

ROBERT K. MERTON AND ANTHONY F. J. VAN RAAN WIN
THE 1995 DEREK JOHN DE SOLLA PRICE AWARD

The Editorial and Advisory Board and the Publishers of *Scientometrics* are glad to announce that the 1995 Derek John de Solla Price medal has been jointly awarded to *Robert K. Merton* and *Anthony F. J. Van Raan* for distinguished contributions to the quantitative studies of science. The awarding ceremony has taken place on June 10, 1995 in Chicago (USA) at the 5th International Conference on Informetrics and Scientometrics.



Professor *Robert K. Merton* the winner of the
1995 Derek John de Solla Price Award

COMMENTS ON ROBERT K. MERTON, RECIPIENT OF THE 1995 DEREK DE SOLLA PRICE AWARD

Robert K. Merton, now 85, is, together with Anthony F. J. van Raan, the winner of the 1995 Derek John de Solla Price award. No comment is called for regarding R. K. Merton

...best known as one of the preeminent sociologists of the twentieth century.¹

He is an author and editor *extraordinaire*.^{1,2}

and

...if there were ever a Nobel prize for sociology, Merton would be the first laureate.³

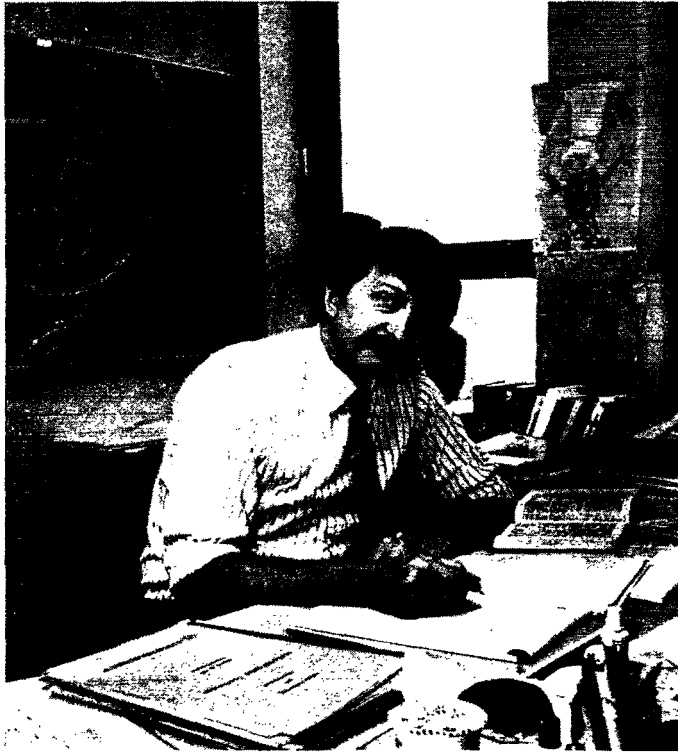
A friend of mine, however, observed that, although R. K. Merton is without doubt an outstanding sociologist and historian of science, he is quite unknown as a scientometrician. So why this award? The question obviously did not strike the essential point, but I agreed, not having seen a scientometric curve or formula from R. K. Merton. He had no measurements even of his own "Matthew effect"^{4,5} (in the meantime, it has been tried).⁶

It is nevertheless worth some effort to find out whether R. K. Merton has had any engagement with the quantitative aspects of the scientific enterprise.

R. K. Merton's recent own words:

...while still a graduate student back in 1935, I tried my hand at tracing "Fluctuations in the Rate of Industrial Invention" by simple counts of U.S. patents in various fields. In that same year, I collaborated with my teacher, Pitirim A. Sorokin, in a slight methodological piece on "The Course of Arabian Intellectual Development, 700-1300" and did the quantitative chapters on "sociological aspects of invention, discovery, and scientific theories" for his 1937 treatise *Social and Cultural Dynamics*. Quantitative measures were also integral to my 1938 study of *Science, Technology, & Society in Seventeenth-Century England*, first published in *OSIRIS*, George Sarton's series of monographs in the history of science (with the monograph currently published by Howard Fertig, Inc. in New York). The same (1938) study of science in 17th-century England involved the quantitative analysis of some six thousand biographies in the *Dictionary of National Biography*... to investigate the substantive question of shifts in the occupational interest of the English élite. Lawrence Stone thereupon defined this approach as an early contribution "to the research art of 'historical prosopography'". Chapter X of the study, titled 'Extrinsic Influences on Scientific Research', provided the first quantitative study of problem-choice in science to determine the 'approximate degree of social and economic influences upon the selection of scientific problems' by classifying and tabulating some 800 investigations reported in the minutes of the Royal Society in four sample years. I recall taking great pleasure back then in having Joseph Needham observe in his review of the book that it "exhibits a quantitative sense unusual in a historian."⁷

An illuminating source for answering my questions was R. K. Merton's *The Sociology of Science: An Episodic Memoir*.⁸ Here he remarks:



Professor *Anthony F. J. Van Raan* the winner of
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I compiled numerical indicators of scientific development based upon such standard sources as Darmstädter's *Handbuch zur Geschichte der Naturwissenschaften und der Technik* and Garrison's *Introduction to the History of Medicine*. (Ref. 8, p. 25 f.)

