



50

Years of Chemical Information
in the American Chemical Society
1943-1993

W. V. Metanowski



ACS Division of Chemical Information

**50 YEARS OF CHEMICAL INFORMATION IN
THE AMERICAN CHEMICAL SOCIETY**

1943-1993

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1943-1993

A History of the Chemical Literature Group (1943-1948),
the Division of Chemical Literature (1949-1975),
and the Division of Chemical Information (1975-1993)

W. V. Metanowski

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Division of Chemical Information

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Contents

Preface by Bonnie Lawlor	1
I. Introduction	3
II. The Chemical Literature Group, 1943-1948	5
1. Pre-History	5
2. The Group	5
III. The Division of Chemical Literature, 1949-1975	9
1. Goals and Mission	9
2. Organization and Membership	10
3. Symposia and Sessions at the ACS National Meetings	14
The Beginning and the Early Years	14
General Characteristics	15
Highlights at Selected Meetings	17
4. Special Meetings, Joint Meetings, and Regional Activities	20
Divisional Meetings	20
Joint Meeting	20
Local Section Activities	20
ACS Regional Meetings	21
5. Educational Activities, Workshops, and Seminars	22
6. Publications	24
<i>Chemical Literature Bulletin</i>	24
Bibliographies of Divisional Papers	25
Books Containing Papers from Divisional Meetings	26
Preprints and Photocopies	27
<i>Journal of Chemical Documentation</i>	27
<i>Documentation Abstracts (Information Science Abstracts)</i>	29
7. Awards and Recognitions	30
8. Social Events	30
9. Financial Aspects	31
IV. The Division of Chemical Information, 1975-1993	33
1. Goals and Mission	33
2. Organization and Membership	35
3. Symposia and Sessions at the ACS National Meetings	41
General Characteristics	41
Highlights at Selected Meetings	43
Unusual Experiences	46
4. Special Meetings, Joint Meetings, and Regional Activities	46
ACS/ASIS/SLA Tri-Society Symposia	46
International Conferences	48
Other Joint Meetings	49
ACS Regional Meetings	49
Local Section Tour Speakers	50
5. Educational Activities, Workshops, and Seminars	50
6. Publications	56
<i>Chemical Information Bulletin</i>	56
<i>CINF News</i>	56
Books Containing Papers from Divisional and Division-	
Sponsored Meetings	57
<i>Journal of Chemical Information and Computer Sciences</i>	58
<i>Information Science Abstracts</i>	60
CHEMTECH	60

7. Awards and Recognitions	61
ACS Outstanding Division Award	61
Herman Skolnik Award	62
Awards Committee	67
Meritorious Service Award	67
Student Scholarship Award	68
Special Recognitions and Grants	68
Patterson-Crane Award	68
8. Social Events	69
Luncheons	69
Receptions and Social Hours	69
Tours and Excursions	70
Executive Committee Dinners	70
Harry's Party	70
9. Financial Aspects	71
References	75
Appendixes	
1. Bylaws, December 31, 1990	79
2. Officers of the Division, 1949-1993	89
3. Councilors of the Division, 1949-1993	90
4. Symposia at the ACS National Meetings, 1943-1948	91
5. Symposia at the ACS National Meetings, 1949-1975	92
6. Symposia at the ACS National Meetings, 1975-1993	97
7. Workshops, Seminars, and Demonstrations, 1953-1989	104
Name Index	107
Subject Index	115

Tables

I. Pre-1943 Chemical Literature Papers at the ACS National Meetings	6
II. Special and Joint Meetings, 1949-1975	21
III. Symposia at the ACS Regional Meetings, 1949-1975	23
IV. Editors of <i>Chemical Literature</i> / <i>Chemical Information Bulletin</i> , 1949-1993	24
V. Books Containing Papers from Divisional Meetings, 1949-1975	28
VI. Luncheon Speakers at the ACS National Meetings, 1943-1975	31
VII. Special and Joint Meetings, 1975-1993	47
VIII. Symposia at the ACS Regional Meetings, 1975-1993	51
IX. Books Containing Papers from Divisional and Division-Sponsored Meetings, 1975-1993 ...	58
X. Herman Skolnik Award Winners	63
XI. Luncheon Speakers at the ACS National Meetings, 1975-1993	72

Photographs

1. Meeting of chemists engaged in the development of chemical structure techniques at MIT in 1951	11
2. Speakers at a symposium in Honolulu in 1979	43
3. Careers in Chemical Information poster	54
4. Division displays its videotape "Chemists and Questions" at a 1984 ACS National Meeting	54
5. Divisional Officers receive the 1982 ACS Outstanding Intermediate Division Award	61
6. Herman Skolnik receives the First Divisional Award	62
7. Herman Skolnik Award Winners	65

Preface

Information and Information Technology are becoming internationally recognized as resources critical to productive Research and Development and, ultimately, to national competitiveness. Today's network environment has fueled growth in global collaborative research with shared information being the essential ingredient and key success factor. Indeed, information, as a result of technological advances, has evolved into a valuable commodity and a buzzword of the nineties.

