

The Significant Journals of Science

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Five years ago I published a list of the 152 most significant journals of science.¹ The impact of that list was also significant. It would be impossible to report here all the many ways in which this report on the impact of journals made its own impact.

For example, some of the most cited journals used this information, justifiably, to improve their appeals to advertisers. Dozen of libraries informed me that the list was used as justification for the addition of many journals not already in their collections. Similarly, others used the data to prune journals which they had known to be little used but which were staunchly defended as indispensable by individual patrons.

Recently, I published an up-dated and expanded version of this list.² It is reprinted here for the benefit of those readers who do not regularly see *Nature*. The original manuscript was unusually long for *Nature*. Since the space available was severely limited, I would now like to add a few observations.

I've often stressed the importance of limiting comparisons between journals to those in the same field. One of the simplest and best ways of locating lists of journals which are more closely related to each other than the ones listed here is to use ISI®'s *Journal Citation Reports*® (*JCR*™), for which the 1976 edition has now been published. Thus, if I am interested in comparing acoustics journals, *JCR* will tell me those journals most closely associated with any particular acoustics journal I select.³

As an example of the vagaries of the data presented here, consider the following examples. The impact for the *Journal of Molecular Biology* for 1974 is 7.5. This is a very high impact, but one must consider it in context. The average article in *JMB* contained a relatively high 29.4 references. Even more important, the group of journals that cited it most contained, on average, a similarly high number of references per paper. Thus, the chances of *JMB* and other biochemistry journals receiving a high average number of

citations to their articles were better than for journals in some other fields. For example, *Acta Mathematica* had a 1974 impact of 2.1. But this impact must be considered in the context that the average math journal only contained approximately eight to ten references per paper.

Another factor that can affect the rankings is the time period involved. This includes not only the number of years from which the data were taken, but also the *specific years* included. For example, if impact has been calculated on the basis of five years rather than two,

the average math journal would improve its impact while *JMB* and other similar journals would decline. This reflects the fact that 1975 *SCI*[®] citations in a hot field like biochemistry peak in 1973, while those for mathematics peak during 1970-1971.^{4,5}

It is obvious, then, that if we take these other factors into consideration, we can produce a new list which may be "fairer." But that is a task for another day. So, without further ado, I present on the following pages the significant journals of science.

REFERENCES

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