Study of *Physics Abstracts*— Abstracting Three Types of Journals*

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This study surveys the time lag in coverage by *Physics Abstracts* (PA) of three types of journals: (1) English language journal with no author abstracts, (2) English language journal with author abstracts for articles but not for letters to the editor, (3) foreign language journal with author abstracts in English or foreign language. The three types of journals were represented in the study by (1) *Physical Review Letters*, (2) *The Journal of Chemical Physics*, and (3) *Zeitschrift für Physik*. All thirteen issues of *Physical Abstracts* in 1961 (two issues in December), containing 21,167 abstracts, were scanned for abstracts of articles and letters from these three journals. Approximately 1550 abstracts for articles, letters, and errata in a total of 76 issues of these journals were studied. This is 7.3% of the number of 1961 PA abstracts.

DEFINITION OF TERMS USED IN THIS STUDY

Depth of coverage of an issue is the ratio of the number of abstracts of articles or letters in the journal issue which appeared in *Physics Abstracts* in 1961 compared to the total number of articles or letters in the issue.

Time lag refers to the nominal time in months between the date of the journal issue in which the article or letter appeared and the date of the issue in which its abstract appeared in *Physics Abstracts*. If an article appeared in the December 15, 1960 issue of a journal and its abstract appeared in the March, 1961 issue of *Physics Abstracts*, the time lag would be 2.5 months. On this basis we will be presenting a reader's point of view of *time lag* rather than the actual time between receipt of journal's abstracts in the *Physics Abstracts* office and distribution of *Physics Abstracts* to its subscribers.

Rate of completion refers to the number of issues of *Physical Abstracts* and the time lapse needed to completely cover a journal issue.

FINDINGS

(1) Journal in English Language with No Author Abstracts.—*Physical Review Letters* is published semi-monthly, 12 issues per volume, two volumes per year. The issues are dated regularly on the 1st and the 15th of each month. Each issue contains letters and errata, without abstracts. A separate section of the journal, "Abstracts of Articles to be Published in *The Physical Review*," was not considered in this study.

Letters and errata from 29 of the 36 issues in three volumes of *Physical Review Letters* appeared in the 1961 issues of *Physical Abstracts*. The time period covered ranged from September 1, 1960 to November 1, 1961.

Volume 5 of *Physical Review Letters* (July 1, 1960–December 15, 1960) contained 187 letters and 4 errata, Vol. 6 (January 1, 1961–June 15, 1961) contained 232 letters and 11 errata, and Vol. 7 (July 1, 1961–December 15, 1961) contained 177 letters and 10 errata—a total of 596 letters and 25 errata. Of this total, 419 (70%) letters and 6 (24%) errata were abstracted in *Physics Abstracts* in 1961. For the 1961 issues of *Physical Review Letters* (Vol. 6 and 7), 331 of 409 (81%) letters were abstracted in 1961 issues of *Physics Abstracts*. One letter from Vol. 5, No. 2, was abstracted in 1961 but was not included in the study. This item appeared in the August, 1961 issue of *Physics Abstracts*. With a time lag of 12.5 months, this abstract was isolated. The total number of items in this section of the study is 424. See Table I and Fig. 1.