Yet chemistry, perhaps more than any other scientific discipline, recognized the value of information in the development of practical applications of theoretical concepts well before the advent of computer technology. Indeed several of today's chemistry journals and reference indices have their roots deeply embedded in the 17th and 18th centuries. To quote Harry Collier from the April 1993 edition of *Monitor*, "Traditionally, chemists (like stock and commodity traders) have been in the forefront of information matters".¹

This statement is true, but it owes its truth to the determination, dedication, and vision of individual chemists who, throughout the years, recognized the intrinsic value of information, actively strove to promote it, and worked tirelessly to leverage the technology of their era to improve information access, retrieval, utility, and dissemination.

Examples of such Chemists are the Founders of the Division of Chemical Literature who elevated the importance of information within the American Chemical Society; the author of the Division history who has well and selflessly served the Division and the field for many years and who has been a role model for me and for countless others; and all Division members and supporters who in their daily work continue to enhance and develop chemical information and related technology. This history of the Division is a testimony to their efforts; the continued success of chemistry is a tribute to their lives.

Bonnie Lawlor

Chairman
50th Anniversary Committee
Division of Chemical Information (CINF)

¹ Collier, H. "As Usual, Chemical Information Leads the Way", *Monitor* 1993 (April), (146), 9.

I. Introduction

A 50th anniversary is an unusual milestone for the ACS Division of Chemical Information. While there are countless new members who joined relatively recently, there are still among us those who founded the organization and guided it through its formative, most difficult, years. This history pays a tribute to those pioneers and visionaries who early foresaw the importance and significance of chemical information to all the chemists and chemical engineers as well as to the general public, and who knew how to forge ahead and to take advantage of the modern technologies from punched cards, KWIC indexes, and simple inventories of chemical structures in the 1940's and 1950's to laser disks, artificial intelligence, expert systems, and three-dimensional manipulation of structures in the 1980's and 1990's. Equally important was the early perception of the international nature of all the aspects of chemical-information generation, transfer, and utilization. International contacts and recognition, which the Division has pursued through the participation of speakers from many countries, the organization of international symposia and conferences, and the availability of its awards worldwide, attest to that.

Although the Division of Chemical Information (Division of Chemical Literature till 1975) was formally established in 1948, we have decided to relate our 50th anniversary celebration to the formation of its predecessor, the Chemical Literature Group of the ACS Division of Chemical Education in 1943. At that time the ACS recognized chemical literature (documentation, information) as being a separate branch of chemistry, worthy of special attention and research.

Writing and publishing the histories of the ACS and of its Divisions are not new activities. The ACS published its history at the 75th and 100th anniversary in 1952 [Ref. 5] and 1976 [Ref. 17], respectively. More recently, two Divisions published their histories, the Division of Inorganic Chemistry (by John C. Bailar, Jr.) in the *Journal of Chemical Education* in 1989 [Ref. 31] and the Division of Polymer Chemistry (by Jesse C. M. Hwa) in the *Polymer Preprints* in 1991 [Ref. 35].

A brief history of the Division of Chemical Information (by W. Val Metanowski) was published in the Spring 1990 issue of the *Chemical Information Bulletin* [Ref. 32].

This more comprehensive history of the Division of Chemical Information has been organized into groups of main activities such as goals and mission, organization and membership, symposia and sessions at various

meetings, educational activities, publications, awards and recognitions, social events, and financial aspects.

In this introduction, on the other hand, it might be of interest to list chronologically some major "first" accomplishments and milestones in the first fifty years:

- 1943: Formation of the Chemical Literature Group
First symposium of the Group (Pittsburgh)
- 1948: Formation of the Division of Chemical Literature
- 1949: First Divisional symposium (San Francisco)
First joint symposium with another Division (Atlantic City)
First issue of *Chemical Literature* (Divisional bulletin) (renamed *Chemical Information Bulletin* in 1975)
- 1951: First Advances in Chemistry Series book based on a Divisional symposium
- 1953: First technical demonstration at a National Meeting (Chicago)
- 1955: First Divisional Regional Meeting (Houston)
- 1961: First issue of the *Journal of Chemical Documentation* (renamed *Journal of Chemical Information and Computer Sciences* in 1975)
- 1966: Cosponsorship of *Documentation Abstracts* (renamed *Information Science Abstracts* in 1969)
- 1973: 25th Anniversary of the Division (Chicago)
- 1975: Name changed to the Division of Chemical Information
- 1976: First Herman Skolnik Award (New York)
First vendor's seminar/workshop (New York)
- 1978: First Tri-Society (ACS/ASIS/SLA) Symposium (Kansas City)
- 1980: Formation of the Subdivision of Chemistry and the Law
- 1982: First international winner of the Herman Skolnik Award
First Outstanding Intermediate Division Performance Award
- 1983: Formation of the Division of Chemistry and the Law
- 1984: Videotape on Chemical Information
- 1985: Formation of the Computer Secretariat (founding member)

