

## Clearinghouse Announcements\*

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**The Clearinghouse announcement system provides a prime technical report awareness tool for each major category of Clearinghouse user. Development of the program began in 1963, when the Clearinghouse had one inflexible announcement product. Currently, there are four major announcement products. The development of the announcement program and the announcement products are described.**

The Clearinghouse, a division of the National Bureau of Standards, annually announces about 40,000 new reports generated by federally-sponsored research and development. This work is the fulfillment of the directive given in PL 776:

Section 2. The Secretary of Commerce is hereby directed to establish and maintain within the Department of Commerce a clearinghouse for the collection and dissemination of scientific, technical, and engineering information, and to this end to take such steps as he may deem necessary and desirable—

(a) To search for, collect, classify, coordinate, integrate, record, and catalog such information from whatever sources, foreign and domestic, that may be available;

(b) To make such information available to industry and business, to State and local governments, to other agencies of the Federal Government, and to the general public, through the preparation of abstracts, digests, translations, bibliographies, indexes, and microfilm and other reproductions, for distribution either directly or by utilization of business, trade, technical, and scientific publications and services.

About one million copies of reports are sold annually, in either the paper copy or microfiche form, for the cost of reproduction and handling. The 100,000-plus users of these reports represent all levels of technical society—from the bench researcher to management. These individuals are from both government and private industry, as illustrated below by the ratios developed from sample data:

U. S. Industry	50%
U. S. Government	25%
U. S. Individuals	5%
Foreign	20%

Perhaps a word should be said about the reports announced through the Clearinghouse. They are produced by over 150 sources, including U. S. government departments and agencies, state governments, and selected private and foreign sources. Their sum and substances can

be as broad or as specific as the author desires. They are supplied to the Clearinghouse as printed or loan copy. Generally, the reports handled by the Clearinghouse are written to fulfill a contract, grant, or project obligation. Sometimes they are interim reports on research and development, and for full understanding of the entire project require previous reports. Occasionally they summarize the entire work of the project, leaving the details to be reported elsewhere. Recently, the Clearinghouse has added a new dimension to its information dissemination activities through the sale of magnetic tapes. But all these variations have one common attribute—they reflect the interest in technology that exists today.

Within the Clearinghouse, the effectiveness of our information dissemination is judged by the number of reports supplied. Through the years, we have found that the majority of requests for reports is created by the announcement media published by the Clearinghouse. Hence, it is easily understandable why the Clearinghouse spends a great deal of time and effort studying methods for communicating the announcement of recent acquisitions to the public.<sup>1</sup>

Through experience in making this information on technology available, the Clearinghouse has established two basic principles:

The public is interested in capitalizing on the government's research and development efforts.

The extent of the public's use of the research and development information is proportional to the design of the announcement media, as well as to the number of subscribers to the media.

When the Clearinghouse took on a new character and a new name in 1964 from the old Office of Technical Services (OTS), they published two primary announcement media—*U. S. Government Research Reports (USGRR)* and *Technical Translations (TT)*. The former announced all domestic and foreign, but not translated, research and development reports of value available to the organization at that time. The latter, *TT*, announced translations of foreign reports from one language into another language. Both journals were produced by the Clearinghouse and cataloging, subject analysis, and publications were per-

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formed in-house. The indexes for those announcements were published as part of the journal. The process for publication consisted of creating keystroked paper copy, manual pasteup, and then photo-offset printing. The total number of subscriptions to the combined *TT-USGRDR* announcement publications was about 5000.

In the last four years of transition, the Clearinghouse has gone through a minimum of eight separate decisions to improve its announcement media. The present announcement products of the Clearinghouse are:

*U. S. Government Research and Development Reports.* The *USGRDR* (combined with *TT* in January 1968) is published bimonthly and announces about 40,000 R&D reports annually in COSATI Fields and Groups. It now contains announcements of all translations into English. The publication domestic subscription price is \$30.00. Public subscriptions are about 3000 and total circulation (including to the defense community) is about 8500. The companion Index, *USGRDR-I*, is published concurrently as a separate volume. It arranges the announced entries by subject, accession/report number, corporate author, personal author, and contract. The domestic subscription price is \$22.00.

