

which would not be indexed if preprints were not abstracted.

It is the position of *CA* that papers which correspond to preprints and which appear beyond its routine 18-month waiting period will often include additional data beyond that presented in the original meeting paper. Such papers should be classed as different publications and the new information should be abstracted (this point is not involved in the above table).

It is the contention of the *CA* staff that preprints are a valuable source of information which should be retrievable by the general chemical public. They should not be available only to the very limited number of chemists who are fully aware of the existence of this form of literature and who have it available in an immediately accessible library. Other than *CA*, for these preprints there is no indexing source which is generally available to the chemical world.

The Journals of Inorganic Chemistry

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An earlier report on the periodical literature of inorganic chemistry¹ was based in part on a frequency count of journals abstracted in Section 6 (old classification) of *Chemical Abstracts (CA)* for 1958. The present paper has a broader scope and covers the journal and patent literature of industrial inorganic chemistry and the various areas to which cross-references are made. It is hoped that this work will supply a base line for those in the future who would like to study the relative growths of these two fields with respect to each other or to chemistry as a whole or the changes in emphasis of particular journals or linguistic groups.

The journal sources of papers abstracted in Sections 14 (Inorganic Chemicals and Reactions) and 15 (Industrial Inorganic Chemicals) of *CA* 56 (Jan. through June 1962) were tabulated. The cross-references were not included in the journal count but the sections to which specific references were made were noted. In Section 15 papers and patents were counted separately. The languages used were also noted. The results are presented in Tables I to VI.

There were 258 journals cited in Section 14. Of these only 11%, the 29 shown in Table I, supplied 69% of the abstracts. On the other hand, there were 127 journals (49%) which supplied only a single abstract apiece to account for less than 8% of the total. The figures were quite similar in 1958: 22 journals (8%) supplied 59% of the abstracts and 124 journals (46%) supplied one abstract apiece to make up 7% of the total. The ranking of the major journals is also much the same as it was in 1958. These similarities were to be expected since the change in section number from 6 to 14 did not involve a change in the definition of the scope of the section.

Although the rate of publication has approximately doubled since 1955—1747 abstracts in 1958 and 1796 (including cross references) for the first half of 1962—the number of journals has remained about the same (266 and 258) and the degree of scatter among journals is about the same. The startling change since 1958 is the greatly increased contribution of *Zh. Neorgan. Khim.* from 9.2 to 22.3%.

The new *Inorg. Chem.* did not appear until February and is undoubtedly much lower on the list than it should be. In view of the recently announced expansion of the journal it should eventually rank second or third.

Tables II and III show clearly the great importance of patents as technical literature in industrial work. Abstracts of patents outnumber those of papers in Section 15 by about 3 to 1.

Only four journals are common to Tables I and II and only one journal (*Ind. Eng. Chem.*) in Table II also appears in Wagner's list of journals cited in chemical patents.² The differences between Tables I and II warrant treating Sections 14 and 15 separately.

The sections to which cross-references were most frequent are shown in Tables IV and V. The large number of sections (33) referred to from Section 14 shows the broad scope of inorganic chemistry and the difficulties in constructing classification schemes. The cross-references amount to 9% of the abstracts in Section 14 and 34% of the abstracts of papers in Section 15.

The *CA Physical Chemistry Sections* which is to be made available separately next year will consist of Sections 1 through 14. In this study these sections supplied only 84 (56%) of the cross-references in Section 14.

