

## SUMMARY

There were 29,299 abstracts of biochemical papers plus 47 abstracts of patents for a total of 29,346 abstracts published in *Chem. Abstr.* in 1960. This represents 22% of the total number of abstracts (132,159) for that year.<sup>11, 15</sup> This is 60% greater than the number of abstracts of papers and patents (18,233) appearing in the "Organic Chemistry" section. Listed in order of the number of abstracts of articles appearing in them, the ten major journals in 1960 were: *Nature*, *J. Biol. Chem.*, *Biochim. et. Biophys. Acta.*, *Proc. Soc. Exptl. Biol. Med.*, *Am. J. Physiol.*, *Compt. rend. soc. biol.*, *Dissertation Abstr.*, *Biochem. J.*, *Arch. Biochem. Biophys.*, *Compt. rend.*

*Compt. rend.* was the only one of these which was important in 1880. In 1960 the major languages in which biochemical articles were written were (in order): English, German, French, Japanese, Italian, and Russian. These six languages represented over 90% of all biochemical articles. In 1890 the order was German, French, English, and Italian, representing 94% of all biochemical articles. In 1960 the major countries from which biochemical articles came were (in order): United States, Japan, England, Germany, France, Italy, and Soviet Russia. These countries represented 76% of the abstracts. In 1890 the important countries were Germany, France, Italy, and England, representing 86% of the total.

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## Concordance between Divisions and Journals of the American Chemical Society

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Scientific journals are generally recognized as a powerful factor in the conduct and advancement of scientific disciplines. The existence of suitable journals can catalyze the extension and application of new fields, and the absence of favorable publication media can deter research in even broad fields of science. Naturally, the births and deaths of journals, the definitions of scope and content of the papers they accept, and the policies and practices that guide the decisions of editors and reviewers with respect

to individual papers, are all matters of frequent discussion and debate among scientists.

During the past few years, the American Chemical Society has doubled the number of journals that it sponsors. Much of the impetus to expansion was the result of requests from Divisions of the Society concerned with branches of chemistry not specifically served by existing journals. Divisions themselves publish two of the older journals, and several Divisions issue to their

members informal publications in the form of preprints. The relationships between Divisional interests and publications are so close that examination of the present concordance might be expected to reveal patterns that suggest logical further changes in chemical journals in the future.

Although the concordance often has been considered by members and committees of the Society in the past, an apparent lack of system in the Divisional structure has hampered thinking. One opinion has held that Divisions fall into two classes that represent the "horizontal and vertical" segments of chemistry. Another has held that no two Divisions are alike. Both contained an element of truth and neither was satisfying.

Actually, the Divisions fall into three major categories that have immediate implications with respect to Society sponsorship. In the attached tabulation, the concordance between Divisions and journals is grouped according to these categories.

The first group includes fields that fall within the traditional subject matter of chemistry. Among professional societies, only the ACS could logically assume responsibility for publication in these fields. Four of them—analytical, inorganic, organic, and physical—represent the classical subdisciplines of chemistry. Biological chemistry could be included in the next group, and colloid and surface chemistry might be considered a specialized branch of physical chemistry. All except the last of these fields are appropriately now represented by a specific Society journal.

Not included in the first group are branches of the subdisciplines of chemistry not now represented by specific Divisions. Catalysis, for example, is an active field of physical chemistry that lacks a Division, although the publication needs are broadly covered by an ACS journal. Chemists in such active fields often discuss specialized international journals. A lack of international societies strong enough to assume continuing responsibility for special fields would seem to preclude any general trend toward international journals.

The second group includes fields that the discipline of chemistry shares with other disciplines. The responsibility for publication lies only in part with the ACS; the remainder belongs within the disciplines of education, literature, history, engineering, medicine, microbiology, and economics. Questions as to which discipline should administer the journals that represent such joint fields might be expected to arise. Resolving a conflict of interest should not prove too difficult, however, for an understanding with only one other discipline would be needed.

Concordance between Divisions and journals in the second group is almost as good as in the first. In two instances, however, it is more apparent than real. The pair of words "industrial and engineering," although historically logical for both the Division and the Journal of that name, is anomalous: although engineering is a discipline, industry cannot be so defined. Furthermore, the field of overlap between chemistry and engineering is nominally covered by a professional group within the engineering profession. Although a newsmagazine does not coincide with a Divisional interest in marketing and economics, it does emphasize that subject matter. Further gradual modifications of present patterns in these two

instances are likely.

Not included in the second group are a few fields of overlap between chemistry and other disciplines that are not represented by Divisions of the ACS. An example is geochemistry, where the center of gravity falls nearer the earth sciences. Another is chemical physics, which is represented by a journal administered within the discipline of physics although used primarily by chemists. A third is illustrated by the *Journal of Chemical and Engineering Data*, which superficially overlaps the discipline of mathematics. Perhaps from such diffuse fields as these will arise new Divisions, as well as new journals, as interests crystallize in the future.

