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## The English Language: The Lingua Franca Of International Science

Reprinted from *THE SCIENTIST* ® 3(10):12, 15 May 1989.

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For practical reasons, the Pasteur Institute in Paris recently decided to publish its venerable *Annales de l'Institut Pasteur* in English. The new title is *Research in Virology* (or *Immunology* or *Microbiology*, depending on the specialty). Institute officials explained that almost 100% of the articles submitted to the journal in 1987 were in English, compared to about 15% in 1973. The officials also noted that the journal's French title gave researchers the impression that it was not open to the international scientific community. As a result, papers were submitted elsewhere.

In deference to Francophiles, the conversion to English is not absolute. French-language articles accepted by the journal will continue to be published in French. Also, French abstracts will still accompany English-language articles.

However, this has not prevented the expected reaction—or overreaction—by the French media. *Le Monde* suggested that the change “sounds the death-knell for French-language science” (see *Nature*, vol. 338, April 6, 1989, p. 448). This is tame compared to the response to my 1976 article in *La Recherche*, which recommended that French

scientists publish in English. (“Is French science too provincial?” vol. 7, p. 757-60). Michael Debré, a former Prime Minister of France, claimed that my suggestion posed a threat “as serious as reduced birth rates, an impoverishment, from which people could not recover” and warned that “a nationalist revolt” could become, or rather will become, the natural attitude of young researchers if we follow Garfield” (*La Recherche*, vol. 7, 1976, p. 956).

Language clearly is a sensitive issue because it is so closely tied to national identity, heritage, and culture. But national pride should not blind scientists and journal editors to an obvious fact. Publishing research papers in English is necessary to have the widest circulation and greatest impact in the international scientific community.

This statement is supported by a number of studies based on the Institute for Scientific Information's *Science Citation Index (SCI)*. One published analysis covered 1978 articles by French authors (*Current Contents*, no. 23, June 6, 1988, pp. 3-11).

The study showed that French researchers are greatly increasing their output of English-language articles.

In 1978, the *SCI* indexed 17,300 papers by French authors. Of these, 51% were in English and 48% were in French. This is a major change over comparable *SCI* statistics for 1973, when only 25% of the 17,400 French-authored papers were in English and 75% were in French.

The study also demonstrated that French-authored articles in English were, on average, cited far more frequently than the French-language papers. The 1978 English-language papers received about 57,600 citations from 1978-1982, yielding a five-year impact rating—based on an *SCI* calculation—of 6.5 for the average paper. The French-language articles received 15,650, or a five-year impact of 1.9.

These data on relative citation impacts applied to other non-English languages as well as French. The five-year impact of all 1978 *SCI* articles in English was 5.2, compared to 1.9 for German, 1.2 for Russian,

and 0.7 for Japanese.

Linguistic purists from non-English-speaking countries may be right to insist on preserving their vernacular language as a point of national pride. But they should realize that their nation's prestige and visibility in the world of science may be enhanced significantly by publishing in English. They should support, not condemn, researchers and journal editors who choose to publish in English and thereby advance their nation's scientific interests.

As I stated more than 10 years ago in *La Recherche*, the French language is not threatened by French scientists who publish in English or any other language. It is the complacently monolingual English-speaking world that needs to worry. By not learning foreign languages, it risks being left out of the conversation in an increasingly global and multilingual business community. ■