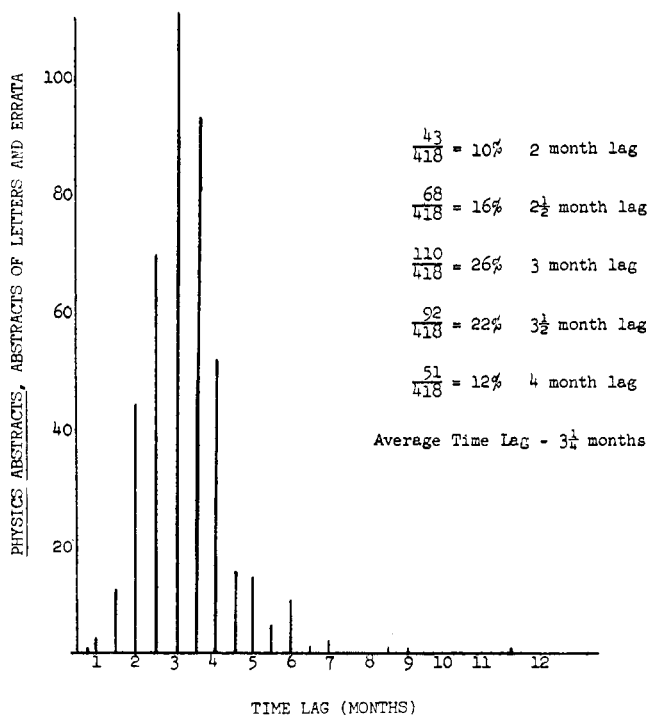

Fig. 1.—Frequency of time lag of *Physical Review Letters*.

* A report of this work was presented at the Documentation Research and Training Centre, Bangalore, India, DRTC Seminar, 1: Documentation Periodicals: Coverage, Arrangement, Scatter, Seepage, Compilation, June, 1963.

Table I
Physical Review Letters. Depth of Coverage in *Physics Abstracts* in 1961

			Physics Abstracts													Total		
Vol.	No.	Date	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sept.	Oct.	Nov.	Dec. I	Dec. II	Letters	Abstr.	
5	5	9/1/60	1													12	1	
	6	9/15	1	1	1			1								18	4	
	7	10/1	14	1			1									19	16	
	8	10/15	6	3	3											15	12	
	9	11/1	10	6												16	16	
	10	11/15	2	3	2		1	1								12	9	
	11	12/1	2	6	5	1		1								15	15	
	12	12/15		4	11	2	2			1						21	20	
Errata																E-2	0	
Total[a]																128	93	73
6	1	1/1/61		1	14											15	15	
	2	1/15			1	2	9									12	12	
	3	2/1				1	20	3	1	1						27	26	
	4	2/15					10	7								17	17	
	5	3/1						7	2	1					1	11	11	
	6	3/15						10	15	1						26	26	
	7	4/1						5	15	2		2				24	24	
	8	4/15							9	4						13	13	
	9	5/1								5	16	2	2			25	25	
	10	5/15						1			12	4	1		1	20	19	
	11	6/1										15	7	2	1	25	25	
	12	6/15										15		2		17	17	
Errata								3								E-11	3	
Total[a]																232	230	99
7	1	7/1/61										9	3	2		14	14	
	2	7/15										4	10	1		15	15	
	3	8/1										1	9	3		16	13	
	4	8/15											4	5	3	14	12	
	5	9/1											2	15	4	24	21	
	6	9/15												7	5	19	12	
	7	10/1													3	10	3	
	8	10/15													1	13	1	
	9	11/1													4	11	4	
Errata												2			1	E-6	3	
Total[a]																136	95	70
Physics Abstracts Total[a]			36	25	37	6	43	36	42	15	28	52	38	38	22		418	

[a] Minus errata.

The rate of completion is shown in Table II. Three *Physics Abstracts* issues (not necessarily consecutive) and 5 months lapse in time was average for 100% coverage of one issue of *Physical Review Letters*. Data on the rate of completion of Vol. 6 are most illustrative. Of the twelve issues in Vol. 6, letters in four were completely abstracted in two issues of *Physics Abstracts*, two in three issues of *Physics Abstracts*, and four in four issues. For six of these ten issues, both the letters and errata were completely abstracted.

(2) Journal with Author Abstracts for Articles but not Letters.—*The Journal of Chemical Physics* in 1961 was published monthly, two volumes a year, six issues per volume. The journal is divided into two sections: (1) articles, (2) letters to the editor. The letters-to-the-editor section is subdivided into three parts: (1) communications (15%), (2) comments (13%) and errata (9%), (3) notes (65%). Of the 958 items published in 1961, 67% were articles and 33% were letters to the editor. Author abstracts appear with all articles, but there are not abstracts for letters.