Table I. Leading Journals in Section 14

Journal	No. of papers	Per cent	Rank	Previous rank
<i>Zh. Neorgan. Khim.</i>	367	22.3	1	1
<i>J. Am. Chem. Soc.</i>	70	4.3	2	2
<i>J. Inorg. Nucl. Chem.</i>	65	3.9	3	8
<i>Z. anorg. allgem. Chem.</i>	63	3.8	4	3
<i>J. Chem. Soc.</i>	61	3.7	5	4
<i>Compt. rend.</i>	41	2.5	6	6
<i>Dissertation Abstr.</i>	36	2.2	7	7
<i>Acta Chem. Scand.</i>	34	2.1	8	13
<i>Dokl. Akad. Nauk SSSR</i>	33	2.0	9	..
<i>Bull. soc. chim. France</i>	27	1.6	10	17
<i>Angew. Chem.</i>	25	1.5	11	9
<i>J. Phys. Chem.</i>	25	1.5	11	11
<i>Chem. Ind. (London)</i>	23	1.4	12	..
<i>U. S. Atomic Energy Comm.^a</i>	23	1.4	12	16
<i>J. Indian Chem. Soc.</i>	21	1.3	13	10
<i>Referat. Zh. Khim.^b</i>	21	1.3	13	15
<i>Gazz. chim. ital.</i>	19	1.2	14	14
<i>Z. Naturforsch. (Sect. B)</i>	18	1.1	15	..
<i>Inorg. Chem.</i>	18	1.1	15	..
<i>Zh. Priklad. Khim.^a</i>	17	1.0	16	..
<i>Monatsh.</i>	17	1.0	16	..
<i>Proc. Chem. Soc.</i>	16	1.0	17	..
<i>Ukr. Khim. Zh.</i>	15	0.9	18	..
<i>Nature</i>	15	0.9	18	..
<i>Nippon Kagaku Zasshi</i>	14	0.9	19	14
<i>J. Sci. Ind. Research (India)^a</i>	14	0.9	19	..
<i>Bull. Chem. Soc. Japan</i>	13	0.8	20	18
<i>Kogyo Kagaku Zasshi^a</i>	13	0.8	20	..
<i>Radiokhimiya</i>	13	0.8	20	..
<i>U. S. Dept. of Commerce, OTS, PB Report</i>	13	0.8	20	..
<i>Others (229)</i>	517	31.4
Total	1646

^a Also appears in Table II. ^b The number of abstracts taken from *R. Zh. Kh.* is not included in the total because they are counted under the primary source.

Table III. Patents in Section 15

Country	No. of patents	Per cent
U. S.	242	30.7
Germany	230	29.2
Britain	111	14.1
USSR	68	8.6
France	37	4.7
Japan	35	4.4
Italy	20	2.5
Czechoslovakia	17	2.2
Spain	9	1.1
Belgium	5	0.6
Austria	4	0.5
Israel	4	0.5
India	3	0.4
Denmark	1	0.1
Switzerland	1	0.1
Sweden	1	0.1
Netherlands	1	0.1
Total	789	

Table IV. Cross-References from Section 14

Section	No. of referrals	Per cent
6 - Phase Equilibria	24	16.0
22 - Electrochemistry	13	8.7
5 - Catalysis and Reaction Kinetics	12	8.0
2 - Analytical Chemistry	10	6.7
27 - Aliphatic Compounds	10	6.7
9 - Electric and Magnetic Phenomena	9	6.0
33 - Organometallic	9	6.0
Others (26) ^a	63	42.0
Total	150	

^a Complete list available from author.

Table II. Leading Journals in Section 15

Journal	No. of papers	Per cent	Rank
<i>Kogyo Kagaku Zasshi^a</i>	21	7.5	1
<i>Zh. Vsesoyuz. Khim. Obshchestva</i>	14	5.0	2
<i>Problemy Kompleks Ispol'zovan</i>	9	3.2	3
<i>Zh. Priklad. Khim.^a</i>	9	3.2	3
<i>Ind. Eng. Chem.^b</i>	9	3.2	3
<i>Khim. Prom.</i>	8	2.9	4
<i>Rev. Chim. (Bucharest)</i>	7	2.5	5
<i>Hua Hsueh Kung Yeh^c</i>	6	2.1	6
<i>J. Sci. Ind. Research (India)^a</i>	6	2.1	6
<i>Trudy Ukr. Nauch.^d</i>	5	1.8	7
<i>Chemik (Gliwice)</i>	5	1.8	7
<i>U. S. Atomic Energy Comm.^a</i>	5	1.8	7
<i>Others (119)</i>	175	62.8	...
Total	279

^a Also appears in Table I. ^b All parts. ^c People's Republic of China. ^d All taken from *Referat. Zh. Khim.*

Table V. Cross-References from Section 15

Section	No. of referrals papers	Per cent
5 - Catalysis and Reaction Kinetics	16	16.7
22 - Electrochemistry	16	16.7
6 - Phase Equilibria	9	9.4
8 - Crystallization	9	9.4
61 - Plant Nutrition	8	8.3
25 - Apparatus	6	6.3
56 - Toxicology	6	6.3
Others (13) ^a	26	27.1
Total	96	
Section	No. of referrals patents	Per cent
22 - Electrochemistry	29	30.5
25 - Apparatus	14	14.7
19 - Extractive Metallurgy	10	10.6
Others (20) ^a	42	44.1
Total	95	

^a Complete list available from author.

