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De Solla Price and the evolution of scientometrics

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more papers if they collaborate more, a finding that seems to be confirmed in my recent work (in progress).

The universality of de Solla Price's view of the science of science has influenced my entire informetrics career. Since 1985, I have worked so much with IPPs and Lotka's law that I published a mathematically-orientated book (9) in which Lotka's law is used as an axiom that many mathematical results in all subfields of informetrics follow.

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Professor Wolfgang Glänzel

DEREK DE SOLLA PRICE MEDAL WINNER, 1999

De Solla Price and the evolution of scientometrics

Wolfgang Glänzel is Professor of Quantitative Science Studies in the Faculty of Business and Economics at Katholieke Universiteit Leuven, Belgium. He is also the Director of the Steunpunt O&O Indicatoren, which is housed within the Faculty of Economics and Applied Economics. This is an inter-university consortium of all Flemish universities. Its mission is the development of a consistent system of indicators for the Flemish Government to quantify R&D efforts at Flemish universities, research institutes and industry.

Prof. Glänzel answers our questions about his memories of Derek de Solla Price and the changes that have taken place in bibliometrics over the last two-and-a-half decades.

RT: What are your memories of de Solla Price?

WG: I didn't meet him personally. I studied mathematics in Budapest and joined Tibor Braun's team in 1980. De Solla Price passed away in 1983, so there was unfortunately little opportunity to meet him. Everything I know about him originates from the literature and the anecdotes of people who personally knew him. I was shocked by his unexpected passing and felt like that day signified the close of an important chapter in the field.

RT: What elements of de Solla Price's work were the most influential in the field of scientometrics?

WG: He was one of the founders of scientometrics and he paved the way for future scientometric research. He published books and important papers that addressed fundamental issues for our field, such as how to get away from methods and models adopted from other fields towards the development of a scientometric-specific methodology.

De Solla Price proposed the growth model and studied scientometric transactions, i.e. the network of citations between scientific papers. He found that a paper that is frequently cited will probably get more citations than one cited less often and created a model for this phenomenon. He also conducted scientometric studies for policy implications and research evaluation, thus opening the door for the present-day evaluative bibliometrics.

RT: How did de Solla Price's work influence your own?

WG: His career as a scientist was an example to me of how to approach and conduct interdisciplinary research. De Solla Price had a Ph.D. in experimental physics, and then gained a second

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doctorate in the history of science. He founded a new discipline but also remained a prominent member of his own scientific community.

I also learned that scientometrics is much more than a mere umbrella for a diversity of tools used to measure the output of research. In several papers and lectures I have expressed my concerns regarding some recent developments in our field *(1, 2)*.

There are several topics already tackled by de Solla Price that inspired me to continue his research or answer unresolved questions. Among these are mathematical models for the cumulative advantage principle and for scientometric transactions, the question of obsolescence of scientific information in different fields.

RT: When you won the Derek de Solla Price Medal, Le Pair described your work as being broad as well as focused, which was at the heart of de Solla Price's research. What similarities would you draw from this?

WG: I'm afraid that I'm not objective enough to be able to answer that question.

RT: Twenty-five years after his passing, how do you think bibliometrics has changed and do you think de Solla Price would have enjoyed the new elements of the field?

WG: I think he would have enjoyed several new elements. First, scientometrics has evolved from an invisible college to an established field with its own scientific journals, conference series, an international academic society and institutionalized education.

In de Solla Price's day, data processing for bibliometrics was still slow, expensive and limited. Access to bibliometric information has also been transformed by the development of information technology, and I think de Solla Price would have enjoyed this development. The World Wide Web would also have interested him. In the 1980s, this was in its infancy and no one could have predicted its success.

Important bibliometric results have also been published since, and I think he would have enjoyed reading these advancements to the field. However, his dream that scientometrics would become a hard science has not yet happened, as discussed in "Has Price's dream come true: is scientometrics a hard science?" *(3)*

Biography:

1955: Born in Frankfurt, former GDR

1973: Moved to Budapest, Hungary, to study mathematics at Eötvös Loránd University, Budapest. Obtained his doctorate in 1984

1980: Joined Tibor Braun's staff at the Library of the Hungarian Academy of Sciences

1990–1991 and 1995–1996: Worked as Alexander von Humboldt Research Fellow at several German research institutions

1997: Gained his second doctorate in social science from Leiden University, the Netherlands

2002: Moved to Leuven, Belgium to work for Steunpunt O&O Indicatoren

I also see the uninformed use and misuse of bibliometric results. By uniformed use I mean that bibliometric data are not used in the proper context but this is done unconsciously; and by misuse I mean that the data are consciously presented and interpreted incorrectly or deliberately used in an inappropriate context. However, I believe the positive achievements of scientometrics over the past 25 years prevail. New elements such as open access, electronic publication and communication and the extension of the bibliographic databases represent new challenges to be taken on by the scientometric community.

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