

# COVERAGE OF RUSSIAN CHEMICAL LITERATURE IN CHEMICAL ABSTRACTS\*

By JOSEPH J. GWIRTSMAN

Chemical Abstracts Service, Ohio State University, Columbus 10, Ohio

## INTRODUCTION

The purpose of Chemical Abstracts (CA) is to create a complete and timely record of all new chemical work published anywhere in the world. To accomplish this, CA abstracts and indexes chemical information found in over 9000 scientific, technical, and trade periodicals coming from about 100 countries and appearing in 52 languages. The Russian language has become the second language in chemistry in recent years.<sup>1</sup> Counts of abstracts according to national sources of the papers covered in CA have shown that Russia had advanced in reported research activity from the fifth position in 1951 (following U.S., Britain, Japan, and Germany) to the second position in 1956 (following only the U.S.).<sup>2</sup> These and more recent data revealed that the percentage of USSR abstracts published in CA increased rapidly from 6% in 1951 to 14% in 1956, 17% in 1958, and approximately 19% at the present time. An examination of the last three Supplements to the List of Periodicals Abstracted by CA for 1957-1959 showed a constant increase in the number of Russian entries, reflecting both the growth of the Russian chemical literature in recent years and its increased coverage in CA. The percentage of newly added Russian periodicals increased from 11.1% in 1957 to 15.9% in 1958 and to 20.9% in 1959. It is interesting to note that the total number of Russian entries added to the List of Periodicals during 1957-1959 approximately equals the number of Russian entries contained in the 1956 edition of the CA list, comprising the serials and non-serials abstracted by CA prior to 1957. The increase in rate is expected to continue. In view of the rapid advancements of the Russians in science and technology in recent years, it is important for chemists and chemical engineers of the world to learn promptly about the results of new chemical research published in Russia. CA is making efforts to achieve coverage of the Russian chemical literature as nearly complete as possible.

## THE SCOPE OF THE RUSSIAN CHEMICAL LITERATURE

The Russian scientific and technical literature consists of an enormous number of journals published by the USSR Academy of Sciences, the Republic Academies of Sciences, the USSR Ministry of Higher Education, the USSR State Scientific and Technical Committee, the various Ministries, the All-Union Institute of Scientific and Technical Information, and numerous

Universities and Research Institutes. In order to select from this voluminous literature material of interest to chemistry and chemical engineering, CA has to conduct a large-scale operation involving careful examination of the literature of purely chemical and of many other related fields as well. Basically three types of scientific periodicals are published in the USSR: (1) journals which are equivalent to our scientific and technical journals, (2) compilations or collections of papers which we would call "proceedings" or "transactions," and (3) bulletins similar to the science news bulletins published here. The term "book" as used in the USSR applies to any one-time publication and includes preprints, reprints and pamphlets as well as conventional books as they are known here. According to B. I. Gorokhoff<sup>3</sup> of the Slavic and Central European Division of the Library of Congress, 59,000 books and pamphlets and 3000 serial publications were produced in the USSR in 1957. The corresponding data for 1958 showed an increase up to 64,000 for book publishing and 3800 for the number of serials. Even if one considers the fact that these overall figures include pamphlets, instructions, booklets and political propaganda manuals, these data still project an impressive figure.<sup>4</sup> The scope of the Soviet scientific and technical literature becomes evident from a few examples:<sup>5</sup> the Bulletins (Izvestiya) of the USSR Academy of Sciences are published in 9 series; in addition, there are 12 Republic Academies of Sciences with their Proceedings, Bulletins and Reports (Doklady, Izvestiya, and Soobshcheniya) in various series and divisions. This total is augmented by 130 Academy research institutes and divisions, 39 universities, 767 institutes of higher education, and 2756 other research institutes with their scientific and technical publications.<sup>6</sup> Since 1958, the Bulletins of Higher Educational Institutes (Izvestiya Vysshikh Uchebnykh Zavedenii) published by the USSR Ministry of Higher Education have been appearing in 22 series. The new scientific center in Siberia with 12 new scientific and technical institutes has an annual publication program of 6000-8000 printed pages.<sup>7</sup> All this enormous mass of Soviet scientific and technical literature creates considerable problems of acquisition and requires great efforts associated with the examination and selection of literature.

