

Journal Citation Studies. 30. The Journals
Pathologists Write and the Journals
Pathologists Cite*

Number 49

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This article presents the results of a "pathologic" analysis of scientific journals indexed for the *Science Citation Index (SCI)* in 1972. The term pathologic, as used here, does not refer to evidence of bibliographic anomaly or editorial malfunction; it refers to the pathology content of the scientific literature.

Pathologic analysis is more appropriate than analysis of pathology journals, which would be inadequate. The journals involved are not only those customarily called pathology journals (journals in which pathologists probably publish most of their articles) but also journals that are cited in the references of articles published in pathology journals. Although these two groups are different both are important to pathologists. One is the literature of pathology; the other is the literature of interest to pathologists.

Methodology

The source of the data used here is the magnetic-tape data bank compiled since 1961 for production of the annual volumes of the *Science Citation Index*. At the end of 1972, the data bank contained more than 36 million citations, 4,659 million of which had been added just that year.

All these citations appeared in the references of articles published in journals processed for the *SCI*. Journal references cite a wide variety of published and "unpublished" items: books (monographs, multiauthored collections, data compilations, handbooks, etc), patents, theses, governmental and other technical reports, abstracts, proceedings of society meetings, symposia and conferences, and, of course, other journal articles, which account for most of the citations made in journal references. Over the years since initial publication of the *SCI* in 1961, they have steadily averaged near 80 percent of the citations in *SCI* source journals.

In 1970, the Institute for Scientific Information undertook a citation study of 1969 references. Some results of that initial study have been reported in *Science*.¹ There we attempted to show which journals had been most frequently cited in 1969, and which ones had the greatest impact. Impact was measured by relating the number of times a journal had been cited in 1969 to the number of articles it had published in 1967 and 1968.

That study covered only a quarter-year's references. Since then, we have made a similar analysis of all citations in 1972 issues of *SCI* source journals. In addition, we have elaborated the basic methodology to allow study of groups of journals in different specialties.² It may be useful to go over the steps involved.

For this pathologic analysis of scientific journals we extracted from the data bank two groups of references: (1) all references in 21 pathology journals indexed

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by the *SCI* in 1972; and (2) all references containing citations of those same journals in 1972, no matter in which journal these latter references appeared.

These files of references and citations were then manipulated and arranged to show which journals the group of pathology journals cited most often in 1972, and which journals had cited the pathology journals as a group most often in 1972.

Such citing and cited counts are the basis of *ISI's Journal Citation Reports (JCR)*. The *JCR* gives for individual journals total references made, total citations received, and identifies all the cited and citing journals linked to individual journals. Counts are distributed by year of cited item.

In this study, we treated the pathology journals as a unit and combined their citing and cited counts. In other words, we treated them as a single journal—as an imaginary *Acta Omnia Pathologica*—to determine which journals had cited its articles most often, and which journals the authors of its articles had cited most often.

It was necessary to be somewhat arbitrary in choosing journals to be included in the pathology core. A simple approach seemed the best. We included 21 *SCI* source journals from 1972 whose titles contain the word pathology or its equivalent. The data studied were the 1972 references and citations of them in other journals' 1972 references. They are listed as follows. The results of our pathologic analysis are shown in Tables 1–4.

Acta Neuropathologica	Journal of Clinical Pathology
Acta Pathologica Japonica	Journal of Comparative Pathology
Acta Pathologica et Microbiologica Scandinavica (A and B)	Journal of Neuropathology and Experimental Neurology
American Journal of Clinical Pathology	Journal of Pathology
American Journal of Pathology	Oral Surgery, Oral Medicine, and Oral Pathology
Archives of Pathology	Pathologia et Microbiologia
Beiträge zur Pathologie	Pathologia Europaea
British Journal of Experimental Pathology	Pathologie et Biologie Pathology
Experimental and Molecular Pathology	Virchows Archiv (A and B)
Experimentelle Pathologie	
Human Pathology	

Results

In 1972, almost 1000 different journals cited one or more of the pathology journals that make up our *Acta Omnia Pathologica*—in all about 33.2 thousand times. Most of those 1000 citing journals cited the pathology *Acta* only a few times. The *Journal of Materials Science*, for example, cited *American Journal of Pathology* and *Archives of Pathology* once each. *Poultry Science* cited six of the group in a total of 15 references.

