Publication of American Chemical Society National Meeting Papers*

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As the quantity of scientific literature continues to increase and the boundaries of most disciplines become more encompassing, new and more efficient outlets must be provided. Estimates of the world's scientific periodicals range anywhere from 35,000 to 100,000.[1] A recent study done by the Library of Congress estimates that the population of the world's scientific and technical serials is closer to 35,000 ± 10%, the United States ranking first with a total of 6,200.[2] As new disciplines and specialities appear and new technologies are built around discoveries, new periodicals are encouraged.

Within the last ten years, the American Chemical Society itself has doubled the number of journals that it sponsors. Much of the impetus to expansion has been the result of requests from divisions of the Society concerned with branches of chemistry not specifically served by existing journals. The present journals of the American Chemical Society seem to cover the interest of most divisions quite satisfactorily. However, it is felt that these discipline-oriented journals do not provide adequate outlets in the fields of interest of the materials-centered divisions.[3]

Study Conception, Design, and Execution.—The question was brought up at a recent ACS meeting of the Committee on Divisional Problems as to how many of the papers presented before the ACS national meetings are eventually published. The general feeling seemed to be that too few of these papers could be found in ACS journals. A preliminary survey of the papers presented before seven of the ACS divisions at the 131st National Meeting in 1957 showed that slightly more than half of these papers were eventually published in ACS journals. We have now extended this survey to cover the papers of all 20 divisions represented at that meeting.

A first clue as to the publication plans for these papers was obtained from postcard questionnaires which are sent routinely after each meeting by the Committee of Editors, ACS Journals, to every senior author. Although the majority of these questionnaires are returned to the Society, they cannot be trusted to give an accurate picture of the final fate of the papers. In this case, for example, 64 authors stated that they did not plan to publish at all. This would represent approximately 5% of all the papers. Further checking, however, uncovered that 29 of these authors, almost half, had eventually published their papers in various periodicals.

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Chemical Abstracts was the most complete and accurate source. The Author Indexes for each year from 1957 to June, 1962, were checked for each author until the abstract of the paper he gave at the meeting was located. Since in many cases the titles had been changed for publication, each abstract had to be compared with the abstract as published by the American Chemical Society at the time of the meeting. Once the right paper had been located in *CA*, the publication from which it had been abstracted was noted. If the paper had appeared in a journal, the date of publication was noted as well. It is assumed that if a paper had not been abstracted in *Chemical Abstracts* by 1962, it has not and will not ever be published (Table II).

Several other sources within the Society also proved to be helpful; among these, a status report of planned publication of papers presented before the Industrial and Engineering Chemistry and Petroleum Divisions which was drafted by the ACS Applied Journals group in 1960–1961 and which covered the 131st Meeting; also the Committee of Editors' files on papers submitted to *Analytical Chemistry*. Unfortunately no such data were available from the basic journals' editors.

Not including introductory remarks by chairmen, 1,255 papers altogether were presented at the 131st Meeting. Of these, 672, or 54%, were published in ACS journals, nine of these as preprints; 293, or 23%, were published in non-ACS journals; and 247, or 20%, could not be located. The remaining 3% were located in the literature in various forms such as theses, patents, textbooks, or chapters in books (Fig. 1, Table I).

Twenty-two per cent of the papers which could be located had been changed and probably rewritten before publication. In some instances the title had been changed; in others an author had been dropped or added. The scope of several of these papers had also been changed. Some were more specific, more detailed; others were broader, more general. In several cases, actual meeting papers presented before the Medicinal Chemistry Division and the Chemical Education Division were published in two or more separate papers (Fig. 1).

A small number of the total meeting papers were abstracted in *Chemical Abstracts* from publications issued before the date of the meeting. All of these, however, were in the nature of transactions and proceedings of non-ACS conferences and symposia, and were usually distributed in limited numbers. No further publication of these papers could be located following the 131st