The scope of the Russian chemical literature is illustrated in a series of Tables (I-VII) representing its general subdivision with respect to the publishing network and giving some typical

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TABLE I. GENERAL SUBDIVISION OF THE RUSSIAN SCIENTIFIC AND TECHNICAL LITERATURE COVERING CHEMISTRY, CHEM. ENGINEERING, AND RELATED FIELDS

<u>Serial Publications</u>
Journals of the U.S.S.R. Academy of Sciences
Journals of the Republic Academies of Sciences
Journals of the Ministry of Higher Education
Journals of the Various Other Ministries (Agriculture, Public Health, etc.)
Journals of the U.S.S.R. State Scientific and Technical Committee
Journals of the All-Union Inst. of Sci. and Tech. Inform.
Journals of the Various Universities and Research Institutes
<u>Irregular Publications</u>
Transactions of Research and Educational Institutes and Scientific Societies, known as Trudy, Uchenye Zapiski, Izvestiya, Sborniki or Soobshcheniya

TABLE III. EXAMPLES OF JOURNALS PUBLISHED BY THE U.S.S.R. MINISTRY OF HIGHER EDUCATION COVERED BY CA

<u>Izvestiya Vysshikh Uchebnykh Zavedenii</u>	SERIES	<u>Nauchnye Doklady* Vysshei Shkoly</u>
Chernaya Metallurgiya		Biologicheskie Nauki
Geologiya i Razvedka		Energetika
Khim. i Khim. Tekhnologiya		Geologo-Geog. Nauki
Neft i Gaz		Gornoe Delo
Pishchevaya Tekhnologiya		Khim. i Khim. Tekhnologiya
Tekhnologiya Legkoi Prom.		Mashinostr. i Pri-borostroenie
Tsvetnaya Metallurgiya		Metallurgiya

\*Some of these series have been discontinued.

TABLE II. SOME TYPICAL EXAMPLES OF JOURNALS PUBLISHED BY THE U.S.S.R. ACADEMY OF SCIENCES AND REPUBLIC ACADEMIES COVERED BY CA

<u>U.S.S.R. Academy of Sciences</u>	<u>Republic Academies of Sciences</u>	<u>Languages other than Russian</u>
Doklady Akad. Nauk S.S.S.R.	Doklady and Izvest. Akad. Nauk Armyan. S.S.R.	Armenian
Izvest. Akad. Nauk S.S.S.R. (various series)	Doklady and Izvest. Akad. Nauk Azerbaïdzhan. S.S.R.	Azerbaïdzhani
Zhur. Anal. Khim.	Izvest. Akad. Nauk Belorus. S.S.R.	White Russian
Zhur. Eksptl. i Teoret. Fiz.	Izvest. Akad. Nauk Eston. S.S.R.	Estonian
Zhur. Fiz. Khim.	Izvest. Akad. Nauk Kazakh. S.S.R.	Kazakh
Zhur. Neorg. Khim.	Izvest. Akad. Nauk Kirgiz. S.S.R.	Kirgiz
Zhur. Obshchei Khim.	Izvest. Akad. Nauk Latv. S.S.R.	Latvian
Zhur. Priklad. Khim.	Doklady Akad. Nauk Tadzhik. S.S.R.	Tadzhik
Zhur. Tekh. Fiz.	Izvest. Akad. Nauk Turkmen. S.S.R.	Turkmenian
Blokhimiya	Doklady and Izvest. Akad. Nauk Uzbek. S.S.R.	Uzbek

TABLE IV. EXAMPLES OF JOURNALS PUBLISHED BY VARIOUS MINISTRIES (AGR., PUBLIC HEALTH, GEOLOGY, ETC.) COVERED BY CA

<u>Ministry of Agriculture</u>	<u>Ministry of Public Health</u>	<u>Other Ministries</u>
Agrobiologiya	Antibiotiki	Razvedka i Okhrana Nedr
Khlopkovodstvo	Apteknoe Delo	Sovet. Geol.
Lesnoe Khoz.	Farmakol. i Toksikol.	Voenno-Med. Zhur.
Udobrenie i Urozhai	Labor. Delo	Sudostroenie
Vestnik Sel'skokhoz. Nauki	Med. Prom. S.S.S.R.	Morskoi Flot
Veterinariya	Voprosy Med. Khim.	Prom. Stroitel.
Zashchita Rastenii ot Vredit. i Boleznii	Voprosy Virusologii	Mukomoi.-Elevator. Prom.

