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## Citations in Popular and Interpretive Science Writing Eugene Garfield

Why is it that so much otherwise excellent “popularized” science writing lacks an essential ingredient, a lack that minimizes its lasting value? I have found that scientific publications can be qualitatively evaluated into those which include bibliographic citation data and those which do not. Scientists frequently are stimulated to order publications cited in articles. Is the exclusion of citations a tradition among journalists who prefer to withhold sources of information so as to prevent others from tapping these same sources? Librarians and scientists spend hundreds of hours tracking down precise literature citations which are missing in articles published in otherwise reputable publications like *Scientific American*, the *New York Times*, or *The Sciences*— a task that could be eliminated if brief but complete citations were given. This is certainly false economy and annoying.

As citation indexing becomes more widespread, full citations will become more important (1). In the meantime there is more than adequate justification for including the elusive volume, page, and year (2). References to “the latest” or “a recent” issue of *Nature* or *Science* are particularly frustrating! This practice is particularly irksome as authors rarely fail to give complete citations for references to their own publication— a form of bibliographic narcissism.

I have protested in vain to *Scientific American*, *International Science and Technology*, and the *New York Times*. The popular British journal *New Scientist* frequently but inconsistently gives the complete pertinent literature reference. *Science News Letter* is equally inconsistent. The new British newspaper *Medical News* is laudably more consistent.

The exclusion of citations, of course, is a far more serious shortcoming than the abominable practice of dispersing the

author’s biography on one page and the bibliography on another. The bibliography, of course, in no way resembles the list of pertinent journal citations upon which ‘most interpretations and reviews are based. The science writers, the people who translate English to English, ought to realize that busy scientists and students depend increasingly upon these translations as a means of retrieving scientific information. In his more objective role the science writer reports, hopefully, all aspects of new fields, including historical background and all known divergent viewpoints.

In connection with the foregoing remarks, I believe that it is false economy to eliminate titles of journal articles in references cited in *Science*. This useful “redundancy” not only could do away with the need for many interlibrary loans but also would simplify the writing of papers, since one frequently must incorporate the title of the cited article in an unnecessarily long sentence. I would be perfectly willing to have such information given in five-point type— if space is really the problem. In view of the recent President’s Science Advisory Committee recommendation (3) on the use of fuller, more exact titles, it is borrowing from Peter to pay Paul when you discard them.

**EUGENE GARFIELD**

*Institute for Scientific Information, 33 South  
17th Street, Philadelphia 3, Pennsylvania*

### References

1. E. Garfield, *Science* **122**, 108 (1955).
2. S. M. Garn, *ibid.* **121**, 7A (21 Jan. 1955).
3. President’s Science Advisory Committee, “Science, government, and information” (1963), pp. 24, 35.