Table I
Status of Papers by Divisions

Divisions[a]	Papers located in ACS journals	Papers located in non-ACS journals	Papers not located	Papers published with changes	Number of papers presented at meeting
Agricultural and Food Chemistry	10	17	5	11	32
Analytical Chemistry	78	14	23	10	116
Biological Chemistry	50	74	31	51	163
Carbohydrate Chemistry	12	15	8	13	35
Cellulose Chemistry	9	3	2	1	14
Chemical Education	18	6	20	7	43
Chemical Literature	5	5	18	8	30
Chemical Marketing and Economics	1	5	12	11	22
Colloid Chemistry	19	30	15	22	68
Gas and Fuel Chemistry	9	3	2	4	16
History of Chemistry	1	1	8	...	10
Industrial and Engineering Chemistry	128	24	18	22	176
Inorganic Chemistry (Probationary)	17	6	1	12	24
Medicinal Chemistry	26	9	4	4	37
Organic Chemistry	123	5	26	24	155
Paint, Plastics, and Printing Ink Chemistry	14	13	16	14	48
Petroleum Chemistry	41	5	7	4	56
Physical and Inorganic Chemistry	99	25	21	32	152
Polymer Chemistry	10	23	5	19	40
Water, Waste, and Sanitation Chemistry	2	10	5	7	18

[a] In several divisions the sum of the papers located in journals and the papers not located does not equal the total number of papers presented at the meeting because a few papers appeared in the literature in forms other than journal articles.

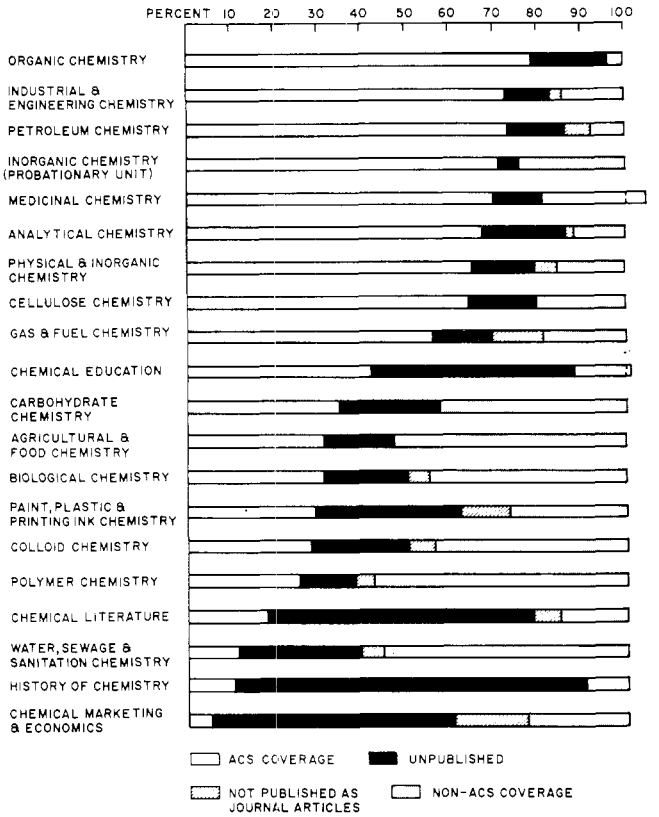

Fig. 1.—Comparison of publication status.

Meeting. Thus, because of these factors, an exact correlation between the oral papers and the published papers could not in every case be made (Fig. 1, Table I).

Summary of Data.—The following brief analysis of the publication outlets used by each ACS division represented at the 131st Meeting will highlight the data presented in Tables I, III, IV.

1. The division of Agricultural and Food Chemistry presented only 32 papers. Ten papers were published in ACS journals, of these six in *Agricultural and Food Chemistry* and three in *Analytical Chemistry*. Seventeen papers were published in other journals, *Soil Science* being chosen by seven of these. Five papers could not be located.

2. The Division of Analytical Chemistry published 67% of its papers in ACS journals. Almost half of these appeared in *Analytical Chemistry*. The *Journal of Agricultural and Food Chemistry* had 21 papers, *Journal of the American Chemical Society* had five, and *The Journal of Physical Chemistry* only one. Fourteen papers, or 12% of the total, were scattered among 12 non-ACS journals. Twenty per cent of the papers were not located.

3. The Division of Biological Chemistry presented a total of 163 papers. Almost one-third were published in ACS journals, 42 papers appearing in the *Journal of the American Chemical Society*. Forty-three per cent of the total were found in non-ACS journals covering a wide range of interests from biochemistry to medicine to atomic energy. The *Journal of Biological Chemistry* alone published one-third of these papers. Thirty-one papers were not found.

4. The Division of Carbohydrate Chemistry had only 35 papers. Twelve papers appeared in ACS journals, seven of them in *Journal of the American Chemical Society*. Fifteen other papers were scattered among 12 non-ACS journals, and eight papers could not be located.