TABLE V. EXAMPLES OF JOURNALS OF THE U.S.S.R. STATE SCI. AND TECH. COMMITTEE COVERED IN CA

Geologiya Nefti i Gaza  
 Khimiya i Tekhnologiya Topliva i Masel  
 Kislorod  
 Koks i Khimiya  
 Metallovedenie i Obrabotka Metallov  
 Ogneupory  
 Sakhamaya Prom.  
 Spirtovaya Prom.  
 Tsvetnye Metally  
 Zavodskaya Laboratoriya

TABLE VI. PUBLICATIONS OF THE INST. OF SCI. AND TECH. INFORM. CHECKED AGAINST CA FOR COVERAGE OF RUSSIAN CHEM. LIT. AND OTHER PUBLICATIONS OF THE INST. COVERED IN CA

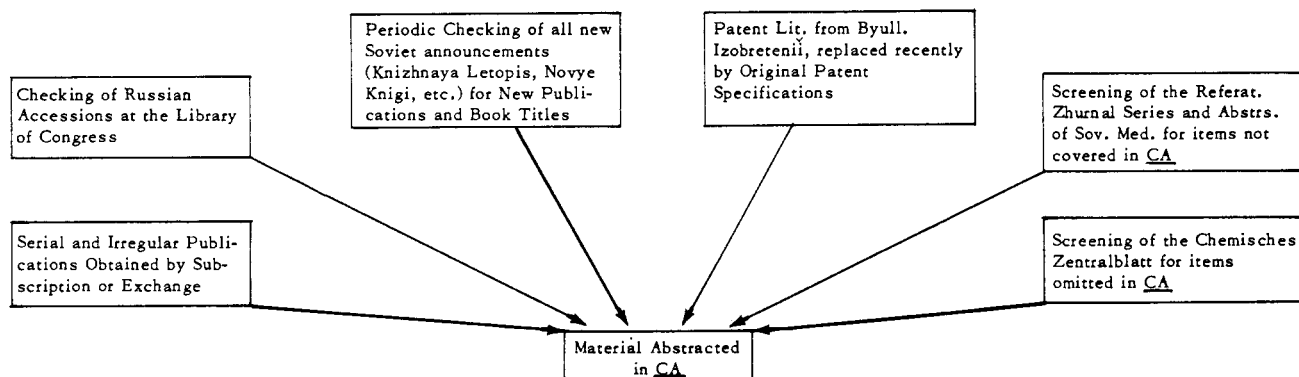
Referat. Zhurnal Series	Itogi Nauki Series
Astronomiya i Geodeziya	Biologicheskie Nauki
Biologiya	Khimicheskie Nauki
Fizika	Tekhnicheskie Nauki
Geofizika	
Geologiya	
Khimiya	
Biologicheskaya Khimiya	
Metallurgiya	

TABLE VII. EXAMPLES OF SERIAL AND IRREGULAR PUBLICATIONS OF EDUCATIONAL AND RESEARCH INSTITUTES COVERED IN CA

Vestnik Leningrad. Univ.	Trudy Radiev. Inst. im. V. G. Khlopina
Vestnik Moskov. Univ.	Uchen. Zapiski Gor'kov. Univ. im. N.I. Lobachevskogo
Trudy Belorus. Sel'skokhoz. Akad. im. Gor'kogo	Izvest. Energ. Inst. im. G. M. Krzhizhanovskogo
Trudy Inst. Fiz. Khim. Akad. Nauk S.S.S.R.	Sbornik Nauch. Trudov Leningrad. Khim.-Farm. Inst.
Trudy Inst. Kristallografii	Soobshcheniya Gosud. Astronom. Inst. im. P.K. Sternberga
Trudy Vsesoyuz. Nauch.-Issled. Inst. Antibiotikov	Trudy Kazan. Khim.-Tekhnol. Inst. im. S. M. Kirova
Trudy Moskov. Khim.-Tekhnol. Inst. im. D. I. Mendeleeva	Sbornik Statei po Khromatografii Leningrad. Gosud. Univ. im. A. A. Zhdanova
Trudy Leningrad. Politekh. Inst. im. M. I. Kalinina	Nauch. Zapiski L'vov. Politekh. Inst.

