

Foreword

If we were to rise to a metalevel and view our culture from above, we would notice what seems like an unprecedented historical phenomenon: a culture that has created an information environment for people that takes precedence over their natural environment. The information environment is an extremely heterogeneous one. The information environment can be seen as exfoliated spaces of different densities with hollows—tightly packed, emotionally charged black holes and niches.

In reviewing the accomplishments of Eugene Garfield, it seems that he founded the Institute for Scientific Information in Philadelphia primarily to extend the links between these exfoliated spaces, using one universal index: *Science Citation Index*®, hereafter referred to as the Citation Index. This Index has become the instrument for charting the exfoliated spaces of the information environment. I discovered the existence of exfoliated information spaces at the end of the 1950s, while I was on the staff of the All-Union Institute for Scientific Information (VINITI USSR). As a professional statistician, I was primarily interested in the possibility of quantitatively analyzing the evolution of science. The pioneering work of Derek de Solla Price stimulated this interest¹. A paper² authored by people on the staff of VINITI was soon published, in which we tried to formulate our naïve ideas of the cybernetic aspects of scientific information. In 1965, my book *Scientometrics*³ was published. My ideas regarding science as an information system were more mature by then. One of the chapters in the book was devoted entirely to the Citation Index. In other chapters, the Citation Index was used as the main tool for delineating the informational aspects of the evolution of science.

The potentialities of the Citation Index are well known, so I won't enumerate them here. I will only remark that the Index is an indispensable companion in my work. I am always curious to know how isolated branches of knowledge resonate within the exfoliated spaces. I also watch closely how my books, despite their extremely polymorphous content, are accepted by World scientific opinion. The Citation Index makes dialogue possible and, therefore, is a means of a "mind feedback." Information spaces can easily be seen using a cluster map that determines co-citation linkages; Eugene Garfield himself does it brilliantly⁴. It is only natural that the Citation Index has proved to be the most useful tool for a bibliographic search. The Citation Index enables us to do a bibliographic search directly in the field of information science, and not in their artificial mappings.

The study and practical use of citations is the core of Garfield's entire scientific activity, which has been turned into a science. Until now, the Citation Index has been the object of heated discussions: many still do not understand what the index reflects. Perhaps the following definition will pacify the Index's opponents: the Citation Index is mainly an index of the contribution made by a scientist to the information flow penetrating knowledge's exfoliated space. Measuring a scientist's contribution to the information flow is different from measuring a scientist's contribution to science. While we are eager to measure the significance of a scientific contribution, its importance depends on many factors: the scientific value of the contribution, the nature of the information flow, social conditions, and finally, the unknown factor of the future of science. As a rule, it is only possible to evaluate scientific significance retrospectively. Citation is a measurement of what is taking place in front of our eyes and what can be directly observed. At present, no general theory exists. This is not surprising, since in each concrete case, the analysis should proceed from the concrete situation being studied. The lively change of the interpretation is what makes it so attractive.

However, not everything occurring in the information spaces of our culture is easily picked up by the regular communication channels. One should keep in mind that the spaces include not only what is produced by science but also by the quickly changing life. Dr. Garfield went a step further by beginning to issue his essays, which have since become widely popular. The goal of the essays is evident: to break

through the boundaries of exfoliated spaces and to penetrate into the farthest areas. Garfield's essays are strikingly versatile. The following are a few of the popular topics covered in 1983: Child Care; The Dilemma of Prolongevity Research—Must We Age Before We Die, or if We Don't, Will We?; The 1980 Articles Most Cited in 1980 and 1981—Physical Sciences, Life Sciences; Sleep Disorders; What's in a Name? The Eponymic Route to Immortality; Help! What Would You Do With Three Million Journals?; The Poetry—Science Connection; Artificial Intelligence; The 1982 Nobel Prize in Physics; Child Safety! This is a true breakthrough into the spaces of our information environment, though we can easily trace Dr. Garfield's predilection for scientometric problems.

I first met Garfield personally at one of the Moscow Book Fairs. Our dialogue struck me as an instance of ordered energy: it was natural, frank, and business-like. One of the fragments of our conversation began with my asking him:

- Could you help me to find a publishing-house for a book of mine devoted to a probabilistic model of semantics?
- I could well publish such a book at my Institute.
- But your Institute does not systematically publish books.
- It has not yet, but it can now (!!!)

In 1981 and 1982, three of my books were published by ISI Press. Through Dr. Garfield I obtained most of the American literature I needed to write in a way that is comprehensible to Western readers. Thus, ISI Press has made new links in the exfoliated spaces of our planet. The publication of Volume 6 of *Essays of an Information Scientist* will allow us to embrace everything that is taking place in our information environment, to expand the boundaries of our consciousness, and to see the variety of an ever-changing world.

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