As we have shown to be true for science and technology as a whole,¹ and for numerous specialties,² a relatively small number of journals account for most references and for most citations. This concept of the significant core holds true in the case of pathology.

Table 1 shows 75 journals that most frequently cited pathology journals in 1972. These 75 journals cited the pathology group about 14,300 times, accounting for 43 percent of the citations made by the 1000 journals mentioned previously. This list of 75 journals can thus be considered as including, if not the most “path-

logical" journals, then certainly the journals that give most evidence of using the material that pathologists publish in pathology journals.

Almost two-thirds of them wouldn't normally be considered pathology journals. Table 1 shows, for example, that *Laboratory Investigation*, *Cancer*, and *Lancet*, among others, cite pathology journals much more often than most of the pathology journals in the list on p. 6. It is true that only small percentages of their references in 1972 contained citations of the base pathology journals (about 10, 5, and 1 percent, respectively). Yet by absolute numbers of pathology references, they are shown to be among the heaviest users of the pathology literature.

Table 2 arranges these citing journals differently. There they are ranked by the percentage of their citation of pathology journals in terms of their citations of all journals. One can say that the journals at the top of this list are the pathologist's pathology journals. They are among the heaviest citers of pathology journals in terms of both absolute numbers of references and in terms of pathology citations in relation to total citations.

Table 3 shows the 75 journals most often cited by the base group of pathology journals in the list on p. 6 in 1972. Except for a sprinkling of true pathology journals (those at the top of Table 2), Table 3 looks very much like other specialty lists we have compiled in similar group citation analyses. *Nature* is second on the list, *Lancet* third, *Journal of Experimental Medicine* fourth, and *Journal of Cell Biology* fifth.

The base pathology journals contained about 44,500 references in 1972, citing more than 6000 different items. Only about 2300 of those items were cited more than once. The 75 journals in Table 3—about 1.25 percent of all the different items cited—account for just about 50 percent of the references, or about 22,300. In other words, in 1972 the authors of papers published in pathology journals cited this small core of 75 journals in half of all their references.

This list of journals cited most often by pathology journals is very similar to lists of highly cited journals published in previous specialty studies. This is confirmed by the high impact of these journals. Most of the journals in Table 3 have very high impact and Table 4 arranges these journals by impact factor. The list is not a list of pathology journals, although the data show them to be of great importance in pathologic research. With few exceptions, it is a list of the most important *biomedical* journals.

The impact factors in Table 4 were calculated by dividing the number of citations the journal received in 1972 by the number of articles it published in 1970 and 1971. I have previously discussed various methods of calculating impact, and explained our choice of this particular method.¹ Some measure of impact is necessary to establish a rough equality between journals that publish thousands of articles yearly and those that publish only a hundred or so. Since in theory every article, no matter where it is published, has an equal chance of being cited, larger journals will always show up better in citation studies because of sheer size, unless the likely effects of size are compensated for. Calculation of impact attempts to do that.

Other factors as well may affect a journal's standing on lists like those in this report. For that reason, the lists give other information that should be considered in evaluating a journal's ranking on such lists. For example, a journal may be heavily cited, and have a high impact factor as well, simply because it cites *itself* much more often than the average journal does. The average self-citation rate is

about 20 percent. Self-citation may be either self-citingness or self-citedness,⁴ as in Tables 1 and 3, respectively.

The age of a journal will also influence its standing on such lists. For example, *Human Pathology* began publication only in 1970. As a journal that cited pathology journals heavily in 1972, it appears in Tables 1 and 2. We know that the "average" scientific article is most likely to be cited during the second and third years after its publication. By the end of 1972, *Human Pathology* had been cited only 33 times, and so the journal does not appear among the highly cited journals in Tables 2 and 3. Nor, of course, does it have the huge backlog of citable items that older journals have. The age of a journal is, therefore, of importance in considering these lists. To a good extent, the impact factor also compensates for the advantage, in highly cited lists, of older journals.

Because such other factors should be considered, the lists give the following information: the total number of references the journals made or citations they received in 1972; the number of "pathology" references or citations; the number of self-citations; the relationship of these counts to each other in terms of percentage; and impact factors.