*Fast Announcement Service.* The *FAS* was begun in 1966 and announces 4000 reports annually in 57 industrially-oriented categories. The reports announced through this service are selected by Clearinghouse subject specialists. About 10% of the total input is selected for *FAS*. Each category is distributed separately. Public subscription is \$5.00 per year, and current subscriptions number about 8000.

*Clearinghouse Announcements in Science and Technology*, begun in August 1968, announces all reports from *USGRDR* in modified subject groupings and in separate issues called subjournals. The reports which have been selected for *FAS* are specially marked in these subjournals, which are published twice a month. The domestic subscription cost is \$5.00 for the first category and \$5.00 for each additional two categories. Public subscriptions have recently reached the 4000 mark.

The underlying philosophy for the development of these particular announcement media has been that they must respond to the needs of the unique segment of the user community. For the purpose of this discussion, I have divided the user community into three groups:

The individual scientist and engineer interested in performing his research. He uses these reports as one input to his research task or his desire to keep abreast in his field.

The second group of users is generally known as librarians. Their purpose is to insure availability of the latest information for their users. Usually, this group is interested in having all references which may be potentially useful to their organization and in maintaining records of these references in such a form that they will be available for future use. Generally, this requirement entails the inclusion of not only the information about the subject per se, but all bibliographic information available, such as contract number, report number, number of pages, etc. Because the accumulation of information of this nature is so broad in these libraries, a constant problem of the librarian is organization and the ability to retrieve the information readily.

The third class of users is those who are interested not only in the recent developments and reports in a particular subject, but also all past references on the subject. These users can be either the researchers, the management, or a person acting in their behalf. They generally require some sort of retrospective as well as current reference search capability. Usually, these users turn to their librarian for help.

With these needs in mind, the Clearinghouse has conducted a number of studies and made a number of changes in its announcement media to increase the flow of announcements in the latest technology.

## THE JOURNAL CONCEPT

The least original but probably the most widely used announcement medium is the announcement journal. In principle, it serves the needs of the thousands of scientists and engineers by announcing the availability of new research and development reports. In fact, it hardly touches their needs, but instead provides the standard medium for library use. The sheer volume of reports, 1500 to 2000 per issue in every subject imaginable, usually overwhelms and discourages regular use by all but the most determined individuals. This does not mean that the journal serves no purpose at all.

One of the primary uses for the journal is for reference. In this respect, the journal does an admirable job of providing an inexpensive method of classifying all announcements. In fact, one of its primary uses is by the librarian or scientist "browsing" to determine what has been done in the past. This method of "retrospective" searching is considered by the sophisticated to be unbelievably crude. But in this age of computers, there are still several reasons why many customers prefer it. The journal permits immediate browsing through the entire collection. The total turnaround time from the conception of the thought of the search to its completion is probably less than structuring a question for a computer, submitting the question, receiving and reviewing the answer—it costs only your time, and not your time and your money. The *USGRDR* and its *Index* are unique because they provide the only source of government-wide research and development information.

The Clearinghouse efforts to improve the journal, besides adding additional coverage of reports, began with the merger of the two sections announcing reports—the so-called "white" and "blue" sections. While these sections did not duplicate announcements, they did repeat the subject arrangement so that a user was forced to go to two places within the journal to see all of the announcements on a given subject. This merger was made possible through the use of a computer to consolidate the data and use of computer photocomposition for printing of the journal.

The second major change was to the presentation of the entry for each announcement.<sup>1</sup> This was done to aid the user in his efforts to find information.

The third major change was to the index. The index to the journal previously had been limited to the contents of the journal and format of listing by report number. In 1967, the index to the journal was discontinued per se. The *USGRDR-I* (formerly known as the *Government-Wide Index*) now contains five separate indexes—four for those interested in bibliographic reference and one for those interested in subject reference. The latter uses the "asterisked descriptor" concept for its index point.