5. The Division of Cellulose, Wood, and Fiber Chemistry published six of its 14 papers in *Industrial and Engineering Chemistry*, one paper each in *Journal of the American Chemical Society*, *The Journal of Organic Chemistry*, and *Analytical Chemistry*. Three papers were

Table II

Publication Time Lag of Papers Published in ACS Journals

Divisions	Year of publication					Total
	1957[a]	1958	1959	1960	1961	
Agricultural and Food Chemistry	3	5	2	...	...	10
Analytical Chemistry	30	35	10	4	...	79
Biological Chemistry	19	18	9	3	1	50
Carbohydrate Chemistry	6	6	...	...	...	12
Cellulose Chemistry	3	6	...	...	...	9
Chemical Education	9	6	2	1	...	18
Chemical Literature	2	3	...	...	...	5
Chemical Marketing and Economics	1	...	...	...	...	1
Colloid Chemistry	6	12	1	...	...	19
Gas and Fuel Chemistry	2	7	...	...	...	9
History of Chemistry	...	...	1	...	...	1
Industrial and Engineering Chemistry	57	35	33	2	1	128
Inorganic Chemistry (Probationary Unit)	11	2	3	...	1	17
Medicinal Chemistry	12	9	3	...	...	24
Organic Chemistry	80	23	17	2	1	123
Paint, Plastics, and Printing Ink Chemistry	2	11	...	1	...	14
Petroleum Chemistry	12	17	3	1	...	33
Physical and Inorganic Chemistry	56	24	14	5	...	99
Polymer Chemistry	5	2	2	1	...	10
Water, Waste, and Sanitation Chemistry	...	1	1	...	...	2
TOTAL	316	222	101	20	4	663

[a] Papers were presented in April, 1957.

Table III

ACS Journals in which Meeting Papers were Located

Division	Number of papers presented at meeting	Number of papers published in ACS journals
Agricultural and Food Chemistry	32	JA&FC-6; AC-3; I&EC-1
Analytical Chemistry	116	AC-50; JACS-5; JA&FC-21; JPC-1; Adv. #23-1
Biological Chemistry	163	JACS-42; JOC-2; AC-3; JA&FC-1; JPC-2
Carbohydrate Chemistry	35	J. Chem. Ed.-1; I&EC-2; JOC-1; AC-1; JACS-7
Cellulose Chemistry	14	JACS-1; I&EC-6; JOC-1; AC-1
Chemical Education	43	J. Chem Ed.-12; JPC-4; JACS-1; AC-1
Chemical Literature	30	C&EN-1; J. Chem. Ed.-3; CR-1
Chemical Marketing and Economics	22	C&EN-1; C&EN Condensates-6
Colloid Chemistry	68	JPC-17; I&EC-1; JA&FC-1
Gas and Fuel Chemistry	16	I&EC-9
History of Chemistry	10	J. Chem. Ed.-1
Industrial and Engineering Chemistry	176	JACS-6; JOC-3; I&EC-77; JC&ED-4; JPC-3; JA&FC-2; AC-3; C&EN-2; Adv. #23-27; ACS Petroleum Chemistry Div. preprints-1
Inorganic Chemistry (Probationary Unit)	24	JPC-2; C&EN-1; JOC-2; JACS-11; J. Chem. Ed.-1
Medicinal Chemistry	37	JACS-17; JOC-9
Organic Chemistry	155	JACS-95; JOC-28
Paint, Plastics, and Printing Ink Chemistry	48	JC&ED-1; JOC-2; I&EC-7; JACS-3; Adv. #23-1
Petroleum Chemistry	56	JACS-5; I&EC-13; JC&ED-1; JPC-5; AC-7; JOC-1; Adv. #23-1; ACS Petroleum Chemistry Div. preprints-8
Physical and Inorganic Chemistry	152	JACS-47; JPC-48; I&EC-4
Polymer Chemistry	40	JACS-7; JOC-1; I&EC-1; JPC-1
Water, Waste, and Sanitation Chemistry	18	AC-1; I&EC-1

Table IV
Non-ACS Publications most often Mentioned as Outlets for Meeting Papers

Journal of Biochemistry
Journal of Polymer Science
U. S. Atomic Energy Commission Booklets
Journal of Chemical Physics
Journal of Colloid Science
Archives of Biochemistry & Biophysics
Soil Science
Paint Varnish Production
Journal of the American Oil Chemists' Society
Proceedings of the Society for Experimental Biology and Medicine
American Documentation
TAPPI

found in non-ACS journals, and two papers could not be found at all.