R. K. Merton had, thirty years after his 1938 study, the idea of adding value to the "Dictionary of Scientific Biography" (DSB) by having contributors include a standard set of data, whenever possible, for each biography to allow for subsequent quantitative analyses of the computerized data. Unfortunately, even the support of the influential editor and chief of the DSB, Prof. Charles Gillispie did not help to bring this project into being. R. K. Merton:

Most historians at that time were not inclined to take kindly to the quantitative study of any aspect of their subject (nor, perhaps, are they now). (Ref. 8, p. 43)

R. K. Merton was well aware of the advent of science indicators and their role as a research tool:

In view of the enlarged public concern with the problematic aspects of science, the now rapid growth of the sociology of science, and the long prehistory of quantitative measures of science..., it does not seem too much to suppose that sustained work on the problem of devising suitable indicators of the various aspects of science will attract the interest of sociologists of science everywhere. (Ref. 8, p. 59)

How else could he have been a co-editor of the book *Toward a Metric of Science: The Advent of Science Indicators*?¹⁰

And how else could he have agreed to write, together with Eugene Garfield, the foreword to a collection of major works of Derek John de Solla Price, including the famous *Little Science, Big Science*? About this book they write:

For in elucidating the social and cognitive arithmetic of science, this book did much to lay the foundations of the field of inquiry given over to the quantitative analysis of science and scientific development — the field that has come to be known as scientometrics, or, at times, bibliometrics.¹¹

These quotations seem to demonstrate, that R. K. Merton has to be considered one of the early foreriders of quantitative investigations in the sociology and history of science. Nevertheless, they do not prove that R. K. Merton has *directly* contributed to the field of scientometrics.

But why should he have? I remember an analog case: V.V. Nalimov, also born in 1910, also winner of the Derek John de Solla Prize award, not having actively worked in "Naukometriya" since 1969, has also written two citation classics, which had nothing in common with the field of scientometrics.¹² These are two giants, whose work cannot be judged adequately from the viewpoint of a single narrow specialty!¹³

R. K. Merton's citation classics are *Social Theory and Social Structure*¹⁴ and, together with Harriet Zuckerman, *Patterns of evaluation in science: Institutionalization, structure and functions of the referee system*.¹⁵ The first book is top-cited, a fact

already established in Eugene Garfield's comprehensive citation analysis of R. K. Merton's work back in 1980.¹⁶ I found for the time-period 1981-1990, in the social sciences alone, 660 papers citing *Social Theory and Social Structure*. Another key book, which got about 300 citations in this period, is quite obviously *The Sociology of Science: Theoretical and Empirical Investigations*.¹⁷

So, in these works we have to seek the reasons for the great impact of the sociologist and historian of science R. K. Merton on the members of the Editorial Advisory Board of the journal *Scientometrics* who elect candidates and final winners of the award. As the election procedure is secret (see Ref. 18) we will never know the full answer. My own decision was influenced by a paper sent to me by Derek de Solla Price. It was entitled *Toward a Model for Science Indicators* and included in.¹⁰ In it Derek de Solla Price refers to R. K. Merton's conception about the normative structure of science. Since that time R. K. Merton, whom I have never had the honour to meet, has been for me the one who had formulated the essential principles underlying the functioning of science and had helped me to better understand my own scientometric findings. As the critical sociologist of science, Michael Mulkay observed:

Merton provided the first systematic and the most influential attempt by a sociologist to identify the main norms operative among scientists and to show how these norms contribute to the advance of scientific knowledge.¹⁹

R. K. Merton evidently recognized the strong linkage between his normative ideas and the mighty tool for their verification: Eugene Garfield's Citation Indexes. It cannot be by chance that not only in the chapter of Ref. 8 where he explains the advantages of citation indexing, but also in his foreword⁹ to Garfield's *Citation Indexing* he displays his own ideas about the basically citational character of intellectual property in science:

The distinctive anomalous character of intellectual property becoming fully established in the domain of science only by being openly given away (published) is linked with the normative requirement for scientists making use of that property to acknowledge (publish) the source, past or contemporaneous. (Ref. 8, p. 48)

Other board members will certainly have other links to R. K. Merton. The space of scientometrics has many dimensions,¹² and R. K. Merton surely reflects one of them. He is more than a scientometrician. The undisputed scientometrician Anthony van Raan simply puts it this way:

It is an honour for me having been awarded together with this great man.²⁰

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