

New Address: 1122 Spring Garden Street, Phila. 23

Dr. Joshua Lederberg
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Stanford, California

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Dear Dr. Lederberg:

Your letter was delayed somewhat in the process of being forwarded from my old office at Smith, Kline & French where I was formerly a consultant with "resident" status. I wrote the article for Science on Citation Indexes while setting up an information system on chlorpromazine at SKF.

I hope you won't be embarrassed by a show of emotion, but your memo almost brought tears to my eyes. It then seemed that over six years of trying to sell the idea of citation indexes had not been completely in vain. You might be surprised how few people will take the time and trouble to scribble such a note. When asked many endorse the idea, but don't get worked up about it enough to write spontaneously. One exception is Dr. Gordon Allen at the NIH and I wonder if perhaps his interest has not been responsible for reminding you. I sent 15 copies of my paper to the Amer. Soc. of Human Genetics in connection with a possible research project.

Returning to your letter--yes I too have had countless instances when I could have benefited from a Citation Index. In fact just yesterday I could have used one in trying to find some information in Chemical Abstracts.

You are so right when you say my critics have not grasped the idea. I try to be tolerant of those who have not had much time to study the problem. Even those who say it is a good idea frequently don't really know how they would use it--or how it differs from conventional indexing. As to opposition from the established outfits--there is no end of this. Chemical Abstracts pays lip service to Citation Indexes, but does nothing about them. Even my friends at Biological Abstracts and the Current List of Medical Literature who accept my judgement on many other conventional problems--look upon Citation Indexes as something impractical and unnecessary--particularly when there is so much more abstracting and regular indexing left undone.

You ask whether I have tried to set this out in an adequate experiment. In the beginning (way back at Johns Hopkins when I first started on the idea in 1953) I did do a little experimenting. I had my own doubts at first. Actually

it took quite some time and effort just to get together the material on the Selye article. Later I tried to convince the US Patent Office of its value not only for the scientific literature, but for the patents. There are special reasons why it is particularly applicable there, but I won't go into that now. If you want to see reactionary thinking in action then I suggest you drop in down there some time. They wouldn't hear of a test on a citation index even though several patent attorneys pleaded for them. And now they are so enraptured with RAMACs, etc. there is no room for simple ideas. However, I did go on to do a sample covering over 5,000 US patents. From this incomplete index I extracted several examples of how citation indexes brought together related information that was not brought together by the Patent Office hierarchical classification system or by alphabetic subject indexing in Chemical Abstracts. I gave this paper at the Amer. Chem. Soc. in 1955 and the paper was subsequently published in the J. Pat. Off. Society.

For some time after I tried to convince [REDACTED] at the National Science Foundation to give me a small grant to conduct research on citation indexes. In those days Sputnik was an unknown word and the NSF Office of Scientific Information was an equally unknown entity. However, some congressman, at an NSF budget hearing, asked the naive question "why don't you Shepardize the literature--we lawyers don't seem to have the troubles you do." As a result of this simple questioning the NSF made a statement in one of its reports that it was planning to support research on citation indexes. A friend called this to my attention. I promptly wrote the NSF and asked them who was going to do this research. I was then advised to submit a proposal to do some research on citation indexes. Having had several previous failures in obtaining research funds from NSF because I was "unaffiliated"(and even when I got affiliation) I knew that it would be a waste of time to send in a proposal on my own. In addition, I was just then getting CURRENT CONTENTS off the ground and it came quite close to bankrupting me at that time(financially, that is.) However, I finally got a colleague at the Univ. of Penn., Mrs. Gwen Bedford to help me write a proposal that might get through the screening. She had written dozens before for the ONR, etc. I would gladly send you a copy of this proposal if you feel that you wish to take the time to read it. It was by no means perfect, but I can assure you that if it had been written by Waterman himself it would not have gotten through. After spending literally weeks getting the proposal together in 18 copies I asked for an informal appraisal by the NSF staff. They advised me that there was nothing wrong with it and that it would be sent out to a group of referees. Several of these referees subsequently volunteered the information that they were asked to consider my proposal. Dr. Allen was one of them. Needless to say my proposal was turned down. However, shortly after the official letter came through I received another communication in which it was suggested that my chances would be considerably improved if I had the sponsorship of a scientific body or institution of authority.

Since that time I have been trying to get such sponsorship and hope to find in the near future enough time to re-write the proposal--a very painful process indeed. However, I have had a few off-the-record criticisms about the editorial formulation of the proposal. I gladly accept criticism, but the conclusion is that nobody wants to do research on this anymore--they ~~want~~ just want me to plow into making a citation index. I am fully prepared to do this but I do not like to do plunge in that way.

If you would be interested in seeing my former proposal and my other papers I would be delighted to send them to you in the next mail. I would be grateful to you if you could possibly suggest some sampling method that would satisfy you. This is not easy. Unless you collate a great deal of material you don't pick up just the references that would ordinarily be missed. My present thinking is that we would cull the references from all journals of general science (Science, Nature, etc.) and then examine the material brought together for certain selected journals in genetics, as well as certain articles in genetics appearing in non-genetics journals.

There is then the question of the period of time, and many other considerations many of them mentioned in my proposal.

I have also recently figured out that with one tenth the budget of Chemical Abstracts I could probably put out a citation index for all of science--and once begun the enterprise would probably be self-supporting. At a total cost of 5¢ per reference one could cover 5,000,000 references at a total cost of \$250,000. Chemical Abstracts covers only 80,000 abstracts in chemistry and their budget is over \$2 million. I don't think it would be difficult to get 20,000 scientists to pay \$10 or \$15 for a compendium of this type.

I have rambled on at great length. Let me close and thank you again for your encouraging comments. The most persistent of us need encouragement and I would feel justified now in pushing ahead for a citation index even if you were the only man to ever use it. I have great faith that the citation index will one day be a spur to many new scientific discoveries in the service of mankind.

Sincerely yours,



Eugene Garfield
Editor and Publisher