6. The Division of Chemical Education presented 43 papers. Twenty of these could not be located in the literature, probably due to the fact that a large number of these papers dealt with broad and general topics and were not submitted for publication in that form. Twelve of the 18 papers which were located in ACS journals appeared in the *Journal of Chemical Education*.

7. The Division of Chemical Literature also did not have many papers. Of the 30 papers presented at the meeting, one-third were published—five in ACS journals and five papers in non-ACS journals. *American Documentation*, issued by the American Documentation Institute, published four papers.

8. The Division of Chemical Marketing and Economics does not seem to have published many of its papers. One appeared as a feature in *Chemical & Engineering News* and six were published in *Chemical & Engineering News* condensates. Five papers were located in ACS publications, and 12 papers could not be located at all.

9. The Division of Colloid and Surface Chemistry published 44% of its papers in non-ACS journals, the *Journal of Colloid Science* attracting more papers than any of the other journals. Except for two papers, all of the 28% which appeared in ACS journals were published in *The Journal of Physical Chemistry*. Twenty-two per cent of the papers were not found.

10. The Division of Gas and Fuel Chemistry presented only 16 papers, none of which were published in *Industrial and Engineering Chemistry*.

11. The Division of History of Chemistry had the least number of papers at the meeting, a total of 10. One was found in the *Journal of Chemical Education* and one in a non-ACS journal, *Chymia*. Three authors had no publication plans, and eight papers could not be located although five of these were to be submitted to the *Journal of Chemical Education* by their authors.

12. The Division of Industrial and Engineering Chemistry had the greatest number of papers with a total of 176. Of these, 73% were published in ACS journals, with 77 papers found in *Industrial and Engineering Chemistry*, several papers each in *Journal of the American Chemical Society*, *The Journal of Organic Chemistry*, *The Journal of Physical Chemistry*, *Journal of Chemical and Engineering Data*, *Analytical Chemistry*, *Journal of Agricultural and Food Chemistry*, *Chemical and Engineering News*, and 27 papers providing material for the ACS *Advances in Chemistry Series No. 23*. However, 18 papers were not located, and the remaining 24 were scattered among 18 other journals. Six of this last group of papers appeared in United States Atomic Energy Commission booklets.

13. The Division of Inorganic Chemistry was at the time of the 131st Meeting only a probationary unit and thus had not scheduled many papers. From a total of 24 papers, 17 were published in ACS journals, with 11 of these in *Journal of the American Chemical Society*, and six in non-ACS journals, with three of these in the *Journal of Inorganic & Nuclear Chemistry*. Nine papers provided general information on the increasing importance of the research and techniques of inorganic chemistry, and their authors had no intention to publish.

14. The Division of Medicinal Chemistry presented 37 papers, 70% of which were published in *Journal of the American Chemical Society* and *The Journal of Organic Chemistry*. Nine other papers were scattered among eight non-ACS journals.

15. The Division of Organic Chemistry published 79% of its 155 papers in *Journal of the American Chemical Society* (95 papers) and *The Journal of Organic Chemistry* (28 papers). Twenty-six papers could not be located, although the authors of 20 of these papers had planned to publish in *Journal of the American Chemical Society* and *The Journal of Organic Chemistry*. Only five papers were published in non-ACS journals.

16. The Division of Paint, Plastics, and Printing Ink Chemistry did not publish many of its papers. Thirty-three per cent could not be located. Of the ACS journals, *Industrial and Engineering Chemistry* and *Journal of the American Chemical Society* published the greatest number. Of non-ACS journals, *Modern Plastics*, and *Paint Varnish Production* were most popular. Five papers could only be located as patents.

17. The Division of Petroleum Chemistry published 73% of its papers in a wide variety of ACS journals. *Industrial and Engineering Chemistry* and *Analytical Chemistry* accounted for almost as many papers as all the other ACS journals combined. Seven papers could not be found and five papers were published in five different non-ACS journals.

18. The Division of Physical and Inorganic Chemistry was one of the largest divisions and published 48 papers in *The Journal of Physical Chemistry*, 47 in *Journal of the American Chemical Society*, and four in *Industrial and Engineering Chemistry*. Of the 25 papers found in non-ACS journals, seven were in the *Journal of Chemical Physics*. Twenty-one papers apparently have not been published.

19. In the Division of Polymer Chemistry, 58% of its 40 papers appeared in non-ACS journals. The *Journal of Polymer Science* published 13 papers. *Journal of the American Chemical Society* published seven papers.