TABLE VIII. COMPARISON OF THE LAST THREE SUPPLEMENTS TO THE LIST OF PERIODICALS ABSTRACTED BY CA FOR THE YEARS 1957-1959

Year of Supplement	Total Entries	Russian Entries	% of Total
1957 Supplement	1,173	130	11.1
1958 Supplement	1,778	283	15.9
1959 Supplement	1,315	276	20.9
Total	4,266	689	

TABLE IX. CA SCREENING PROGRAM OF THE RUSSIAN LITERATURE COVERING CHEM., CHEM. ENGINEERING, AND RELATED FIELDS WITH THE PURPOSE OF ACHIEVING MAXIMUM COVERAGE

examples of CA-covered journals published by the Academies of Sciences (with consideration of languages other than Russian), the various Ministries, the State Scientific and Technical Committee, the All-Union Institute of Scientific and Technical Information, and the various educational and research institutes. Table VIII then illustrates the growth of the Russian chemical literature and its increased coverage in CA as reflected in the count of newly added Russian periodicals to the List of Periodicals Abstracted by CA for the period 1957-1959. An extensive review on the scientific and technical literature of the USSR has been published earlier.<sup>8</sup>

### THE CHEMICAL ABSTRACTS CHECKING AND SCREENING PROGRAM FOR THE RUSSIAN CHEMICAL LITERATURE

In order to cover all this enormous material, CA is conducting a well-organized exchange and acquisition program resulting in the procurement of most of the needed periodicals, which then are assigned for abstracting. In addition, careful consideration is given to everything new or to items omitted for one or another reason from the "List of Periodicals Abstracted by Chemical Abstracts" and thus not covered in CA. Special attention is concentrated on the irregularly published collections such as transactions of research and educational institutes and scientific societies, reports of conferences and symposia, reports of scientific expeditions, etc. These are being published not more than once or twice a year. With the expansion in the number of research institutes, the number of titles of these publications is increasing. It is not possible to place annual subscriptions to such collections since they appear at irregular intervals; therefore it is difficult to acquire this important type of material.

Coverage of the Russian literature in CA is based on a large-scale checking and screening program, a scheme of which is shown in Table IX. The material abstracted by CA derives from: (1) all chemical and related serial and irregular publications obtainable by subscription or exchange; (2) material resulting from checking of Russian accessions at the Library of Congress; (3) old and new publications picked up by the periodic checking program of all new Soviet announcements contained in the weekly catalogs, such as Novye Knigi (New Books), Knizhnaya Letopis (Book Chronicle), Letopis Zhurnal'nykh Statei (Chronicle of Periodical Articles), and other sporadic lists; (4) the Russian Patent Abstract Journal, known as Byulleten Izobretenii (Bulletin of Inventions), recently being replaced by original patent specifications; (5) checking of the Referativnyi Zhurnal Series and Abstracts of Soviet Medicine for items not covered in CA; and (6) a similar checking and screening operation of the

Chemisches Zentralblatt. The Russian and German abstract journals are subjected to two consecutive checking and screening operations, the first involving comparison of the coverage of Russian chemical literature in these journals with that in CA and thus detecting possible omissions in the latter, and, second, evaluating the omitted material with respect to its suitability for abstracting and use in CA. These Referativnyi Zhurnal Series are constantly being checked: Astronomy and Geodesy, Biology, Physics, Geophysics, Geology, Chemistry, Biological Chemistry, and Metallurgy. Items that are picked up through these screening operations are covered in CA either by procurement of the photostatic copy of the original paper from the Russians (mostly on exchange basis) or from the Library of Congress or by translation of the Russian abstract if the latter appears to be satisfactory and the acquisition of the original paper is too involved.

Table X shows typical screening results of the various Referativnyi Zhurnal Series, using as an example issue No. 3 of each series for 1958. Obviously the most important contributors are the Series on Chemistry, Biochemistry, Metallurgy, Physics, and Geology. It should be noted that all of the Referativnyi Zhurnal Series listed in the Table are checked completely except the Series on Biology and Geology which are only partially checked, namely, in those sections that are in some way related to chemistry and where some chemical material is expected to be found. Comparison of the numbers of abstracts for which CA needed to rely upon Referativnyi Zhurnal Khimiya for comparable periods of the last three years shows a decreasing tendency due to improved coverage of the Russian literature from original publications. The screening program of the Chemisches Zentralblatt is by far less important; nevertheless it also contributes to better coverage resulting in detection of several Russian abstracts per checked issue.

