Dissemination of Chemical Information in the USSR†

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The USSR system for publishing and disseminating Soviet generated chemical information is highly developed. Distribution of scientific information from outside the USSR is beginning to grow, with an increasing number of titles translated into Russian. The publication and dissemination of English translations of Soviet information outside the USSR have represented a major effort in information transfer for some time now and is continuing at a significant rate, as evidenced by the products of Plenum, Chemical Abstract Services, the American Institute of Physics, and others.

A few interesting facts:

There are 130 different languages spoken within the Soviet Union and books are published in most of them. Many Russians speak two or more of these languages.

The Soviet Union receives copies of all patents issued in the major countries throughout the world. They are promptly translated into Russian.

There is little need to maintain inventories of books in Russia as most are presold before printing.

Print runs vary from 1000 to one million copies, the average being 40 000.

In the Soviet Union during 1974 (the last year for which there are publishing statistics), there were 46 000 titles (books and pamphlets) published by more than 200 publishing houses, producing a total of over 1.5 billion copies. In addition, there were 116 million copies of another 40 000 publications produced by organizations other than publishing houses.

SCIENCE POLICY IN THE SOVIET UNION

The principal features of Soviet Science can be summarized as follows:

1. Soviet science is organizationally linked directly to high levels of government.
2. The producing elements of Soviet science are the Academy of Sciences, the government research laboratories and ministries, and the universities.
3. The State Committee for Science and Technology coordinates science within the Soviet Union and with foreign countries.

In the Soviet Union there is a separation of policy formulation from policy execution. The former is the prerogative of the Communist Party while the latter is the responsibility of the government. This should not be understood to mean that the government does not assist in planning. There are cross lines between the two—organizationally and through key persons holding dominant positions in both party and government. The various organs involved in science policy formulation are the First Secretary of the Party, the Political Head of the Central Committee, the Central Committee itself, the Committee on Science and Education, the State Committee on Science and Technology, the State Planning Committee, and the Presidium of the USSR.

SOURCES FOR SCIENTIFIC INFORMATION IN THE SOVIET UNION

Scientific and technical information is published under the auspices of three main organizations: (1) the Academy of Sciences of the Union of Soviet Socialist Republics, (2) university research facilities, and (3) research facilities associated with individual ministries and industries.

The Academy of Sciences of the USSR is directed by the General Assembly and the Presidium of the Academy. The Academy of Sciences is divided into four major sections and each section is then separated into individual departments. The major headings under the Academy are: (1) physics—technical and mathematical sciences, (2) chemical technology and biological sciences, (3) earth sciences, and (4) social studies. The dissemination of information under the Academy of Sciences is the responsibility of the over 200 individual institutes that make up the Academy.

University Research Facilities. Excluding those research institutes under the Academy of Sciences, there are approximately 40 major universities conducting research activities. Compared to the West, the universities play a small role in conducting research projects. Most research and development are the responsibility of the research institutes under the Academy of Sciences.

Research Ministries and Industries. Research ministries are primarily responsible for product design, process design, and product development. Very little research is actually carried out by the research ministries. There are approximately 42 ministries involved with chemistry. Each ministry is responsible for only a very small portion of one of the chemistry subdisciplines.

PUBLICATION IN THE SOVIET UNION

Publication from the three main sources of scientific information mentioned above are in the form of journals, books, "Trudy", and abstracting/indexing services.

Journals are organized in much the same system as scientific and technical journals are organized in the United States. Each has an editorial board of prominent scientists who act as the clearinghouse for the submission, acceptance or rejection, and publication of papers. The journals contain original articles, short communication, book reviews, etc. After approval by the editorial board, individual issues of the journals are then published in the Russian language and distributed to subscribers throughout the Soviet Union.

Scientific and Technical Books. Scientific and technical books in the Soviet Union relating to chemistry are physically published by a number of publishing houses, although the largest by far is the Chemistry (Khimiya) Publishing House. Each republic also has publishing activities which include a significant number of books in chemistry. Scientific publishing houses have evolved over the years to where their system of acquiring manuscripts is analogous to those in the United States except, of course, that the profit motive is not involved. Each proposed manuscript submitted to a publishing house is turned over to a technical editor, usually a chemist or chemical engineer, who gives his opinion and then forwards

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the manuscript to two outside independent reviewers. Obviously, manuscripts received from authors who have previously had books published are given priority within the system. The average time for publication beginning with the acceptance of the manuscript is 9 to 12 months. The types of books published primarily include monographs, proceedings, handbooks, dictionaries, and collections of articles. Books published in the Soviet Union are printed in specific quantities based upon advance orders. Before a manuscript is published, all bookstores throughout the USSR receive a title and brief description. By this means, the bookstores are alerted to place orders to cover anticipated sales of the publication. Once all replies are received, the publisher proceeds to print the required number of copies. Therefore, there is seldom a need to warehouse overruns.