20. The Division of Waste, Water, and Sanitation Chemistry, as it was named then, presented 18 papers, 10 of which appeared in non-ACS publications. Five papers were not located, and only two published by the ACS, one in *Analytical Chemistry* and one in *Industrial and Engineering Chemistry*.

To summarize, nine of the 20 divisions published more than 50% of their papers in ACS journals. The Organic,

Industrial and Engineering Chemistry, and Petroleum Divisions published approximately three-fourths of their papers almost entirely in *Journal of the American Chemical Society*, *The Journal of Organic Chemistry*, and *Industrial and Engineering Chemistry*. The Agricultural and Food Chemistry, Biological Chemistry, Carbohydrate Chemistry, Colloid Chemistry, Polymer Chemistry, and Waste, Water and Sanitation Chemistry Divisions published a high percentage of their papers in non-ACS journals.

Approximately one-half of the papers from the Divisions of Chemical Education, Chemical Literature, Chemical Marketing, and History of Chemistry could not be located in scientific journals (Table I). Since the total number of papers presented by these divisions was relatively small, these "missing papers" account for less than 4% of all the meeting papers. These papers may have been published in journals covering fields overlapping chemistry but not abstracted by *Chemical Abstracts*.

Several divisions distribute preprints of the meeting papers. This action does not preclude further publication in a journal. However, if after two years, no further attempt at publication has been made by the author, *Chemical Abstracts* will abstract the preprint. In this study, only nine preprints of the Division of Petroleum Chemistry were abstracted as such. Thus, the authors of the other preprinted papers must have submitted their papers for formal publication.

The 293 papers not published in ACS journals were scattered among 133 various publications. The *Journal of Biochemistry* and the *Journal of Polymer Science* individually attracted the greatest number of papers, 26 and 19, respectively. Table IV lists the 12 non-ACS publications most often mentioned as outlets in descending order of preference.

Conclusions.—The data flowing from this study show that several divisions do not seem to have a journal representing their own specific area of interest and thus publish their papers in a variety of publications within the Society as well as outside. These divisions include among others Carbohydrate Chemistry, Paint, Plastics and Printing Ink Chemistry, Polymer Chemistry, and Water, Waste and Sanitation Chemistry. They belong to the grouping of materials-oriented divisions as classified by Marschner in his report, "Concordance Between Divisions and Journals of the American Chemical Society."[3] This group includes fields that involve materials (naturally occurring as well as synthetic) rather than disciplines.

Because of the difficulties in retrieving specific papers from the literature, a more recent meeting could not be analyzed. The time lag between presentation of a paper and its appearance in a journal is anywhere from a few months to two years (Table II). Since all the papers were located through *Chemical Abstracts*, the time lag between publication and the appearance of the abstract also had to be considered. Thus, the spring 1957 meeting was chosen. Since that time, however, many changes have occurred which tend to alter the publication picture.

For example, since 1957 several new journals have been established which squarely fill the needs of specific divisions. Today *Biochemistry* should provide an outlet for the Division of Biological Chemistry, similarly the *Journal of Medicinal Chemistry* for the Division of Medicinal Chemistry, and the *Journal of Chemical Documentation* for the Division of Chemical Literature. The 1957 Division of Inorganic Chemistry was listed as a probationary unit and presented only 24 papers. There was no ACS journal devoted exclusively to inorganic chemistry. At one of the 1962 ACS meetings the Division of Inorganic Chemistry presented 99 papers. Today, the new journal, *Inorganic Chemistry*, should adequately serve that division. Because of these changes, conclusions on the effectiveness of the ACS basic publications program which may have been valid for 1957 cannot be completely applied to our program in 1963. Assuming no major changes in the near future, another study similar to this one could provide a better picture of the status of the current publication program of the Society. By comparison, it could help to determine the effectiveness of the newer journals as outlets for papers given before divisions.

There are still several divisions which do not have their own publication outlet within the American Chemical Society. Most of these issue preprints.[3] In 1957, papers from these divisions represented a relatively small percentage of the entire meeting. In most cases the majority of these papers were eventually published either in one of the ACS journals or some other publication. Lack of an adequate outlet did not seem to be the reason behind most unpublished papers. Today, however, as these divisions become larger and the interest in the areas they represent becomes more widespread, and as their influence is being felt more and more on the classical disciplines of chemistry, their publication needs will be given closer consideration.

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