This type of format change, while helpful to the immediate user, is not really enough to attract a new audience to the publication. This point is illustrated by examining the list of paying subscribers to the publication.

The number has remained virtually constant over the years at about 3000. However, the number of subscribers does not by any means indicate the number of users of the journal. The subscription list is mainly a compilation of libraries or central gathering points for information. I would estimate that the average journal is reviewed by about ten people.

### SELECTED ANNOUNCEMENTS

In 1966, the Clearinghouse developed a new type of announcement service. The "cream of the crop" reports were selected to make a special announcement medium. This medium, designated as the *Fast Announcement Service*, began as a "giveaway" service. Within a few years, however, the subscription list grew to over 20,000 and the production cost was no longer a small item. At this time a charge was made for the subscription. This charge proved not to deter those truly interested in the service, but did eliminate those who sign up for everything.

The success of the *FAS* has been demonstrated in at least two ways, first by the steady increase in the number of paid subscribers—currently over 8000—and second by the sales generated. Through sampling, it was shown that the overwhelming majority of report sales was stimulated by the paid subscribers.<sup>1</sup> In contrast to the *USGRDR* subscribers, most of the subscribers are individuals. This can be explained in a number of ways. First might be the price consideration. For five dollars, a person can subscribe to as many subject categories as he desires. This feature has a very subtle overtone found to be a major factor in the customer appeal—the announcements come directly to the subscriber and are not delayed by routing or other library procedures. Second is the fact that only the "best" reports are listed.<sup>3</sup> Third must be the packaging approach used in *FAS*. Each individual announcement is written in a stylized manner to permit the greatest ease in reading. Each issue is generally limited to two pages for rapid scanning. Fourth, but not least, is that all subject categories are mailed separately, so that the user only handles the categories in which he personally is interested.

### THE SUBJOURNAL APPROACH

The Clearinghouse began work on a "subjournal" about two years ago. The original concept was to provide a service combining the best attributes of the *USGRDR* and *FAS*. The concept was the subject of a one-year experiment funded by the Office of Aerospace Research, Department of the Air Force.<sup>2</sup> The success of that experiment provided the impetus for the Clearinghouse to make that service available to the public in August 1968.

The systems design for the subjournal utilizes work already being performed for the *USGRDR* and *FAS*. The input and announcement system is from the *USGRDR*, including the conversion to magnetic tape and computer manipulation of data and photocomposition. At the point of printing, however, it becomes a separate product. The subjournal is similar to the *USGRDR* format, but each entry contains only the information usually of immediate

interest to the scientist and engineer, as in the *FAS* write-ups. Included are the title, abstract, source, author(s), pages, and date. Excluded are the contract number, report number, and other special cataloging information provided primarily for library use. The abstract is the same as that used in the *USGRDR*. Unlike *FAS*, the subjournal contains announcements of all of the reports received by the Clearinghouse (like the *USGRDR*). However, the "best" or "cream of the crop" reports selected for *FAS* are highlighted by a special marking for easy recognition. The announcement categories of the subjournal are a hybrid—they were selected by combining the COSATI list used by *USGRDR* and the commercial and industrial categories of the *FAS*. Thus, in order to create the subjournal, all that is required in processing is a computer sort and edit of the *USGRDR* entries. Hence, this product really represents the "best" of both announcement products.

### COMPARISON OF *FAS*, *USGRDR*, AND THE SUBJOURNAL

The relative merits and demerits of the three announcement systems currently in operation at the Clearinghouse are the subject of many discussions and studies. They basically revolve around the fulfillment of the needs of the various groups of users.

Is the subjournal an effective enough tool to replace either one or both of the other announcement media? Are there other effective media which can be used to transfer report announcements to the public?