#### CONCORDANCE BETWEEN ACS DIVISIONS AND ACS JOURNALS

Division of	Journal of
Six Divisions Representing Subdisciplines of Chemistry	
Analytical Chemistry	<i>Analytical Chemistry</i>
Biological Chemistry	<i>Biochemistry</i>
Colloid and Surface Chemistry	(served by <i>J. Phys. Chem.</i> )
Inorganic Chemistry	<i>Inorganic Chemistry</i>
Organic Chemistry	<i>Organic Chemistry</i>
Physical Chemistry	<i>Physical Chemistry</i>
Seven Divisions Representing Fields Shared With Other Disciplines	
Chemical Education	<i>**Chemical Education</i>
Chemical Literature	<i>Chemical Documentation</i>
History of Chemistry	(served by <i>J. Chem. Educ.</i> )
Industrial and Engineering Chemistry	<i>Industrial and Engineering Chemistry</i>
Medicinal Chemistry	<i>Medicinal and Pharmaceutical Chemistry</i>
*Microbial Chemistry and Technology	(may be served by <i>Biochemistry</i> )
Chemical Marketing and Economics	Postprints (also <i>Chem. Eng. News</i> )
Ten Divisions Representing Processing and Use of Materials	
A. Chemical Materials	
Organic Coatings and Plastics	Preprints
Polymer Chemistry	Preprints
B. Natural Materials	
Agricultural and Food Chemistry	<i>Agricultural and Food Chemistry</i>
Carbohydrate Chemistry	--
Cellulose, Wood, and Fiber	--
Fertilizer and Soil Chemistry	(served by <i>Ag. and Food Chem.</i> )
Fuel Chemistry	Preprints
Petroleum Chemistry	Preprints
Rubber Chemistry	<i>**Rubber Chemistry &amp; Technology</i>
Water and Waste Chemistry	Preprints
*Probationary unit.	<i>**Divisional journal.</i>

The third group includes fields that involve materials rather than disciplines. Most of the materials are naturally occurring, although synthetic ones also are represented. Lack of concordance between Divisions and journals in this group is immediately apparent.

The consequences of centering attention upon a material are several. Interests become broader than simply chemical, and relations are more complicated than mere combinations of chemistry with another discipline; many disciplines other than chemistry may be more or less concerned. Activities may begin with locating the material; proceed through various stages of processing, transportation, and use; and end with disposal. Although applications are a pertinent aspect, so also are fundamentals, so that the distinction from disciplinary interests is not as simple as that between applied and pure chemistry. Perhaps the key consequence is the emphasis upon rapid progress in a narrow direction, rather than thoroughness in a broad one.

Emphasis upon rapid progress is the reason for the prevalence of preprinting within the Divisions of the third group. Started more than 40 years ago in one Division, preprinting has now extended to half. It may expand further among Divisions of the third group, but has less reason to be adopted by the disciplinary Divisions of the first two groups.

A further limit to the expansion of the practice of preprinting is the ever-rising cost of reproducing and distributing scientific information. Papers that are preprinted, then published in a formal journal, must go through the process twice. The obvious answer is to formally publish the papers before presentation to gain the advantage of preprinting, and to not do so afterward. At present, the regulations of most scientific societies prohibit that sequence. These regulations were designed to protect disciplinary interest, however, and may not meet the needs of materials-centered Divisions of the ACS.

How much emphasis the ACS as a whole should devote to publication in the fields of interest of the materials

group is a question that deserves close study. Not more than 3% of the nearly 100,000 members of the ACS belong to any of these Divisions. All members of the materials Divisions have an interest in the disciplinary groups, but the reverse is not true. A possible answer is to delegate to the interested Divisions the responsibility for administering all publication—informal or formal—in the materials fields.

Formal journals in the materials fields might well be designed to cover the interests of more than one Division. Agriculture and Food Chemistry now encompasses the interests of two Divisions. The fields of fuel and petroleum have much in common. Cellulose and wood share some areas with carbohydrates, as do polymers with plastics. Only the field of water and waste lacks a present close companion among the materials Divisions.

A journal administered jointly by two or more Divisions might well seem foredoomed to jurisdictional difficulties. One or another would have to assume the bulk of the responsibility. However, the existence of a good publication medium is such a powerful influence that the initiation of appropriate journals could even promote realignment of Divisional boundaries.

Present journals of the ACS thus cover the interests of most Divisions squarely, but provide for the needs of some only indirectly. Perhaps as few as four materials-oriented journals would fill today's needs, provided the preprint features were retained, and regulations against presentation of published materials were modified. Administration of these new journals by Divisions would retain them within the framework of the ACS, a desirable circumstance that has not been entirely possible in either the branch fields of chemistry or in the overlapping fields of chemistry and other disciplines.

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## Abbreviations in Russian Abstract Journals Covering Chemistry and Related Fields

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The Soviet abstract journals, known as the *Referativnyi Zhurnal* (*RZh*) series, make frequent use of various types of abbreviations. These involve geographical names, bibliographical designations, sources of patents, common words, dimensions, units, symbols, special terms, etc. Their interpretation is given in supplements to instructions to abstractors and editors<sup>1</sup> of the *RZh* which are not readily available. Some short and incomplete lists can be found scattered in various *RZh* issues.<sup>2</sup> Special abbreviations of words in names of journals are listed in the Index of Abbreviated and Complete Titles of the Scientific and Technical Journals<sup>3</sup> covered by the *RZh*. A general survey of abbreviations in Russian chemical literature has been published earlier.<sup>4</sup>

The list given here includes the most important abbreviations

used in the series *Khimiya*, *Biologicheskaya Khimiya*, *Fizika*, *Metallurgiya*, *Biologiya*, and *Geologiya*. These abstract journals are considered of importance in the evaluation of completeness of coverage of the Russian chemical literature in *Chemical Abstracts*.<sup>5</sup> The list consists of the Russian (Cyrillic) abbreviations arranged alphabetically, the complete Russian (Cyrillic) versions of abbreviated expressions, and their English equivalents. Abbreviations entirely unrelated to the field of chemistry and abbreviations of Soviet institutions have been omitted.

It is hoped that this list of abbreviations will be a useful tool not only for the reader of the *RZh* but for users of many primary scientific and technical Russian journals as well.