

citations/cited sources, discounts the negative influence of articles which are never cited. For certain journals this may be significant depending upon one's definition of an article or citable item.

As the title of this editorial states we have computed impact factors by dividing the citations to the years 1967 and 1968 by the total number of articles published in 1967 and 1968. The citations counted appeared in the 1969 literature. In this way we have chosen a current impact factor which discounts the effect of most superclassics. About 25% of all citations are made to the two-year period prior to the source year chosen.⁸ If we had chosen 1964 and 1965 we would have had a different list. We intend to produce such analyses as time and energy permit.

Two things are immediately apparent. First, the list of 50 journals with the highest impact, current or otherwise, is quite different from the list of 50 most-cited journals. Only eleven journals appear on both lists. Second, almost half of the high-impact journals can be called review journals. None of them appears on the top 50 most-cited list, thus confirming a finding already reported. Articles which cite heavily,

as reviews are very likely to do, are themselves cited heavily.⁹ For whatever reasons, the Golden Rule apparently extends even to bibliography.

While many review journals appear in this list, many do not. If all such journals were treated separately one could limit comparisons to journals presumably limited to original research. But this is not easy to do. Conspicuous by their absence are both *Science* and *Nature*. It would be important, therefore, to measure separately the impact of their lead or review articles. The absence of the *Physical Review*, the *Journal of Chemical Physics* and the *Journal of Applied Physics* and the presence of *Physical Review Letters* may be a reflection of the immediacy factor.

Large-scale studies of this kind may, therefore, do certain journals an injustice. Any editor who wishes to examine his own journal in greater detail can do so by straightforward examination of the *Science Citation Index* or by contacting ISI for a more extensive computerized analysis. In future columns I will indicate the effect of so-called immediacy factors, among others, which show how quickly the journal in question is cited.

1. Garfield, E. Citation indexing for studying science. *Nature* 227:669-671, 1970. Reprinted in: *Current Contents* No. 46, p. 45, November 18, 1970.
2. "Citation indexing, historio-bibliography, and the sociology of science." In: *Proceedings of the Third International Congress of Medical Librarianship, Amsterdam, 5-7 May 1969*. (Amsterdam: Excerpta Medica, 1970) p. 187-204. Reprinted in: *Current Contents* No. 15, p. M23-41, April 14, 1971.
3. A basic journal collection; ISI lists the fifty most-cited scientific and technical journals. *Current Contents* No. 2, p. 3-5, January 12, 1972.
4. Play the new game of twenty citations; wherein ISI reveals the fifty most frequently cited "non-journal" items. *Current Contents* No. 32, p. 5-9, August 11, 1971.
5. The *Science Citation Index* as a blueprint of the journal literature. (In press).
6. & Sher, I.H. New Factors in the evaluation of scientific literature through citation indexing. *American Documentation* 14(3):195-201, 1963.
7. Sandison, A. Library optimum. [A letter to the editor of] *Nature* 234:368-369, 1971.
8. Institute for Scientific Information, Inc., *Science Citation Index 1970 Guide and Journal Lists* (Philadelphia: Institute for Scientific Information, 1971), p. 13.
9. Krauze, T.K. & Hillinger, C. Citations, references and the growth of scientific literature; a model of dynamic interaction. *Journal of the American Society for Information Science* 22(5):333-336, 1971.

List of Fifty Most-Cited Journals

Rank	Times Cited	Title
1.	26263	Journal of the American Chemical Society
2.	20674	Physical Review
3.	17112	Journal of Biological Chemistry
4.	15325	Nature
5.	14028	Journal of the Chemical Society
6.	13690	Journal of Chemical Physics
7.	9752	Science
8.	9550	Biochimica et Biophysica Acta
9.	8260	Proceedings of the National Academy of Sciences of USA
10.	7638	Biochemical Journal
11.	7617	Lancet
12.	6581	Physical Review Letters
13.	5789	Comptes Rendus Hebdomadaires des Seances de l'Academie des Sciences
14.	5420	American Journal of Physiology
15.	5401	Journal of Organic Chemistry
16.	5190	Journal of Applied Physics
17.	5079	Proceedings of the Society for Experimental Biology and Medicine
18.	4982	Journal of Molecular Biology
19.	4966	Journal of Physiology (London)
20.	4864	Proceedings of the Royal Society (London)
21.	4813	Journal of Cell Biology
22.	4785	Journal of Clinical Investigation
23.	4703	Journal of Physical Chemistry
24.	4541	Chemische Berichte
25.	4512	New England Journal of Medicine
26.	4492	Journal of the American Medical Association
27.	4304	British Medical Journal
28.	4271	Astrophysical Journal
29.	4259	Analytical Chemistry
30.	4167	Zhurnal Eksperimentalnoi i Teoreticheskoi Fiziki
31.	4147	Journal of Bacteriology
32.	4076	Biochemistry
33.	4034	Nuclear Physics
34.	3943	Physics Letters
35.	3937	Tetrahedron Letters
36.	3871	Journal of Experimental Medicine
37.	3787	Annals of the New York Academy of Sciences
38.	3689	Archives of Biochemistry and Biophysics
39.	3537	Journal of Geophysical Research
40.	3458	Journal of Polymer Science
41.	3417	Biochemical and Biophysical Research Communications
42.	3372	Federation Proceedings
43.	3308	Journal of Physics
44.	2922	Transactions of the Faraday Society
45.	2917	Acta Crystallographica
46.	2869	Doklady Akademii Nauk SSSR
47.	2781	Journal of Pharmacology and Experimental Therapeutics
48.	2728	Angewandte Chemie
49.	2627	Journal of Immunology
50.	2620	Fizika Tverdogo Tela