This study concerned seventeen issues of *The Journal of Chemical Physics* in Vol. 34 and 35 mainly, and Vol. 33 in part. (793 of the 958 items appearing in the 1961 volumes of *The Journal of Chemical Physics* appeared in 1961 issues of *Physics Abstracts*.) A total of 890 items out of a possible 1342 items in these issues (66%) were found to be abstracted in 1961 issues of *Physics Abstracts*. Of the 890 items, 650 were articles and 240 were letters to the editor. The time span of *article* coverage differs from *letter* coverage. The 1961 issues of *Physics Abstracts* covered articles in issues dating from December, 1960 to December, 1961, and letters from August, 1960 to October, 1961. If the number of articles in the issues covered by the article-coverage time span is used, the ratio of articles abstracted to total number of articles

Table II
Rate of Completion[a] (*Physical Review Letters*)

Coverage in two issues of *Physics Abstracts*

Vol. 5, No. 9	63%	37%	
6, 1	7	93	
6, 4[b]	59	41	
6, 8	69	31	
6, 12[b]	88	12	
	57%	43%	Average

Coverage in three issues of *Physics Abstracts*

Vol. 6, No. 2	8%	17%	75%	
6, 6	38	58	4	
7, 1[b]	64	22	14	
7, 2	27	67	6	
	34%	41%	25%	Average

Coverage in four issues of *Physical Abstracts*

Vol. 6, No. 5	64%	17%	10%	9%	
6, 7	21	63	8	8	
6, 9[b]	20	64	8	8	
6, 11[b]	60	28	8	4	
	41%	43%	9%	7%	Average

Coverage in five issues of *Physics Abstracts*

Vol. 5, No. 11[c]	13%	40%	34%	5%	8%

[a] Issues are not necessarily consecutive. Check Table I for time lapse. [b] 100% coverage of letters only.

is 690:805 (86%). On this basis, the ratio for letters would be 240:376 (64%).

The coverage of each issue is shown in Table III. For Vol. 34 (January–June, 1961), the most representative of *Physics Abstracts* coverage, the coverage was complete except for eight errata which appeared in issues No. 1–3 of Vol. 34. These errata referred to articles which appeared in pre-1961 volumes of *The Journal of Chemical Physics*.

A check of the coverage of *The Journal of Chemical Physics* in *Nuclear Science Abstracts* showed that approximately 30% of *The Journal of Chemical Physics* is abstracted. This low coverage was not surprising when it was learned that only one article from *The Journal of Chemical Physics* was placed in the Nuclear Physics section of *Physics Abstracts* in 1961 (see Table VII).

The time lag is shown in Fig. 2. The average time lag for articles was 2 months. (For the one issue (June, 1961) checked for time lag in *Nuclear Science Abstracts*, the 23 articles selected all appeared in the September 15, 1961 issue of *Nuclear Science Abstracts*.) The time lag for the letters section was 4 months, close to the time lag for *Physical Review Letters*—3.2 months.

The rate of completion is shown in Table IV. One complete issue of *The Journal of Chemical Physics* (articles and letters-to-the-editor section) averaged five *Physics Abstracts* issues and a time lapse of 5.75 months for complete coverage.

