

Joshua Lederberg--
Multidisciplinarian *Extraordinaire*

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In a recent issue of *Current Contents*, we inaugurated our new multidisciplinary section, and I am glad to report that already we have evidence of a positive response to the change. In that issue, we also introduced our readers to the trenchant commentaries of Professor Joshua Lederberg of Stanford University. With the publication of a second column in *Current Contents*, I would like to tell our readers about his qualifications as a multidisciplinary scientist *extraordinaire*.

Every student of genetics will know that Dr. Lederberg received the Nobel Prize for his work in genetic recombination in bacteria, one of the foundation stones of modern molecular biology⁽¹⁾. Among space scientists, Josh Lederberg is an acknowledged prime mover in exobiology⁽²⁾, whose contributions to the planned exploration of Mars are incredibly varied. Among research scientists working in the fields of organ transplantation and genetic manipulation, Lederberg is known as a pioneer for his efforts to focus public attention upon the significance and potential of "biological engineering". A by-product of his interest in artificial intelligence and mass spectroscopy⁽³⁾ was the invention of Dendral⁽⁴⁾, an algebraic line notation for unique representation of chemical structures. Nor is this the end. Dr. Lederberg has made significant contributions to the theory of immunol-

ogy⁽⁵⁾ and to somatic cell genetics⁽⁶⁾. As Director of the Joseph P. Kennedy, Jr. Laboratory for Molecular Medicine at Stanford, he has laid the foundations of molecular neurobiology in direction of basic research in problems of mental retardation.

I don't know whether award of a Nobel Prize caused him in some way to reflect on the information flood supposedly inundating science in 1958, but it was then that he wrote me rather cryptically to ask what had happened to my idea for a citation index to science⁽⁷⁾. "Lack of a citation index," he wrote, "hinders my finding out myself." Soon thereafter I invited him to serve on the Editorial Advisory Board of the *Genetics Citation Index*, and at its inception, on the Board of the *Science Citation Index*, which he uses religiously in support of his incredibly extensive reading and writing.

In recent years, Dr. Lederberg has turned his attention to the social impact of science. His weekly column in the *Washington Post* has come to have great influence on Congressional opinion in spite of--or perhaps because of--a rather dry style that one would think more appealing to scientists than legislators. The columns reflect the delightful clarity and incisiveness of his conversation, along with a vocabulary whose richness very few, in or

out of science, can match. Readers of *Current Contents* will understand why it gives me such great pleasure to introduce Dr. Lederberg's column to the scientific community.

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2. Lederberg, J. Exobiology; approaches to life beyond the earth. *Science* 132, 393-400, 1960.
3. Lederberg, J., G.L. Sutherland et al. Applications of artificial intelligence for chemical inference. I. The number of possible organic compounds; acyclic structures con-

taining, C, H, O and N. *J. Am Chem. Soc.* 91, 2973-6, 1969.

4. Lederberg, J. "Topology of Molecules", in *The Mathematical Sciences: A Collection of Essays*. M.I.T. Press, Cambridge, 1969, p. 37.
5. Lederberg, J. Genes and antibodies. *Science* 219, 1649-53, 1959.
6. Lederberg, J. Genetic approaches to somatic cell variation; summary comment. *J. Cell Comp. Physiol.* 52(Suppl. 1), 383-402, 1959.
7. Garfield, E. Citation indexes for science, a new dimension in documentation through association of ideas. *Science* 122, 108-11, 1955.