References

1. Garfield E: Citation analysis as a tool in journal evaluation. *Science* 178:471, 1972. Reprinted in *Curr Contents* No. 6, February 7, 1973, pp. 7-24
 2. Garfield E: Journal citation studies. 9. Highly cited pediatric journals and articles. *Curr Contents* No. 29, July 17, 1974, pp. 5-9
 3. Garfield E: Highly cited articles. 18. Physiologic psychology and animal behavior. *Curr Contents* No. 17, April 28, 1975, pp 5-9. (Footnote 1 of this paper lists a number of papers on highly cited journals and articles.)
 4. Garfield E: Journal citation studies. 17. Journal self-citation rates—there's a difference. *Curr Contents* No. 52, December 25, 1974, pp 5-7
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TABLE 1. The 75 Most Frequently Cited Pathology Journals in 1972

<i>Item No.</i>	<i>Journal</i>	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>	<i>F</i>	<i>G</i>
1.	Acta Pathol Microbiol Scand*	8017	962	573	12.0	7.2	59.6	5.072
2.	Am J Pathol*	4048	670	382	16.6	9.4	57.0	1.773
3.	J Pathol*	1972	500	222	25.4	11.3	44.4	1.243
4.	Lab Invest	4686	482	—	10.3	—	—	3.042
5.	Virchows Arch. [Pathol Anat]	2876	459	126	16.0	4.4	27.5	0.810
6.	Arch Pathol*	3251	448	166	13.8	5.1	37.1	1.490
7.	Cancer	8268	444	—	5.4	—	—	2.054
8.	Acta Neuropathol*	2574	352	43	13.7	1.7	12.2	1.750
9.	Am J Clin Pathol*	2988	351	212	11.8	7.1	60.4	1.169
10.	J Clin Pathol*	3007	348	192	11.6	6.4	55.2	1.626
11.	Virchows Arch [Zellpathol] *	2029	337	88	16.6	4.3	26.1	1.239
12.	Lancet	28,023	327	—	1.2	—	—	7.144
13.	Beitr Pathol*	2046	266	72	13.0	3.5	27.1	0.961
14.	J Neurol Sci	2964	239	—	8.1	—	—	1.595
15.	Br Med J	16,371	238	—	1.5	—	—	3.384
16.	Am J Med Sci	1694	232	—	13.7	—	—	3.650
17.	Exp Mol Pathol*	1808	230	80	12.7	4.4	34.8	2.221
18.	Z Zellforsch Mikrosk Anat	15,076	219	—	1.5	—	—	2.224
19.	Br J Exp Pathol*	1571	218	137	13.9	8.8	62.8	1.199
20.	Clin Chem	4325	215	—	5.0	—	—	2.734
21.	Proc Soc Exp Biol Med	12,279	206	—	1.7	—	—	1.732
22.	J Natl Cancer Inst	8548	203	—	2.4	—	—	3.036
23.	Exp Pathol*	1730	193	64	11.0	3.7	33.2	0.658
24.	Infect Immun	6418	191	—	3.0	—	—	2.583
25.	Cancer Res	12,436	189	—	1.5	—	—	3.149
26.	Pathol Biol*	3192	186	66	5.8	2.1	35.5	0.680
27.	Dtsch Med Wochenschr	9893	185	—	1.9	—	—	1.081
28.	Acta Pathol Jap*	1254	181	27	14.4	2.2	15.0	0.373
29.	Clin Chim Acta	6691	181	—	2.7	—	—	1.857
30.	Ann Inter Med	7855	180	—	2.3	—	—	4.592
31.	Semaine Hôpitaux Paris	6031	173	—	2.9	—	—	0.246
32.	J Infect Dis	4420	172	—	3.9	—	—	2.499
33.	N Engl J Med	13,334	169	—	1.3	—	—	7.727
34.	J Neuropathol Exp Neurol*	1290	168	115	13.0	8.9	68.5	2.828
35.	Zentralbl Bakteriol	6303	160	—	2.5	—	—	0.611
36.	J Neurosurg	4287	158	—	3.7	—	—	1.026
37.	Thromb Diath Haemorrh	5621	152	—	2.7	—	—	0.978
38.	Atherosclerosis	1726	148	—	8.6	—	—	1.947
39.	Nouv Presse Med	5614	148	—	2.6	—	—	—
40.	J Comp Pathol*	1010	146	82	14.5	8.1	56.2	0.940
41.	Appl Microbiol	4824	142	—	3.0	—	—	1.307
42.	Arch Neurol	3520	141	—	4.0	—	—	2.191
43.	Am J Vet Res	5333	139	—	2.6	—	—	0.895
44.	J Immunol	9988	137	—	1.4	—	—	3.901
45.	Hum Pathol*	1026	133	9	13.0	0.9	6.8	1.283
46.	Biochim Biophys Acta	48,106	132	—	0.3	—	—	2.869

TABLE 1. (cont.)