If the articles are considered separately, the rate of completion is as follows: the articles in one journal issue

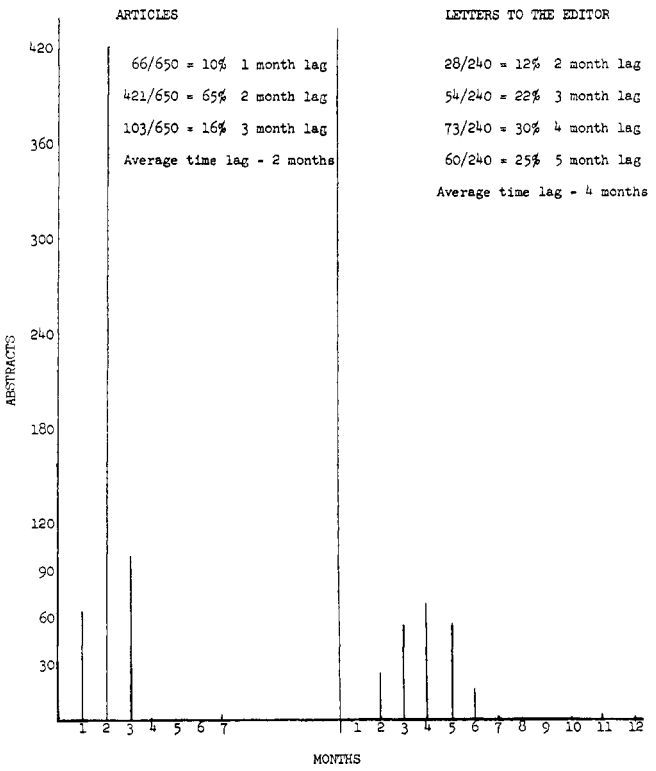

Fig. 2.—Frequency of time lag of *The Journal of Chemical Physics*.

Table III
Journal of Chemical Physics. Depth of Coverage in *Physics Abstracts* in 1961

			Physics Abstracts												Total		
Vol.	No.	Date	Jan.	Feb.	Mar.	Apr.	May	June	Jul.	Aug.	Sept.	Oct.	Nov.	Dec. I	Dec. II	Items	Abstr.	%
								Articles										
33	2	8/60														47		
	3	9/60														61		
	4	10/60														45		
	5	11/60														43		
	6	12/60		27	23		1									51	51	
33	Total															247	51	21
34	1	1/61			39	13		1								53	53	
	2	2/61				46	13	1								60	60	
	3	3/61					50	1								51	51	
	4	4/61					18	36								54	54	
	5	5/61							53	3						56	56	
	6	6/61								26	30				1	57	57	
34	Total															331	331	100
35	1	7/61								1	49	1	1			52	52	
	2	8/61									5	52				57	57	
	3	9/61											35	13	9	57	57	
	4	10/61												34	20	56	54	
	5	11/61													42	54	42	
	6	12/61													6	47	6	
35	Total															323	268	83
								Letters to the Editor										
33	2	8/60	1													35	1	
	3	9/60	1													29	1	
	4	10/60	8													28	8	
	5	11/60	8	1		1					1		1			22	12	
	6	12/60				2	15	3					2			23	22	
33	Total															137	44	32
34	1	1/61						11	7		1					22	19	
	2	2/61						13	5							20	18	
	3	3/61						7	17	1		2				30	27	
	4	4/61								14	6	5				25	25	
	5	5/61							3	2	2	8	1			16	16	
	6	6/61									10	14	8			32	32	
34	Total															145	137	94
	1	7/61									1	7	1	4		13	13	
	2	8/61										6	5	8	1	21	20	
	3	9/61												9	5	24	14	
	4	10/61													12	36	12	
	5	11/61														26	...	
	6	12/61														39	...	
	Total															189	59	37
PA totals			18	28	62	62	97	73	85	47	105	95	54	68	96		890	

averaged two *Physics Abstracts* issues and a time lapse of 2.5 months. This short time lapse is related to the fact that the American Institute of Physics sends *Physics Abstracts* the author abstracts by airmail in pageproof form.

If the letters section is considered separately, the rate of completion is as follows: the letters section in one journal issue averages three *Physics Abstracts* issues and a 6-month time lapse. This agrees with figures for *Physical Review Letters*.

(3) **Journal in Language Other than English with Author Abstracts in English or Any Other Language.**—*Zeitschrift für Physik* is published in the German language, five issues per volume. It appears at irregular intervals, usually every 2 weeks, sometimes less, sometimes once a month. Author abstracts are published with each article in either English or German.