Research and Technical "Trudy". Within the Soviet Union there exists a kind of publication unknown in the United States, the so-called "Trudy". The Trudy publications report on recent research conducted by leading institutes. The resulting articles and collections of articles normally are not published in the regular scientific journals. The tend to be much longer and report in much greater depth than do journal articles. The famous Lebedev Institute as well as almost all other major research institutes publish in the form of Trudy. The frequency of publications produced under the Trudy is irregular and depends on the state of the research and publishing policy of the institute.

Abstracting/Indenxing Services. The gathering and organization of chemical, as well as other scientific and technical, information is coordinated in the Soviet Union by the All-Union Institute of Science and Technology Information known as VINITI. This institute is analogous to our own National Technical Information Service except that VINITI is government supported whereas NTIS now supports its activities from the sale of the products sold to its subscribers. VINITI publishes all abstracting and indexing journals, express information bulletins, and advanced technical briefs which are distributed throughout the USSR. In addition, VINITI publishes a variety of indexes and other information retrieval aids designed for use by individual scientists and libraries.

INFORMATION DISSEMINATION AGENCIES

The dissemination of technical information throughout the USSR is the responsibility of a number of government sponsored agencies.

All-Union Agency for Author's Rights (VAAP). Authors, editors, and performers in the Soviet Union receive a royalty for their published and performed works in the Soviet Union and abroad through a system operated by VAAP. VAAP publishes a newsletter on a regular basis advertising rights available for Soviet books. These newletters and bulletins which include a table of contents, descriptive information, and biographies are mailed throughout the world for potential copublishers to examine.

VAAP also maintains representatives in many overseas countries who offer Russian-languange manuscripts for sale. Rights to these manuscripts are also offered at most international book fairs and particularly at the now famous Moscow International Book Fair. In addition, VAAP coordinates the purchasing of foreign-language rights to books and journals published outside of the USSR. These purchases are made in conjunction with individual publishing houses and research institutes.

Mezhdunarodnaya Kniga (M.K.). Books are sold throughout the Soviet Union through an enormous network of bookstores under the overall direction of Mezhdunarodnaya Kniga. This agency is also responsible for the import and export of technical publications. Sales are aided to a large extent through the publication of a weekly booklet titled "New Books". This publication lists all forthcoming books from every publishing house in the Soviet Union. Distribution of the "New Books" list is enormous in that it is sent to all bookstores, libraries, and individuals whose orders are solicited prior to the printing of the books. Books and journals are published and sold at relatively low prices in order to stimulate education and the exchange of information within the Soviet Union. English language books and journals on chemistry and chemical technology published outside of the USSR are also sold in the Soviet Union. The dissemination of these publications are likewise handled by the Mezhdunarodnaya Kniga and the books are sold through the same network of bookstores. The non-Russian language books are first purchased by M.K. and are then made available to the bookstores at prices substantially higher than prices charged for Soviet Books.

International Book Fairs. The Soviet Union organized in 1977 the First Moscow International Book Fair which is now held biannually. This Book Fair is an international event where publishers throughout the world exhibit their books and journals for review by Soviet publishing houses for rights and sales to individual scientists and librarians. The Book Fair is also a place where personal contacts are established for future copublishing rights and sales. Concurrent seminars are organized for acquainting first-time exhibitors and novices with Soviet publishing practices. The Soviet Union also sends representatives to all major book fairs throughout the world.

Meetings and Conferences. The Soviet Union conducts many conferences each year devoted to topics in chemistry and chemical technology. These are widely attended by researchers, scientists, and engineers within the Soviet Union. In addition, Soviet scientists and researchers actively participate in international conferences.

International Joint Research. The Soviet Union participates in joint research efforts with many countries throughout the world. For example, the United States and the USSR have a working relationship which was established in 1972 and renewed for an additional five years in July of 1977. Dr. Frank Press, the President's scientific advisor, signed the working agreement for the United States. At present there are 11 joint working groups covering the following areas:

1. Application of Computers to Management
2. Chemical Catalysis
3. Electrometallurgy
4. Forestry Research and Technology
5. Intellectual Property
6. Metrology
7. Production of Substances by Microbial Means
8. Physics
9. Science Policy
10. Scientific and Technical Information
11. Water Resources

The Joint Commission has also appointed a U.S. Group of Experts to develop research proposals in the area of corrosion and Anti-Corrosive Protection of Metals. The participants in the joint research groups exchange visits in each country, hold symposia, conduct research, and publish their findings. This is obviously an aid to both countries.