<i>Item No.</i>	<i>Journal</i>	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>	<i>F</i>	<i>G</i>
47.	Experientia	8516	132	—	1.6	—	—	0.934
48.	Schweiz Med Wochenschr	7227	129	—	1.8	—	—	0.615
49.	J Clin Invest	12,485	126	—	1.0	—	—	7.103
50.	Acta Histochem	3840	122	—	3.2	—	—	0.556
51.	Acta Med Scand	6410	117	—	1.8	—	—	0.206
52.	S Afr Med J	6563	115	—	1.8	—	—	0.342
53.	Arch Dermatol	4230	114	—	2.7	—	—	1.884
54.	Am Heart J	5083	113	—	2.2	—	—	1.820
55.	Arch Intern Med	5917	113	—	1.9	—	—	1.914
56.	Gastroenterology	7629	113	—	1.5	—	—	5.757
57.	Oral Surg*	4329	113	—	2.6	—	—	0.464
58.	Am J Cardiol	5654	112	—	2.0	—	—	3.731
59.	J Pediat	7324	112	—	1.5	—	—	2.351
60.	Neurology	4047	112	—	2.8	—	—	2.283
61.	Prog Exp Tumor Res	3033	110	—	3.6	—	—	3.727
62.	J Exp Med	6179	108	—	1.8	—	—	8.927
63.	Transplantation	4474	107	—	2.4	—	—	3.003
64.	Semin Hematol	2442	106	—	4.3	—	—	5.065
65.	Ann NY Acad Sci	7748	105	—	1.4	—	—	1.903
66.	Vet Rec	3560	105	—	3.0	—	—	1.107
67.	Clin Orthop	5483	103	—	1.9	—	—	0.574
68.	J Reticuloendothel Soc	2072	103	—	5.0	—	—	1.598
69.	Med Clin North Am	5536	102	—	1.8	—	—	1.164
70.	Blood	4187	101	—	2.4	—	—	3.611
71.	Int Arch Allergy Appl Immunol	2011	101	—	5.0	—	—	1.620
72.	Indian J Med Res	3438	100	—	2.9	—	—	0.321
73.	Am J Clin Nutr	4269	99	—	2.3	—	—	1.791
74.	Pathol Eur*	699	98	6	14.0	0.9	6.1	0.492
75.	Biull Eksp Biol Med	5120	96	—	1.9	—	—	0.294

A = total citations of all journals. B = total citations of the pathology journals in the list on p. 336. C = self-citations. D = B/A, pathology citations in terms of total citations. E = C/A, self-citations in terms of total citations (self-citing rate). F = C/B, self-citations in terms of pathology citations. G = impact factor. The items are listed in descending order of numbers in column B.

*Journals are among those in the pathology data base (see p. 336).

TABLE 2. The 75 Journals Ranked by the Percentage of Their Citations in Terms of Total Citations

