

the words "leading edge" and "trailing edge" are parts of difficult judgments upon which we could depend with confidence only if we could know the future scope of the great human enterprise called science.

EDWARD TELLER

Lawrence Livermore Laboratory
Livermore, California

5/81

Sending mail to Sakharov

This is written at the suggestion of František Janouch, Research Institute of Physics, Stockholm, Sweden, as a reminder to readers of PHYSICS TODAY of the continuing need to do everything we scientists can do to help our colleague, Andrei Sakharov. In a letter to PHYSICS TODAY last February, Janouch urged sending scientific preprints to Sakharov by registered mail, with the precaution of requesting a return *avis de reception* card. After some procrastination, without really believing that such a simple scheme would succeed, I followed the suggestion. Having been so pessimistic I was the more delighted, 6 or 8 weeks later, to find a pink card in my mailbox, postmarked (in Russian), "Gorky," and signed, "A. Sakharov." In reply to my letter thanking him for the idea, Janouch wrote, "According to my information, he (Sakharov) is obtaining now quite a lot of different preprints. It is essential only to follow the scheme, otherwise it is easy (for the Soviet officials) to confiscate them." I remind you, for Dr. Janouch, that the correct address is:

Professor Andrei Sakharov
Prospekt Gagarina 214, kv.3
Scherbinka 2, Gorky, U.S.S.R.

JOHN LINSLEY

University of New Mexico
Albuquerque, New Mexico

10/81

Invention of x-ray telescope

Without detracting from the accomplishments of Riccardo Giacconi, for which he justly deserves the 1980 Eliott Cresson medal of the Franklin Institute, it is unfair to many others to describe him (December, page 74) as "the inventor of the x-ray telescope" (emphasis added). The original theory of the hyperboloidal-paraboloidal, double-reflecting, grazing incidence x-ray telescope was done by H. Wolter,¹ and Giacconi himself has always acknowledged this.² Much of the original experimental investigation of reflecting optics for use as an x-ray telescope was done by P. Kirkpatrick and A. V. Baez,³

and other early users of Wolter-type x-ray telescopes for viewing an astronomical object (the Sun) besides Giacconi⁴ were J. Underwood and W. Muney.⁵ Giacconi should more properly be lauded for the astronomy he did with x-ray telescopes than for the sole invention of them.

References

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4. R. Giacconi, W. Reidey, T. Zehnpfenning, J. Lindsay, W. Muney, Astrophys. J. 142, 1274 (1965).
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JOSEPH F. DOLAN

Goddard Space Flight Center
Greenbelt, Maryland

3/81

The facts stated by Joseph Dolan are correct, but also incomplete; in my opinion, his letter is more misleading than the single sentence given to this topic in the original news article. There certainly have been other contributors to x-ray telescope development, both before and after Giacconi's original work, including many not mentioned by Dolan. Few, if any, modern scientists work in isolation, but we continue to use terms such as "the inventor" when one person has made a contribution that we recognize to be qualitatively different from the related work of others. Giacconi certainly deserves this common usage. He was the senior author of the paper containing the earliest suggestion for the use of focusing optics for x-ray astronomy, the leader of the group that designed, built, and tested the first aplantic x-ray telescope, and the leader of the group which first obtained scientific results in astronomy using these devices. He also was by far the most effective advocate for these instruments during the almost two decades between his original suggestion and the success of the Einstein Observatory, a period when the advantages of the technique were not always appreciated.

It is not possible to give exact measures of recognition in a short article or letter, but one can hope to leave an accurate general impression, trusting that the reader will consider the limits inherent in the form of the communication as an indication of the degree of completeness to be expected. Dolan's letter leaves the impression that Giacconi was one of half a dozen more or less equivalent contributors, whereas, he has been the undisputed leader in

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