On the basis of the CA screening program and owing to periodic checking of all available Russian and Library of Congress catalogs, the coverage of the Russian chemical literature by CA is intended to be as nearly complete as possible. However, timeliness of publishing the abstracts is equally important; and the latter could be improved. It should be emphasized that the complexity of the acquisition program and the limitations in manpower capable of reading and abstracting Russian papers in such a diversity of fields of specialization are important factors complicating the problem of timeliness in abstracting. It also should be stressed that efforts are constantly being made by CA to coordinate the program of maximum coverage of the Russian chemical literature with the requirement of timeliness, and good quality of abstracts, suitable for successful

indexing. Needless to say, completeness of coverage and timeliness require the cooperation, assistance, and good will of all chemists proficient in reading of Russian scientific literature and capable of preparing abstracts for CA.

### CERTAIN ASPECTS OF THE CA COVERAGE OF RUSSIAN CHEMICAL LITERATURE

To evaluate the coverage of the Russian chemical literature in CA, the official Soviet list of Russian periodicals abstracted by the Referativnyi Zhurnal Series and the List of Periodicals Abstracted by CA were compared. The most comprehensive Russian list, published by the Institute of Scientific Information of the USSR Academy of Sciences in 1957 under the title "Ukazatel sokrashchennykh i polnykh nazvaniĭ nauchnoi i tekhnicheskoi literatury" (Index of Abbreviated and Complete Titles of the Scientific and Technical Journals),<sup>9</sup> was used for this comparison. In contrast to CA's list containing mostly chemical and related periodicals, the Russian list contains titles of periodicals covered in all the Referativnyi Zhurnal Series (including such fields as Astronomy and Geodesy, Electrical Engineering, Geography, Machine Building, Mathematics, Mechanics, etc.), i.e., a considerable number of non-chemical titles. The Russian list is broken down into sections according to languages of publication. The section of languages using the Russian alphabet contains over 1800 entries, including over 5% entries of journals published in Czechoslovakia, Bulgaria, Yugoslavia and elsewhere. The Russian journals include both chemical and non-chemical ones (even economical, political, etc.), and this greatly complicates the comparison with the CA list. The 1956 CA list together with the supplements contains over 1350 Russian entries. The purely chemical journals as well as those closely related to chemistry and chemical engineering included in the Russian list can all be found in the List of Periodicals Abstracted by CA. Certain titles of publications of higher educational institutions or research institutes are not found in the CA list owing to the occurrence of a relatively small number of chemical papers in these journals. (The abstracts of these papers, however, are included in CA as a result of the screening of the Referativnyi Zhurnal Series. It has been CA's policy not to include the titles of these periodicals in CA's list.) On the other hand, one can find a number of entries in the CA list which cannot be found in the Russian list. The latter are mostly one-time publications such as reports of conferences, symposia, special collections of papers, etc. It appears from this comparison that the coverage of Russian chemical journals in CA approaches that of the Referativnyi Zhurnal Series.

The field of CA is chemical engineering as well as chemistry.<sup>10</sup> Therefore, CA tries to maintain in each issue a fair balance between the covered Russian material in the fields of chemistry and chemical engineering. There is also a reasonable proportion maintained between the basic research literature and the literature of applied chemical fields. Table XI represents some typical examples of predominantly basic research journals and applied Russian journals covered in CA. The lower part of the table provides some examples of Russian journals of chemical engineering covered by CA. Of the 50 sections and subsections of CA, Section I entitled "Apparatus, Plant Equipment and Unit Operations" is almost entirely devoted to chemical engineering. However, material of interest to the chemical engineer can be found scattered through most of the other sections, especially in those concerned with applied chemical fields. In this connection the coverage of the Russian patent literature should be mentioned. It has been said above that this coverage was based in the past on the only available published source, namely, the Byulleten Izobretenii, containing short descriptive abstracts of Russian patents. Recently CA has been the first non-governmental agency to receive original Russian patent specifications in this country. It is hoped that use of the latter for the preparation of abstracts will improve the quality of coverage of the Russian patent literature considerably. CA has been covering approximately 25-30% of the total available Soviet patents, this being the percentage of chemical patents.<sup>11</sup>