<i>Item No.</i>	<i>Journal</i>	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>	<i>F</i>	<i>G</i>
1.	J Pathol	1972	500	222	25.4	11.3	44.4	1.243
2.	Am J Pathol	4048	670	382	16.6	9.4	57.0	1.773
3.	Virchows Arch [Zellpathol]	2029	337	88	16.6	4.3	26.1	1.239
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18.	J Clin Pathol	3007	348	192	11.6	6.4	55.2	1.626
19.	Exp Pathol	1730	193	64	11.0	3.7	33.2	0.658
20.	Lab Invest	4686	482	—	10.3	—	—	3.042
21.	Atherosclerosis	1726	148	—	8.6	—	—	1.947
22.	J Neurol Sci	2964	239	—	8.1	—	—	1.595
23.	Pathol Biol	3192	186	66	5.8	2.1	35.5	0.680
24.	Cancer	8268	444	—	5.4	—	—	2.054
25.	Clin Chem	4325	215	—	5.0	—	—	2.734
26.	J Reticuloendothel Soc	2072	103	—	5.0	—	—	1.598
27.	Int Arch Allergy Appl Immunol	2011	101	—	5.0	—	—	1.620
28.	Semin Hematol	2442	106	—	4.3	—	—	5.065
29.	Arch Neurol	3520	141	—	4.0	—	—	2.191
30.	J Infect Dis	4420	172	—	3.9	—	—	2.499
31.	J Neurosurg	4287	158	—	3.7	—	—	1.026
32.	Prog Exp Tumor Res	3033	110	—	3.6	—	—	3.727
33.	Acta Histochem	3840	122	—	3.2	—	—	0.556
34.	Infect Immun	6418	191	—	3.0	—	—	2.583
35.	Appl Microbiol	4824	142	—	3.0	—	—	1.307
36.	Vet Rec	3560	105	—	3.0	—	—	1.107
37.	Semaine Hôpitaux Paris	6031	173	—	2.9	—	—	0.246
38.	Indian J Med Res	3438	100	—	2.9	—	—	0.321
39.	Neurology	4047	112	—	2.8	—	—	2.283
40.	Clin Chim Acta	6691	181	—	2.7	—	—	1.857
41.	Thromb Diath Haemorrh	5621	152	—	2.7	—	—	0.978
42.	Arch Dermatol	4230	114	—	2.7	—	—	1.884
43.	Nouv Presse Med	5614	148	—	2.6	—	—	—

TABLE 2. (cont.)

<i>Item No.</i>	<i>Journal</i>	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>	<i>F</i>	<i>G</i>
44.	Am J Vet Res	5333	139	—	2.6	—	—	0.895
45.	Oral Surg	4329	113	—	2.6	—	—	0.464
46.	Zentralbl Bakteriол	6303	160	—	2.5	—	—	0.611
47.	J Natl Cancer Inst	8548	203	—	2.4	—	—	3.036
48.	Transplantation	4474	107	—	2.4	—	—	3.003
49.	Blood	4187	101	—	2.4	—	—	3.611
50.	Ann Intern Med	7855	180	—	2.3	—	—	4.592
51.	Am J Clin Nutr	4269	99	—	2.3	—	—	1.791
52.	Am Heart J	5083	113	—	2.2	—	—	1.820
53.	Am J Cardiol	5654	112	—	2.0	—	—	3.731
54.	Dtsch Med Wochenschr	9893	185	—	1.9	—	—	1.081
55.	Arch Intern Med	5917	113	—	1.9	—	—	1.914
56.	Clin Orthop	5483	103	—	1.9	—	—	0.574
57.	Biull Eksp Biol Med	5120	96	—	1.9	—	—	0.294
58.	Schweiz Med Wochenschr	7227	129	—	1.8	—	—	0.615
59.	Acta Med Scand	6410	117	—	1.8	—	—	0.206
60.	S Afr Med J	6563	115	—	1.8	—	—	0.342
61.	J Exp Med	6179	108	—	1.8	—	—	8.927
62.	Med Clin North Am	5536	102	—	1.8	—	—	1.164
63.	Proc Soc Exp Biol Med	12,279	206	—	1.7	—	—	1.732
64.	Experientia	8516	132	—	1.6	—	—	0.934
65.	Brit Med J	16,371	238	—	1.5	—	—	3.384
66.	Z Zellforsch Mikrosk Anat	15,076	219	—	1.5	—	—	2.224
67.	Cancer Res	12,436	189	—	1.5	—	—	3.149
68.	Gastroenterology	7629	113	—	1.5	—	—	5.757
69.	J Pediatr	7324	112	—	1.5	—	—	2.351
70.	J Immunol	9988	137	—	1.4	—	—	3.901
71.	Ann NY Acad Sci	7748	105	—	1.4	—	—	1.903
72.	N Engl J Med	13,334	169	—	1.3	—	—	7.727
73.	Lancet	28,023	327	—	1.2	—	—	7.144
74.	J Clin Invest	12,485	126	—	1.0	—	—	7.103
75.	Biochim Biophys Acta	48,106	132	—	0.3	—	—	2.869

*The items here are arranged in descending order of the percentages in column D.