Twenty-four issues in seven volumes of *Zeitshrift für Physik* (Vol. 159 to 165) were covered in this study. Of the 295 articles in these volumes, 231 (77%) appeared in 1961 issues of *Physics Abstracts*. Data for Vol. 161–163 are most representative. Three articles from Vol. 165, No. 1 were abstracted. They were not included in totals used for percentages.

Table IV
Rate of Completion[a] (*The Journal of Chemical Physics*)

Articles Only

100% coverage in two issues of *Physics Abstracts*

Vol. 34, No. 3	98%	2%	
35, 2	9	91	
	53%	47%	Average

100% coverage in three issues of *Physics Abstracts*

Vol. 33, No. 6	53%	45%	2%	
34, 1	73	25	2	
2	77	21	2	
35, 3	61	23	16	
	62%	33%	5%	Average

Articles and Letters to the Editor

100% coverage in five issues of *Physics Abstracts*

Vol. 34, No. 4	22%	46%	18%	8%	6%	
5	78	7	3	11	1	
6	29	45	16	9	1	
Vol. 35, No. 1	2	77	12	3	6	
	34%	43%	11%	8%	4%	Average

[a] Issues are not necessarily consecutive. Check Table III for time lapse.

The *coverage* of each issue is shown in Table V. *Physics Abstracts* is obviously covering 100% of *Zeitschrift für Physik*. Only 96% of Vol. 163 was covered in 1961 issues of *Physics Abstracts* because one article was not abstracted until January, 1962 and another was omitted: M. Kalvius, P. Kienle, K. Bockmann, and H. Eicher, "Hyperfeinsbruktureufspaltung von ruchslossfreien-Linen: II, Das 8, 42 KeV-Niveau in Tm^{169}," *Z. Phys.*, **163**, 87 (1961). The author indexes of *Physical Abstracts* were searched through the March, 1962 issue for this article, but it does not appear to have been abstracted.

The time lag is shown in Fig. 3. The average time lag was 2.7 months. In Table V, the English language articles in German, the symbols E and G are used.) They are among the very first articles to be abstracted. Dr. among the very first articles to be abstracted. Dr. Crowther, editor of *Physics Abstracts*, has informed us that "foreign articles with no English abstract go out to an abstractor, who more often than not probably translates the authors' abstract" (letter to Mrs. Atherton dated July 3, 1962).

The rate of completion is shown in Table VI. It takes an average of three issues (not necessarily consecutive) and 6.25 months to complete the coverage of one issue of *Zeitschrift für Physik*.

(4) Cumulative Rate of Completion and Article Placement in *Physics Abstracts*.—Similarity was noted in rate of completion—an average of 5–6 months time lapse for 100% completion of a single journal issue with a spread over two to five *Physics Abstracts* issues (not necessarily consecutive). A cumulative rate of completion representing the three journals is shown in Fig. 4. These are completely abstracted volumes of articles *or* letters (no