As to the problem of the proportion between the published and accessible basic Russian scientific information and the applied technical literature, it is generally very difficult to draw a borderline between them. In spite of indications of the official emphasis on applied sciences, there is evidence of the existence of many fields of theoretical investigation.<sup>12</sup> Efforts are made to reflect the latter as well as the Russian technological advances in the CA abstracts of Russian material. Table XII illustrates the coverage in CA of Russian chemical and chemical engineering papers and basic and applied papers evaluated on the basis of a representative sample (CA, 53, no. 22). It appears from this sample that the proportion of Russian basic and applied papers follows approximately the general pattern for all the abstracts. The over-all ratio of predominantly basic to predominantly applied papers, based on this sample study, is 70:30, whereas for the Russian papers, the same ratio is 75:25. This difference seems to be due to a considerably lower representation of the Russian patent abstracts as compared to the patent literature of the Western countries and Japan.

It has been shown that CA is well on its way to achieving completeness in coverage

TABLE X. TYPICAL RESULTS OF SCREENING OF THE REFERAT. ZHURNAL SERIES

Name of Series	Date and No. of issue	Total number of abstracts in the issue	No. of abstracts selected for <u>CA</u> from the Referat. Zhurnal
Astronomiya i Geodeziya	No. 3, 1958	700	2
Biologiya	No. 3, 1958	4,867	5
Fizika	No. 3, 1958	2,450	18
Geofizika	No. 3, 1958	800	1
Geologiya	No. 3, 1958	1,958	16
Khimiya	No. 3, 1958	3,408	85
Biol. Khimiya	No. 3, 1958	1,375	23
Metallurgiya	No. 3, 1958	1,846	43
Total		17,004	193

TABLE XI. EXAMPLES OF PREDOMINANTLY BASIC RESEARCH JOURNALS AND TYPICAL APPLIED JOURNALS COVERED IN CA

Basic Journals	Applied Journals
Atomnaya Energiya	Kauchuk i Rezina
Doklady Akad. Nauk S.S.S.R.	Koks i Khimiya
Fizika Metallov i Metalloved.	Masloboino-Zhirov, Prom.
Izvest. Akad. Nauk S.S.S.R.	Metallurg
Kolloid. Zhur.	Stal'
Kristallografiya	Steklo i Keramika
Zhur. Fiz. Khim.	Zhur. Priklad. Khim.

EXAMPLES OF JOURNALS OF CHEM. ENGINEERING COVERED BY CA

Doklady L'vov. Politekh. Inst.	Nauch. Doklady Vyssheĭ Shkoly Khim. i Khim. Tekhnol.
Inzhener.-Fiz. Zhur. Akad. Nauk Belorus. S.S.R.	Pribery i Tekhnika Eksperim.
Izvest. Vysshikh Ucheb. Zaved. (a) Khim. i Khim. Tekhnol.	Teploenergetika
(b) Mashinostroenie	Vestnik Mashinostroeniya
(c) Priborostroenie	Vsesoyuz. Nauch.-Issled. i Konstr. Inst. Khim. Mashinostroeniya, Sborniki
Khim. Mashinostroenie	
Khim. Nauka i Prom.	Zavodskaya Laboratoriya

TABLE XII. COVERAGE OF RUSSIAN CHEM. AND CHEM. ENG. PAPERS AND BASIC AND APPLIED PAPERS IN CA EVALUATED ON THE BASIS OF A REPRESENTATIVE SAMPLE CA 53, NO. 22 (1959)