TABLE 3. The 75 Journals Most Often Cited by the Base Group of Pathology Journals

<i>Item No.</i>	<i>Journal</i>	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>	<i>F</i>	<i>G</i>
1.	Am J Pathol*	5435	1146	382	21.1	7.0	33.3	1.773
2.	J Cell Biol	22,120	988	—	4.5	—	—	6.302
3.	Nature	64,211	863	—	1.3	—	—	4.228
4.	Lancet	32,869	773	—	2.4	—	—	7.144
5.	J Exp Med	17,148	759	—	4.4	—	—	8.927
6.	Acta Pathol Microbiol Scand*	3322	715	573	21.5	17.3	80.1	5.072
7.	Lab Invest	4331	702	—	16.2	—	—	3.042
8.	J Pathol*	2916	700	222	24.0	7.6	31.7	1.243
9.	Arch Pathol*	4254	695	166	16.3	3.9	23.9	1.490
10.	Proc Soc Exp Biol Med	20,006	609	—	3.0	—	—	1.732
11.	Science	43,107	548	—	1.3	—	—	4.399
12.	N Engl J Med	22,238	530	—	2.4	—	—	7.727
13.	Am J Clin Pathol*	4169	480	212	11.5	5.1	44.2	1.169
14.	Cancer	6310	445	—	7.1	—	—	2.054
15.	Virchows Arch*	2130	430	214	20.7	10.3	49.8	1.225
16.	J Immunol	12,131	400	—	3.3	—	—	3.901
17.	J Biol Chem	75,415	381	—	0.5	—	—	5.565
18.	J Clin Invest	22,233	377	—	1.7	—	—	7.103
19.	Am J Med Sci	12,055	372	—	3.1	—	—	3.650
20.	J Clin Pathol*	3120	369	192	11.8	6.2	52.0	1.626
21.	Br Med J	18,145	362	—	2.0	—	—	3.384
22.	Br J Exp Pathol*	2215	342	137	15.4	6.2	40.1	1.199
23.	J Histochem Cytochem	5208	334	—	6.4	—	—	4.203
24.	Ann NY Acad Sci	14,807	328	—	2.2	—	—	1.903
25.	J Am Med Assoc	16,970	326	—	1.9	—	—	2.999
26.	Blood	6404	287	—	4.5	—	—	3.611
27.	J Lab Clin Med	8733	287	—	3.3	—	—	3.333
28.	Cancer Res	10,820	282	—	2.6	—	—	3.149
29.	Biochem J	32,537	276	—	0.9	—	—	4.386
30.	Exp Cell Res	9924	273	—	2.8	—	—	3.062
31.	J Neuropathol Exp Neurol*	1910	258	115	13.5	6.0	44.6	2.828
32.	J Natl Cancer Inst	6929	256	—	3.7	—	—	3.036
33.	Biochim Biophys Acta	46,413	250	—	0.5	—	—	2.869
34.	J Ultrastruct Res	4930	248	—	5.0	—	—	3.275
35.	Am J Physiol	22,305	238	—	1.1	—	—	2.673
36.	Fed Proc	13,668	225	—	1.7	—	—	0.528
37.	Proc Nat Acad Sci USA	37,917	215	—	0.6	—	—	8.288
38.	Ann Intern Med	8823	208	—	2.4	—	—	4.592
39.	J Bacteriol	16,635	205	—	1.2	—	—	2.647
40.	Beitr Pathol*	810	204	72	25.2	8.9	35.3	0.961
41.	Exp Mol Pathol*	989	202	80	20.4	8.1	39.6	2.221
42.	Z Zellforsch Mikrosk Anat	6997	200	—	2.9	—	—	2.224
43.	Anatom Rec	5320	186	—	3.5	—	—	2.977
44.	Thromb Diath Haemorrh	2374	186	—	7.8	—	—	0.978
45.	Circ Res	8091	175	—	2.2	—	—	4.441
46.	Virology	10,383	172	—	1.7	—	—	3.878
47.	Am J Obstet Gynecol	7979	171	—	2.1	—	—	1.442

TABLE 3. (cont.)