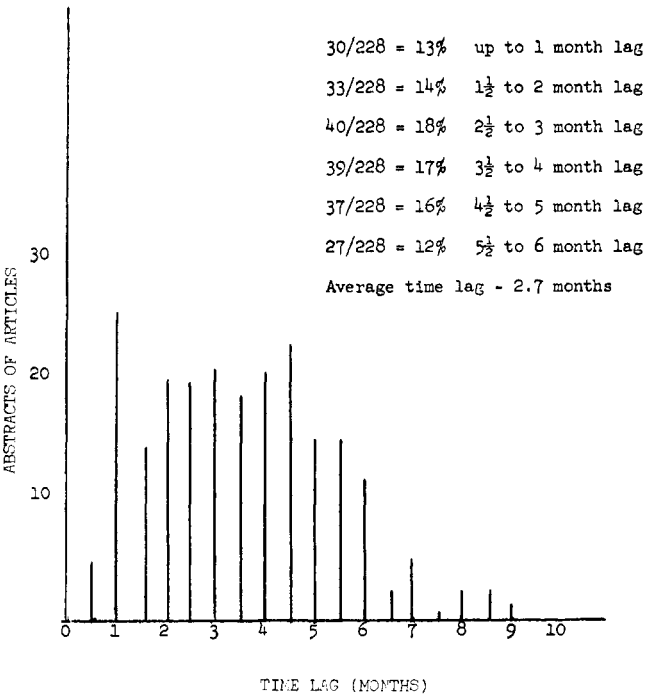

Fig. 3.—Frequency of time lag of *Zeitschrift für Physik*, Vol. 159–164.

Table V
Zeitschrift für Physik. Depth of Coverage in *Physics Abstracts* in 1961[a]

			Physics Abstracts													Total		
Vol.	No.	Date	Jan.	Feb.	Mar.	Apr.	May	June	Jul.	Aug.	Sept.	Oct.	Nov.	Dec. I	Dec. II	Articles	Abstr.	%
159	3	7/15/60	1													9	1	
	4	8/16		1	1											15	2	
	5	8/25	1^E	2	2											9	4	
Total																33	7	21
161	1	9/14/60	1													10	1	
	2	10/3	1													10	1	
	3	10/20		2												10	2	
	4	11/8	4	3^E_G			1			2						11	11	
	5	11/22	7	1						2						11	11	
Total																52	26	50
161	1	12/1	7^E_G		2					3						12	12	
	2	12/16		2	3		3			1						9	9	
	3	12/28		2^E_G	3					4						9	9	
	4	1/27/61		2	5^E_G					4						11	11	
	5	2/14			4	1				4	1					10	10	
Total																51	51	100
162	1	3/3/61			1	8^E_G	1			3						13	13	
	2	3/17						5	1	3				1		10	10	
	3	4/5						5^E_G		1			1			7	7	
	4	4/14							6^E_G	2	1					9	9	
	5	4/27						1	3	3^E_G	4		1			12	12	
Total																51	51	100
163	1	5/10/61							4^E_G	4^E_G	2					11	10	
	2	5/31								1	3^E_G	6	1			11	11	
	3	6/8											3	5		8	8	
	4	6/22											4	7^E_G		12	11	
	5	7/10												7	1	8	8	
Total																50	48	96
164	1	7/20/61											1	5	4	11	10	
	2	8/3												5	4	10	9	
	3	8/21												5	5	11	10	
	4	9/5												3	8	12	11	
	5	10/4													5^E_G	14	5	
Total																58	45	78
165	1	10/18/61													3		3	
Physics Abstracts total			22	15	22	9	5	11	14	37	11	6	11	38	30		231	

[a] E = articles in English; E and G = articles in English and German.

errata) in terms of time lag. In a letter dated June 5, 1962, Dr. Crowther explained the press schedule of *Physics Abstracts*. He felt that this may account for a greater lapse in time between journal and abstract publication:

> "As we go to press in three sections, at weekly intervals, it would be of interest to record the results according to these three groups—the subjects appearing in the Solid State chapters, for instance, will stand a better chance of appearing early, than those in Fluids. The sections are usually divided so:
>
> Section I: "General" to "Nuclear field theory"
>
> Section II: "Elementary particles" to "Defect properties Radiation effects"
>
> Section III: "Electrical properties of solids" to "Technique Materials"
>
> Of the *Phys. Rev.* abstracts above, you will find more in March III than March I or II, and the stragglers will be in May I rather than May II or III."

A study of the placement of each journal's articles showed that they are placed in the last two-thirds of *Physics Abstracts*. This should mean a better chance for early printing.