CA Section	Type of papers included	Total no. of abstracts	No. of Russian abstracts	%
1	Predominantly Chem. Eng.	277	50	18.1
2-11	Predominantly Basic	7,991	1,434	17.9
12-31	Predominantly Applied	3,216	427	13.3
	Total	11,484	1,911	

of the vast mass of Soviet chemical literature. Other important CA objectives have always been timeliness of abstracting and good quality of abstracts. An impartial survey prepared recently in the CA office<sup>13</sup> to determine the comparative lengths of time required for abstracting by CA and Referativnyi Zhurnal Khimiya of papers selected at random from seven issues of leading Russian journals showed that CA abstracted these journals 33 days faster than the Referativnyi Zhurnal Khimiya (the mean CA time lag in this case was slightly over six months). Another survey<sup>14</sup> indicated that the time lag between original publication and abstracting in the U. S. usually ranges from six to nine months and that the Soviet service compares favorably with U.S. abstracting services. The complexity of the problem of timeliness in abstracting Russian material has been dealt with above. It appears that unless acquisition problems are eliminated entirely and abstracting manpower is fully available, it is difficult to expect drastic improvements in the near future.

As to the quality of abstracts, there always has been a tendency in CA to abstract Russian papers in more detail owing to the problem of unavailability of original journals, lack of translations, and the language barrier. In general, it can be said that the Russian abstracts in CA are of good quality and they contain the essential and important indexable items. There is usually enough general and specific information given in the abstracts for the chemist, chemical engineer or other CA user to judge about the usefulness of the original article and its applicability to their field of interest.

### CERTAIN PRIORITY TOPICS IN THE RUSSIAN CHEMICAL LITERATURE

The 21st Communist Party Congress, early in 1959, resulted in a call to action for various segments of the Soviet society, especially through its resolutions to further the development of education, science, and culture. The 7-year plan proclaimed at this Congress for the period 1959-1965 was greatly concerned with the progress of the chemical industry.<sup>15</sup> Particular attention has been given to the production of synthetic resins and plastics, synthetic rubber, chemical fibers, the fertilizer industry, the mining industry, the dye industry and especially the petroleum industry and its by-products. The Russians expect to increase 3-fold the total volume of chemical production during the 7-year plan, whereas the production of synthetic fibers is expected to grow 12-13 fold and the production of plastics and synthetic resins 7-fold (all this based on the state of production of 1958). Independent of these practical goals, there is evidence of considerable exploratory work on the origin of cosmic bodies

and, in particular, of the earth. This work is linked with efforts to gain better understanding of cosmic radiation and to search for new sources of radioactivity and power. In this connection the emphasis is on atomic studies. Extensive research in nuclear physics and related fields is a major concern of some of the leading Soviet scientists. Considerable scientific activity is marked in the fields of astronomy, geophysics, geochemistry, and geology. The emphasis on the problem of the origin of life explains the growing interest for research in protein synthesis and photosynthesis. Biochemistry, radioactive chemistry, bio-astronomy, chemical physics, biophysics, crystallochemistry, and radioastronomy are some of the new disciplines that are given special attention in academic institutions.<sup>12</sup> Other fields of emphasized investigation are: ultrasound, acoustics, molecular physics, semiconductors, luminescence, combustion, and extensive metallurgical studies. The basic task of the Soviet science as formulated by the USSR Academy President A. N. Nesmeyanov is "to facilitate the universal development of the productive forces of the country."<sup>16</sup> This definition applied to the program of the current 7-year plan of "chemization" of the USSR calls for considerable expansion of research work in the field of theoretical chemistry, industrial technology, processes and apparatus, design of equipment and automation of the control and operation of chemical processes. Therefore, extensive investigations are being undertaken

on the relation between the composition, structure and properties of chemical compounds, and establishment of principles and methods of manufacturing chemical products with certain a priori specified properties.<sup>15</sup>

Russian scientific progress is bound to make tremendous strides in coming years. We have witnessed already their recent achievements in space. It is imperative to follow closely the Russian scientific and technical literature, which quantitatively exceeds that of all other European countries and is second only to the U.S.A., and to make it available to scientists and industry through the Western information systems. In recent years, the Soviets have also developed their science information work to a high level. They have undertaken an all-out effort to develop further the dissemination of scientific and technical information.<sup>17</sup>

Owing to the serious language problem, the still-existing acquisition problems, and the unavailability of many materials in translated form, CA is making an effort to fill the gap and achieve maximum coverage of the Russian scientific and technical journals in the form of good informative abstracts backed by thorough and effective indexes. The success of this effort will depend to a great extent on the understanding and cooperation of our contributors, of the large CA team of over 2200 chemists who do the work of providing the CA service, and especially of those who combine their chemical specialty with a thorough knowledge of the Russian language.

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