Rank	1969 Citations to 1967-8	1967-8 Source Items	Impact Factor	Title & Rank on Most-Cited List
1.	820	28	29.29	Accounts of Chemical Research (542)
2.	184	8	23.00	Advances in Protein Chemistry (395)
3.	448	20	22.40	Pharmacological Reviews (211)
4.	804	39	20.62	Bacteriological Reviews (232)
5.	932	53	17.58	Annual Review of Biochemistry (320)
6.	572	33	17.33	Physiological Reviews (148)
7.	228	14	16.29	Solid State Physics (388)
8.	192	20	9.60	Advances in Enzymology (489)
9.	144	16	9.00	International Review of Cytology (565)
10.	7340	833	8.81	Journal of Molecular Biology (18)
11.	232	27	8.59	Recent Progress in Hormone Research (366)
12.	11548	1348	8.57	Proceedings National Academy of Sciences USA (9)
13.	2700	325	8.31	Journal of Experimental Medicine (36)
14.	452	55	8.22	Quarterly Reviews (309)
15.	408	50	8.16	Chemical Reviews (154)
16.	296	42	7.05	Annual Review of Plant Physiology (456)
17.	820	125	6.56	Journal of Crystal Growth (559)
18.	288	44	6.55	Annual Review of Microbiology (534)
19.	10768	1777	6.06	Journal of Biological Chemistry (3)
20.	80	14	5.71	Methods of Biochemical Analysis (495)
21.	6344	1114	5.69	Biochemistry (32)
22.	22156	3946	5.61	Journal of the American Chemical Society (1)
23.	612	109	5.61	Uspekhi Fizicheskikh Nauk (265)
24.	1060	194	5.64	Cold Spring Harbor Symposia on Quant Biol (140)
25.	176	34	5.18	Biological Reviews Cambridge Philosophical Soc (407)
26.	1860	360	5.17	Journal of Virology (278)
27.	240	48	5.00	Medicine (369)
28.	600	122	4.92	Journal of Cell Science (284)
29.	11380	2317	4.91	Physical Review Letters (12)
30.	5440	1167	4.66	Astrophysical Journal (28)
31.	1784	395	4.51	American Journal of Medicine (62)
32.	3400	754	4.51	Zhurnal Eksperimentalnoi i Teoreticheskoi Fiziki (30)
33.	2620	584	4.49	Virology (57)
34.	692	156	4.44	Journal of Neurophysiology (150)
35.	368	83	4.43	Psychological Review (258)
36.	816	189	4.32	Reviews of Modern Physics (103)
37.	5108	1190	4.29	Biochemical and Biophysical Research Comm (41)
38.	1008	238	4.29	Monthly Notices of the Royal Astronomical Society (180)
39.	1820	432	4.21	Circulation Research (74)
40.	2992	726	4.12	Journal of Immunology (49)
41.	284	70	4.06	Quarterly Journal of Medicine (341)
42.	1672	417	4.01	Journal of the National Cancer Institute (76)
43.	1992	501	3.98	European Journal of Biochemistry (82)
44.	564	144	3.92	Molecular Pharmacology (474)
45.	552	142	3.89	Developmental Biology (345)
46.	1888	488	3.87	Journal of Clinical Endocrinology and Metabolism (69)
47.	392	104	3.77	Chemical Engineer (London) (520)
48.	876	235	3.73	Journal of Lipid Research (168)
49.	284	77	3.69	Advances in Physics (450)
50.	564	154	3.66	Psychological Bulletin (245)