Table VI. Languages Used in Sections 14 and 15

(% frequency is given in parentheses)

Rank	Previous study		Section 14		Section 15 (papers)
1	English	(44)	Russian	(37)	Russian (45)
2	Russian	(20)	English	(37)	English (21)
3	German	(17)	German	(12)	Japanese (12)
4	French	(6)	French	(6)	Polish (5)
5	Japanese	(3)	Japanese	(3)	Chinese (5)
6	Italian	(3)	Italian	(3)	Romanian, German (4)
	11 Others	(7)	13 Others	(3)	9 Others (8)

The relative importance of various languages is shown in Table VI. The order for Section 14 has not changed since 1958 except for the reversal of English and Russian. This change is quite drastic, however, the ratio of English to Russian going from approximately 2:1 to 1:1. This change results almost solely from the increased importance of the *Zh. Neorgan. Khim.*

Actually Russian is now slightly more common than English, the difference having been lost in rounding off. Essentially the same order holds for patents (Table III) except that Russian runs a very poor third after German. The over-all importance of Japanese is worth noting. In view of the fact that French makes such a poor showing compared to Russian it seems unreasonable to accept it even as an alternative to Russian for the Ph.D. language requirements. This is especially so since there are no indispensable compendia in French such as there are in German.

REFERENCES

- (1) R. F. Trimble, *J. Chem. Educ.*, **37**, 419 (1960).
- (2) F. S. Wagner, Jr., "A Study of Patent Documentation," presented at the 133rd National Meeting of the ACS, April, 1958.

Chemical-Biological Activities A Computer-produced Express Digest*

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It has been recognized for some time that a more rapid survey of the literature dealing with the biological activity of chemical compounds is needed. The normal procedures following publication of an original paper, until a printed abstract is available, occupy about five months, and cannot be compressed into a much shorter time; additional time is necessary before the index is available, so that an abstract system is much more a tool for retrospective searching than for current awareness. Some progress has been made toward a more rapid current awareness service by the introduction of *Chemical Titles*,¹ but as it is presently constituted, this publication is limited in its scope by the very obvious fact that a title is neither an abstract nor a paper. It is probable that each of the many subsections of the chemical discipline could benefit by a prompt current awareness service; we selected the interrelation of structure and biological activity as one such subsection and have conducted our experiments exclusively with it, in the hope that the results obtained might encourage the production of analogous journals for other subsections of chemistry.

DESIDERATA

The desiderata of a publication promoting current awareness in the field of chemical/biological activities are:

1. Promptness
2. A complete account of the primary source, including the name(s) and address of the author(s), from which the data have been obtained
3. A complete description of the substances employed, with, where possible, their structural formulas
4. A description of the biological conditions under which the observations were made and an account of the results obtained
5. Reasonable legibility of the completed publication
6. A good set of indexes
7. A method of storage of data such that the cumulation of indexes is rapid and comparatively inexpensive
8. A wide coverage

Although not included in the desiderata listed above, it has been kept in mind that in gathering and processing data for this publication, the data should be accumulated in a form which can be transferred without change to our tape storage system. Each of the above heads will be considered in turn.

1. Promptness.—This will be ensured by having copies of the originals delivered direct to the journal office, and worked on by a group of data analysts who have the necessary technical and linguistic ability to prepare the digests. The analysts encode those parts of the information which are required as instructions for the keypunchers.

Our aim is to publish the material within 14 days of the receipt of the journal in our office.

It is proposed to publish bi-weekly, and it is expected that cumulative indexes will be prepared.

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