

LETTERS

More on Heinz Barschall

My article "The APS in an Age of Litigation" [Physics and Society 30, 1 (January 2001), 3 - 5] includes an account of the lawsuits by the Gordon & Breach publishing group against the late H.H. (Heinz) Barschall, the American Physical Society, and the American Institute of Physics. The origin and object of these suits were two articles by Barschall on the cost-effectiveness of physics journals. Readers may be interested in learning more about the life and times of Heinz Barschall, whose many contributions to physics and its community include service as Secretary - Treasurer of the Forum on Physics and Society. They can find this information in an autobiographical memoir that appeared in the journal *Physics in Perspective* [H. H. Barschall, *Reminiscences*, *Phys. perspect.* 1 (1999,) 390 - 444]. Requests for reprints should be addressed to Anne E. Barschall, 80 Benedict Avenue, Tarrytown, NY 10591; e-mail<ANNE.BARSCHALL@WORLDNET.ATT.NET>.

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Pro Fiction in P&S

I read with interest Carl Iddings complaint against the use of fiction in FPS. In fact, physicists have long used fiction to convey their message to both colleagues and the commoners, notably Leo Szilard in *THE DAY OF THE DOLPHIN*. Science has its own genre, and science fiction has often led physics, as when Szilard was inspired by H.G. Wells' prediction of nuclear weapons (from 1913). Physics is about the possible, not merely the actual.

But as a professional writer, if physicists wish to hobble their own free discussions by omitting other methods of discourse, I certainly won't complain. People should pay for fiction, as God intended.

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More Kudos

-- the electronic Forum newsletter is great. Fun to read. Lots of substance. I like the fiction! I loved the discussion of Copenhagen. Keep it up!

Paul Craig

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A Flawed Picture of Nuclear Workers

The review of *The Woman Who Knew Too Much: Alice Stewart (1906 -) and the Secrets of Radiation* gives a seriously flawed picture, especially as it pertains to Dr. Stewart's studies of Hanford workers. The review's brief description of these studies suggests two key points:

1. On joining the Hanford study, Stewart observed high cancer rates among the workers: "...she could see workers...dying of radiation-induced cancers. Safety standards were low, high exposures were concealed..."
2. Stewart's position was eventually vindicated: "Gradually, her conclusions were confirmed by other scientists."

Neither of these points is valid.

First, the cancer rate was not high. It was significantly *lower* for Hanford workers than for the general population, matched for age and gender, as found through calculations of standard mortality ratios (SMR) for white male workers — the bulk of the exposed Hanford population.¹ The SMRs were 75% for all causes of death and 85% for cancer fatalities (for deaths before April 1, 1974 among workers employed for at least two years). In particular, there had been 414 cancer deaths compared to an expected 488 deaths. The favorable record of Hanford workers was explained as being due to the “healthy worker effect.”

Dr. Stewart and colleagues accepted the existence of the healthy worker effect, attributing it in part to “selective recruitment” and to the fact that “the proportion of really dangerous work performed by men with professional and technical qualifications was exceptionally high.”² However, they concluded from comparisons of different groups of Hanford workers that there were excess radiation-induced cancers. This conclusion was highly controversial from the first, and the controversy has continued for close to two decades of additional analyses. During this period, Dr. Stewart’s position has not won broad support.

It is indicative of the lack of general mainstream acceptance of Stewart’s Hanford work that the latest comprehensive United Nations report on radiation effects (UNSCEAR 2000) does not even cite her publications in its section on occupational exposures of workers at nuclear facilities.³ It only cites a paper by Stewart’s chief scientific adversary, Ethel Gilbert, and a 17-author study coordinated by the International Agency for Research on Cancer in which Gilbert participated.⁴ For Hanford workers, the study reports a non-significant *negative* correlation between radiation exposure and cancer incidence. This result does not imply that the radiation exposures were beneficial, because the 90% confidence limits also included zero and positive correlations.

It is not the purpose of this letter to criticize Dr. Stewart. But it is important to clarify the record to the extent that it bears upon Hanford and, by unwarranted extension, upon other U.S. nuclear activities. There is an exaggerated popular image of negligence, danger, and damage. A misrepresentation of the health record of the Hanford workers can act to strengthen this image and indirectly contribute to unwarranted fears of all things “nuclear.”

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Anti-Fireplace Hoax

Heads of state visiting the white House often pose in front of one of its 27 fireplaces, but rarely benefit from the warmth of a fire. Americans spend a third of a trillion dollars on fifty million fireplaces, but rarely feel any warmth from them. Why this cold-hearth diplomacy and cold-house policy? Or, worse still, why do so many gas-fired hearths now flare Greenhouse Gases? A host of Americans believe that a wood-burning fireplace is energy counterproductive.

Burning one pound of wood yields 8,500 BTU, and draws 6 pounds of air. For air to be so cold as to offset this benefit, its temperature would be far below minus 100° F. The fireplace has been a haven of warmth, not a cave of frosty winds for seventy thousand generations. It is used today in coldest Siberia. Why this sudden Change of Hearth?

¹ Ethel S. Gilbert and Sidney Marks, “An Analysis of the Mortality of Workers in a Nuclear Facility,” *Radiation Research* 79, 122-148 (1979).

² G.W. Kneale, T.F. Mancuso, and A.M. Stewart, “Job Related Mortality Risks of Hanford Workers and their Relation to Cancer Effects of Measured Doses of External Radiation,” paper IAEA-SM-266/58 at *International Symposium on the Biological Effects of Low-Level Radiation with Special Regard to Stochastic and Non-Stochastic Effects*, Venice, 1983 (sponsored by the International Atomic Energy Agency).

³ *Sources and Effects of Ionizing Radiation*, United Nations Scientific Committee on the Effects of Atomic Radiation, UNSCEAR 2000 Report to the General Assembly, Volume II (United Nations, New York, 2000), pp. 117-118.

⁴ E. Cardis *et al.*, “Effects of Low Doses and Low Dose Rates of External Ionizing Radiation: Cancer Mortality among Nuclear Industry Workers in Three Countries,” *Radiation Research* 142, 117-132 (1995).

Is it a result of anti-fireplace and anti-physicist propaganda? If so, this is a good time to put it behind us. As the price of fossil fuels soars and their Greenhouse Gases poison our atmosphere, wood, which soaks up Greenhouse Gases and beautifies as it grows in your backyard, will be forever the great good friend that it has been for more than one million years. And today, with the benefit of modern physics principles, it will be a better friend than ever. Let us put a costly, shameful hoax behind us and START THE FIRE.

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