<i>Item No.</i>	<i>Journal</i>	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>	<i>F</i>	<i>G</i>
48.	Arch Intern Med	5748	166	—	2.9	—	—	1.914
49.	Br J Haematol	2908	144	—	5.0	—	—	2.679
50.	Immunology	4219	144	—	3.4	—	—	3.483
51.	Gastroenterology	7511	142	—	1.9	—	—	5.757
52.	Verh Dtsch Ges Pathol	493	142	—	28.8	—	—	—
53.	Atherosclerosis	1186	138	—	11.6	—	—	1.947
54.	Circulation	10,332	134	—	1.3	—	—	4.635
55.	Clin Chim Acta	5007	133	—	2.7	—	—	1.857
56.	J Pediat	6329	133	—	2.1	—	—	2.351
57.	Transplantation	3125	125	—	4.0	—	—	3.003
58.	Neurology	3670	124	—	3.4	—	—	2.283
59.	Am J Anat	3185	121	—	3.8	—	—	2.030
60.	Pediatrics	6610	120	—	1.8	—	—	2.204
61.	J Gen Microbiol	5034	118	—	2.3	—	—	2.018
62.	J Infect Dis	2969	118	—	4.0	—	—	2.499
63.	Acta Neuropathol*	947	116	43	12.3	4.5	37.1	1.750
64.	Endocrinology	14,153	115	—	0.8	—	—	4.041
65.	Am Heart J	6063	114	—	1.9	—	—	1.820
66.	Appl Microbiol	3914	114	—	2.9	—	—	1.307
67.	Histochemie	1821	112	—	6.2	—	—	1.766
68.	Klin Wochenschr	4011	110	—	2.7	—	—	1.071
69.	Am J Dis Child	4232	109	—	2.6	—	—	1.159
70.	J Comp Pathol*	613	109	82	17.8	13.4	75.2	0.940
71.	J Physiol	22,414	107	—	0.5	—	—	5.070
72.	Acta Med Scand	4354	104	—	2.4	—	—	0.206
73.	Arch Neurol	3235	103	—	3.2	—	—	2.191
74.	J Urol	5209	100	—	1.9	—	—	0.709
75.	Can Med Assoc J	2725	99	—	3.6	—	—	0.374

A = total citations by all journals. B = total citations by the pathology journals. C = self-citations. D = B/A, pathology citations in terms of total citations. E = C/A, self-citations in terms of total citations (self-cited rate). F = C/B, self-citations in terms of pathology citations. G = impact factor. The items are listed in descending order of numbers in column B (total citations by pathology journals).

*Journals among those in pathology data base (list on p. 336).

TABLE 4. The 75 Journals Arranged by Impact Factor

<i>Item No.</i>	<i>Journal</i>	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>	<i>F</i>	<i>G</i>
1.	J Exp Med	17,148	759	—	4.4	—	—	8.927
2.	Proc Nat Acad Sci USA	37,917	215	—	0.6	—	—	8.288
3.	N Engl J Med	22,238	530	—	2.4	—	—	7.727
4.	Lancet	32,869	773	—	2.4	—	—	7.144
5.	J Clin Invest	22,233	377	—	1.7	—	—	7.103
6.	J Cell Biol	22,120	988	—	4.5	—	—	6.302
7.	Gastroenterology	7511	142	—	1.9	—	—	5.757
8.	J Biol Chem	75,415	381	—	0.5	—	—	5.565
9.	Acta Pathol Microbiol Scand	3322	715	573	21.5	17.3	80.1	5.072
10.	J Physiol	22,414	107	—	0.5	—	—	5.070
11.	Circulation	10,332	134	—	1.3	—	—	4.635
12.	Ann Intern Med	8823	208	—	2.4	—	—	4.592
13.	Circulation Res	8091	175	—	2.2	—	—	4.441
14.	Science	43,107	548	—	1.3	—	—	4.399
15.	Biochem J	32,537	276	—	0.9	—	—	4.386
16.	Nature	64,211	863	—	1.3	—	—	4.228
17.	J Histochem Cytochem	5208	334	—	6.4	—	—	4.203
18.	Endocrinology	14,153	115	—	0.8	—	—	4.041
19.	J Immunol	12,131	400	—	3.3	—	—	3.901
20.	Virology	10,383	172	—	1.7	—	—	3.878
21.	Am J Med Sci	12,055	372	—	3.1	—	—	3.650
22.	Blood	6404	287	—	4.5	—	—	3.611
23.	Immunology	4219	144	—	3.4	—	—	3.483
24.	Br Med J	18,145	362	—	2.0	—	—	3.384
25.	J Lab Clin Med	8733	287	—	3.3	—	—	3.333
26.	J Ultrastruct Res	4930	248	—	5.0	—	—	3.275
27.	Cancer Res	10,820	282	—	2.6	—	—	3.149
28.	Exp Cell Res	9924	273	—	2.8	—	—	3.062
29.	Lab Invest	4331	702	—	16.2	—	—	3.042
30.	J Nat Cancer Inst	6929	256	—	3.7	—	—	3.036
31.	Transplantation	3125	125	—	4.0	—	—	3.003
32.	J Am Med Assoc	16,970	326	—	1.9	—	—	2.999
33.	Anatom Record	5320	186	—	3.5	—	—	2.977
34.	Biochim Biophys Acta	46,413	250	—	0.5	—	—	2.869
35.	J Neuropathol Exp Neurol	1910	258	115	13.5	6.0	44.6	2.828
36.	Br J Haematol	2908	144	—	5.0	—	—	2.679
37.	Am J Physiol	22,305	238	—	1.1	—	—	2.673
38.	J Bacteriol	16,635	205	—	1.2	—	—	2.647
39.	J Infect Dis	2969	118	—	4.0	—	—	2.499
40.	J Pediat	6329	133	—	2.1	—	—	2.351
41.	Neurology	3670	124	—	3.4	—	—	2.283
42.	Z Zellforsch Mikrosk Anat	6997	200	—	2.9	—	—	2.224
43.	Exp Mol Pathol	989	202	80	20.4	8.1	39.6	2.221
44.	Pediatrics	6610	120	—	1.8	—	—	2.204
45.	Arch Neurol	3235	103	—	3.2	—	—	2.191
46.	Cancer	6310	445	—	7.1	—	—	2.054
47.	Am J Anatomy	3185	121	—	3.8	—	—	2.030

