for the analysts to go back over reports later, looking for patterns no one had anticipated when the data collection protocols were set up.

In January, 1994, Samuelson traveled to San Francisco (Roberts' home base) for a week to help get the project started. He, Roberts and Vera Dolan, a private consultant from the San Francisco area, set up the AskSam™ templates and wrote the collection protocols and instructions for the on-site survey teams. In March, April, and May, Spirer traveled to San Francisco several times to provide additional assistance with AskSam™ and with coding and interpretation issues. The group also exchanged a considerable amount of E-mail.

As the work in the field progressed, it became clear that the "model" would, as most of the team had feared, have many elements of data missing, especially such items as market value of comparable land and structures. Several team members strongly recommended that the final report emphasize raw data wherever possible, so that the methods used to analyze and summarize data would not become an issue themselves and possibly distract readers from the main points.

The result was a book, *After the Guns Fall Silent: The Enduring Legacy of Landmines*, published by VVAF in 1995, which became the essential "fact book" for the discussion of land mines. Roberts and Williams, the book's authors, acknowledged Dolan, Spirer, Louise Spirer (a professional editor), Samuelson, Tom and Miney Jabine, Scheuren, and Vermillion for their help with analyzing the data and reviewing its presentation. As Mark Perry, a senior staff member of VVAF and one of the book's editors, said in a recent interview, "Princess Diana deserves more credit than anyone else for putting this issue before the public, and VVAF did the organizing and most of the lobbying, but this data-gathering and analysis effort is what made it possible to put the issue before policy-makers. This work really made a difference."

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Images on this page: Both sides of the Noble Peace Prize Medal, courtesy of The Nobel Foundation.