While gathering the data for this study, the dispersion of a journal's articles throughout *Physics Abstracts* was noted. A count was made of the number of a journal's articles in each field of physics. The divisions of physics are taken from the Contents page of *Physics Abstracts*. These data are given for *Physical Review Letters* (PRL), *The Journal of Chemical Physics* (JCP), and *Zeitschrift für Physik* (Z Phys) in Table VII.

Table VI
Rate of Completion[a] (*Zeitschrift für Physik*)

100% coverage in two issues of *Physics Abstracts*					
Vol. 163, No. 3	37%	63%			
5	88	12			
	62%	38%			Average
100% coverage in three issues of *Physics Abstracts*					
Vol. 161, No. 1	58%	17%	25%		
3	22	33	45		
4	18	46	36		
162, 3	72	14	14		
4	66	23	11		
	43%	33%	24%		Average
100% coverage in four issues of *Physics Abstracts*					
	22%	33%	34%	11%	
Vol. 161, No. 2	40	10	40	10	
5	8	61	8	23	
162, 1	50	10	30	10	
2	9	27	55	9	
163, 2	26%	28%	33%	13%	Average
100% coverage in five issues of *Physics Abstracts*					
Vol. 162, No. 5	8%	25%	25%	34%	8%

[a] Issues are not necessarily consecutive. For time lapse, see Table V.

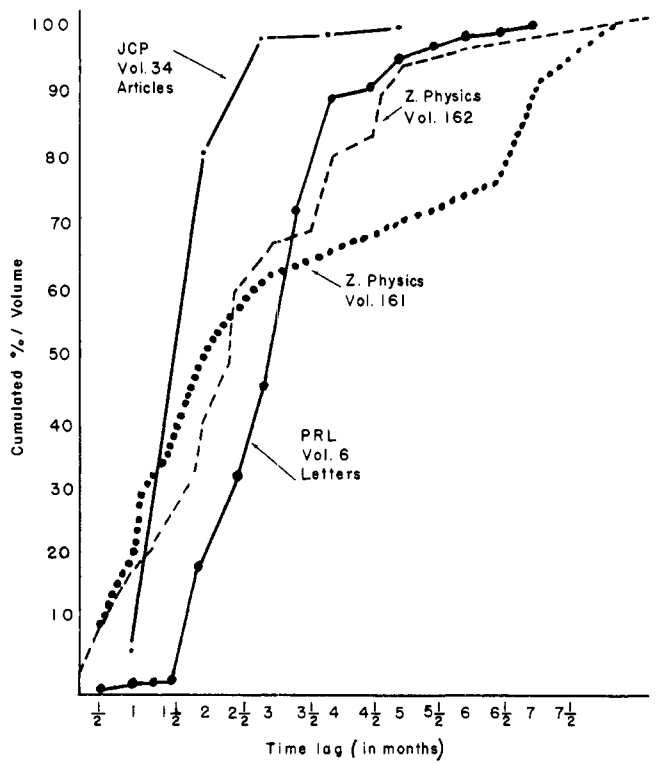

Fig. 4.—Cumulative rate of completion.

Table VII
Placement of Articles in *Physics Abstracts*

	PRL	Z Phys	JCP
Mathematical physics	1	13	16
Fluids	2	7	114
Vibrations-acoustics	1	1	0
Optics	1	8	5
Heat-radiation	43	2	26
Electricity and magnetism	36	43	22
Nuclear physics	184	33	1
Atomic and molecular physics	20	28	373
Solid-state physics	122	92	253
Physical chemistry	0	0	76
Geophysics	7	1	1
Astrophysics	8	1	1

SUMMARY

Coverage in *Physics Abstracts* is nearly 100% complete for all three journals studied. Letters are apparently handled in a manner which prevents complete and timely inclusion in *Physics Abstracts*.

The three types of journals represented in this study showed a degree of similarity in average time lag (3–4 months) and in rate of completion—an average of 5–6 months time lapse for 100% completion of a single journal issue. Availability of author or English language abstracts does appear to reduce the time lag by as much as one month.