TABLE 4. (cont.)

<i>Item No.</i>	<i>Journal</i>	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>	<i>F</i>	<i>G</i>
48.	J Gen Microbiol	5034	118	—	2.3	—	—	2.018
49.	Atherosclerosis	1186	138	—	11.6	—	—	1.947
50.	Arch Intern Med	5748	166	—	2.9	—	—	1.914
51.	Ann NY Acad Sci	14,807	328	—	2.2	—	—	1.903
52.	Clin Chim Acta	5007	133	—	2.7	—	—	1.857
53.	Am Heart J	6063	114	—	1.9	—	—	1.820
54.	Am J Pathol	5435	1146	382	21.1	7.0	33.3	1.773
55.	Histochemie	1821	112	—	6.2	—	—	1.766
56.	Acta Neuropathol	947	116	43	12.3	4.5	37.1	1.750
57.	Proc Soc Exp Biol Med	20,006	609	—	3.0	—	—	1.732
58.	J Clin Pathol	3120	369	192	11.8	6.2	52.0	1.626
59.	Arch Pathol	4254	695	166	16.3	3.9	23.9	1.490
60.	Am J Obstet Gynecol	7979	171	—	2.1	—	—	1.442
61.	Appl Microbiol	3914	114	—	2.9	—	—	1.307
62.	J Pathol	2916	700	222	24.0	7.6	31.7	1.243
63.	Virchows Arch	2130	430	214	20.7	10.3	49.8	1.225
64.	Br J Exp Pathol	2215	342	137	15.4	6.2	40.1	1.199
65.	Am J Clin Pathol	4169	480	212	11.5	5.1	44.2	1.169
66.	Am J Dis Child	4232	109	—	2.6	—	—	1.159
67.	Klin Wochenschr	4011	110	—	2.7	—	—	1.071
68.	Thromb Diath Haemorrh	2374	186	—	7.8	—	—	0.978
69.	Beitr Pathol	810	204	72	25.2	8.9	35.3	0.961
70.	J Comp Pathol	613	109	82	17.8	13.4	75.2	0.940
71.	J Urol	5209	100	—	1.9	—	—	0.709
72.	Fed Proc	13,668	225	—	1.7	—	—	0.528
73.	Can Med Assoc J	2725	99	—	3.6	—	—	0.374
74.	Acta Med Scand	4354	104	—	2.4	—	—	0.206
75.	Verh Dtsch Ges Pathol	493	142	—	28.8	—	—	—