Whether the answers are yes or no, the effect of those decisions will have substantial impact on both the Clearinghouse and its users. Briefly, the ideas now under consideration are:

1. To discontinue the subject arrangement in the *USGRDR* and make it purely a shelf list arranged by accession number. Each announcement would contain the full entry of bibliographic and subject information now available in the *USGRDR*. It would serve as a reference for the librarian, while the subjournal would serve the subject-oriented individual user. The merits of this system are plentiful—the user interested in "his subject" would have easier access to the information through the individual subjournals, as proven in the OAR experiment.<sup>4</sup> The librarian interested in bibliographic reference would still have the full use of the *USGRDR-I*, as well as the shelf list—a much easier reference tool when trying to locate the announcement of a specific accession number.

2. To redesign *FAS* by one of several methods, converting all *FAS* users to the subjournal and discontinuing *FAS*. In order for this to be possible, the users of the *FAS* must, in fact, find the subjournal acceptable as a replacement for the *FAS*. Another idea is to restructure the *FAS* category system and raise the price of the service to bring it more in line with operating costs.

3. To initiate the sale of magnetic tapes containing the information from each announcement issue of *USGRDR*.

4. To initiate the sale of a comprehensive index to *USGRDR* which would contain the complete author, corporate author, contract, accession/report references to all reports announced within the last five years. In addition, a complete subject index would be furnished of asterisked and nonasterisked pre-coordinated descriptors for ease of searching. This product, now in an experimental stage, would be sold on 16-mm. film.

The various inputs to these decisions will be the user reaction to the subjournal through subscription changes, etc., and the results of an experiment to determine customer interest generated in reports announced in each of the three announcement media. We feel this continuing effort is necessary in order to meet the growing plethora of research and development reports available to the technology-conscious public of today.

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## Macromolecular Nomenclature: General Background and Perspective\*

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**The history of the preparation, approval, and publication of IUPAC reports dealing with macromolecular nomenclature is reviewed. Certain problems recently considered include modifications of the previously approved structure-based system for representing polymers by names and formulas. Other problems that should be considered soon are concerned with ladder, crosslinked, sheet, network, coordination, and purely inorganic polymers. A plea is made against approval of definitions or rules of nomenclature by any national or subnational organization without prior submission to, and consideration by, the appropriate international body.**

Nomenclature rules and definitions were proposed, approved, and used long before chemists realized the importance of macromolecular compounds and began treating them as chemical substances. As macromolecules became more important chemically, industrially, and otherwise, the rules and definitions devised for substances of low molecular weight could, to a considerable extent, also be applied to those of high molecular weight. Some modifications and extensions were, however, necessary.

When it became realized that the use of different terms and different definitions for the same things by different people in different places was causing confusion and misunderstanding, organizations such as IUPAC's International Commission on Macromolecules and its liaison organization in this country—the Committee on Macromolecular Chemistry of the National Research Council—decided that something should be done about it. At the instigation of Herman Mark, the chairman of the NRC Committee, and with the help and collaboration of many people and organizations in this country and abroad, a Report on Nomenclature in the Field of Macromolecules was prepared, approved by the NRC Committee, and in 1951, with modifications, by the IUPAC Commission. It was published<sup>1</sup> the following year.

That report dealt with two types of problems: ideas, concepts, and definitions peculiar to the macromolecular

field, and a system for representing linear polymers, by name and formula, on the basis of their composition and structure, rather than on the basis of the monomers from which they were, or might be, derived. In the first category were included special terms and definitions needed because high polymers and other macromolecular substances are usually mixtures of many different molecular species, differing with regard to molecular weight, composition, and structure. Also included were terms related to methods commonly used for polymer characterization—for example, methods for obtaining molecular weight averages by measurement of solution viscosities.

In dealing with the second category, a system of naming polymers and representing them by formulas on the basis of the name and formula of the biradical that is the smallest repeating unit, disregarding conformational differences, was devised and recommended for use. To avoid confusion between the structure-based names and the usual source-based names, it was proposed that the former always have the termination "-amer." Thus, the recommended structure-based name for a linear polyethylene was "polymethamer" and that for polyoxymethylene was "polymethoxamer."

After approval of this report, the Nomenclature Committees of the NRC Committee on Macromolecular Chemistry and the IUPAC Commission on Macromolecules were dismissed. A few years later the IUPAC Commission appointed another committee to deal specifically with

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