Other Means for Information Dissemination. In addition to the massive publishing effort carried on in the Soviet Union, it is not unusual for Soviet scientists to speak on sophisticated subjects in considerable detail through the media of radio and television. Such talks include chemistry and chemical technology.

Dissemination of chemical information is aided by a sophisticated system of small booklets which cost no more than $0.10 to $0.15 per copy. These are published on a level for school children and cover every imaginable topic in the field

of chemistry. Millions of copies of these booklets are sold each year in the Soviet Union.

Information on chemistry and chemical technology in the Soviet Union is further disseminated by subscriptions to journals published in the United States and internationally on chemistry and chemical technology. These journals are purchased through Mezhdunarodnaya Kniga and shipped directly to universities and research institutes throughout the USSR.

Chemical information is also made available through a series of publications offered by MIR Publishing House titled "New Books From Abroad". This is a series of publications whereby in-depth reviews describe the foreign published books.

HOW SCIENTIFIC INFORMATION BECOMES KNOWN IN THE WEST

Scientific information emanating from the USSR becomes known in the West through the services of a number of commercial and public agencies. In the United States, several noteworthy sources are: Plenum Publishing Corp., Chemical Abstracts Service, and the American Institute of Physics. As Plenum is the largest publisher of English-language translations of Soviet materials it is important to know how they go about making Soviet scientific and technical information available to the Western World. With regard to *journals*, Plenum Publishing Corporation translates into English *91* Soviet journals *cover-to-cover*. Journals are accepted for publication only after extensive evaluation by qualified scientists. Once Plenum decides to translate a journal, high-quality translations are achieved by using technical specialists who have English as their native language. These translations are carefully monitored through a sophisticated quality control system. Translated manuscripts are reviewed by proofreaders who check for errors in translation as well as for technical errors and omissions. The manuscripts are then typeset and proofread once again for errors in preparation. They are then printed, bound, and distributed throughout the world. On the average, a translation is published six months after the Russian edition. Timing is of the utmost importance throughout the system and is second only to quality.

Plenum participates in all major abstracting/indexing services in order to make the availability of their English translations known to a wide audience. In this way researchers may gain knowledge about the availability of individual articles by referring to readily available on-line or manual indexes.

With regard to books, the selection of Soviet materials to be translated into English is done by a group of scientists in the various subdisciplines of chemistry. Books are selected for their contributions to the world literature and not because they present the Soviet point of view. The book publishing program follows basically the same channels as the journals publishing program. Specialized, highly qualified translators are selected to translate the manuscript of the book. Following the translation, technical editors, who are specialists in the subdiciplines, carefully edit the book and frequently write introductions and check the references to make sure that no significant Western references have been omitted. The books are then typeset and published and distributed throughout the World.

Plenum distributes brochures and review copies, takes ads in major scientific publications, and participates in conferences throughout the world in order to make the availability of this information known to the researchers who require it.

Chemical Abstracts as a Resource for Health and Safety-Related Chemical Information†

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Documents relevant to the health and safety of the worker or consumer exposed to chemicals or radiation extend over the entire range of the chemical disciplines, and therefore pertinent information can appear throughout the Chemical Abstracts Service information systems. Access routes to such information in both CAS printed publications and computer-readable services are discussed. In the weekly issues of *Chemical Abstracts*, health and safety information can be accessed through the natural-language Keyword Index. Retrieval of pertinent information through the controlled headings of the CA Volume Indexes in conjunction with the Index Guide is also discussed. *CA Selects*, a set of current-awareness publications, is described as it pertains to the specialized areas of health and safety.

The printed and computer-readable services provided by CAS cover not only the area of pure chemistry, but, in addition, the chemical aspects of many other scientific fields including geology, physics, and the biological sciences. CAS's coverage of biochemistry is very comprehensive. In fact, nearly one-third of all the information made available by CAS is related to biochemistry, making the CAS database an excellent source of information relevant to the health and safety of humans exposed to chemicals or radiation.

The CAS database contains abstracts, bibliographic information (such as titles, authors, and work location), natural-language index terms (known as keywords), section numbers, and volume index entries. Select portions of this database are packaged into a variety of computer-readable and printed services.

CA WEEKLY ISSUES

The CA weekly issues contain abstracts or brief summaries disclosing the main findings of a document and are probably the most familiar of the printed services. Associated bibliographic information and a keyword index are also present.

Each even/odd issue pair is divided into 80 subject-oriented sections, many of which contain large quantities of health and safety information. Section 59 (Air Pollution and Industrial Hygiene), Section 71 (Nuclear Technology), and Section 4 (Toxicology) are foremost among these; however, coverage of

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