- 1986: Formation of the Biotechnology Secretariat (founding member)
First teaching guide (module) for searching chemical information online
First Divisional Newsletter as additional communication medium with members
- 1987: First International Conference in The Netherlands
Formation of the Clearinghouse for Chemical Information
Instructional Materials (with SLA)
Formal Mission Statement
Second Outstanding Intermediate Division Performance Award
- 1989: First issue of the *CINF News*
First Student Scholarship Award
- 1992: First Meritorious Service Award
- 1993: 50th Anniversary of the Chemical Literature Group

The readers are invited to send comments to the author. As is evident from the chronology of events, the "real" 50th anniversary of the formation of the Division will occur in 1998. We hope that for this second 50th anniversary celebration we will be able to provide an updated version of the Divisional history.

While many facts and events have been listed, this history is primarily about professional chemists who in the early days worked on chemical problems in laboratories, plants, or offices, and while using literature for their own work became interested in the organization of that past knowledge and its utilization. From that group grew a new profession encompassing literature chemists, chemical librarians, and eventually chemical information specialists, and even information brokers and consultants. In today's environment, the history repeats itself, and the so-called end users are becoming the same practicing chemists and chemical engineers of the old days who did their own searching. Today, so many chemists rely on various computer programs at their workstations that the distinction between using information and doing own research becomes blurred in the application of artificial intelligence, expert systems, and molecular modeling.

Every history reflects the historian's biased grouping of subjects, preferential selection of highlights and milestones, perhaps undue emphasis of some events, and even a glaring omission of others. This history is no exception. On the other hand, since this has been a first attempt to compile a fairly exhaustive and comprehensive history with as many details recorded as possible, it might be regarded as experimental and even preliminary to some extent.

The author is very grateful to Robert E. Buntrock, Bonnie Lawlor, Jean G. Marcali, Peter F. Rusch, Peter F. Sorter, Ben H. Weil, Lucille M. Wert, and Barbara G. Wood for their careful reading of the manuscript, correcting the errors, and providing most useful suggestions to improve the history.

II. The Chemical Literature Group, 1943-1948

1. Pre-History

In the 1976 book "A Century of Chemistry" [Ref. 17], celebrating the 100th anniversary of the formation of the American Chemical Society, Herman Skolnik observed:

"From the time chemistry became a science, knowing the chemical literature has been an essential obligation of the professional chemist. Practitioners of no other science have been involved as chemists in working with their literature, establishing journals, setting up indexing and abstracting systems and services, systematizing nomenclature, and correlating data."

and added:

"Thus, like Moliere's *bourgeoise gentilhomme*, who spoke prose without knowing it, chemists have been working as literature chemists without knowing it since chemistry has been a science."

The American Chemical Society was formed in 1876. The Society from the very beginning has been concerned with the encouragement of the advancement of chemistry in all its branches and the promotion of scientific interests and inquiry through meetings, reports, papers, discussions, and publications. On August 25, 1937, the Society obtained the National Charter, enacted by the 75th U.S. Congress and signed into law by President Franklin D. Roosevelt. The Charter reaffirmed as one of the Society's objectives the increase and diffusion of chemical knowledge, and emphasized meetings, professional contacts, reports, papers, discussions, and publications as proper means to accomplish this.

Citing a few dates related to the beginning of some of such activities and to some anniversaries would help to put them in a proper historical perspective:

- 1876: Formation of the Society and first paper on "The Determination of the Relative Effectiveness of Disinfectants" by Herman Endemann (later first Editor of the *Journal of the American Chemical Society*)
- 1877: *Proceedings of the American Chemical Society*
- 1879: *Journal of the American Chemical Society*
- 1884: ACS Committee on Nomenclature and Notation

- 1893: World's Congress of Chemists in Chicago
- 1895: *Review of American Chemical Research* (taken over by the ACS in 1897)
- 1901: 25th anniversary of the ACS
- 1907: *Chemical Abstracts*
- 1909: *Journal of Industrial and Engineering Chemistry*
- 1926: 50th anniversary of the ACS
- 1940: 100th ACS National Meeting in Detroit

At the Society's early National Meetings, papers were presented on various aspects of chemical literature. The first ACS symposium on "Bibliography" took place at the World's Congress of Chemists in Chicago on August 23, 1893. The Congress, partially organized by the ACS, was attended by 182 chemists, 83 of whom were members of the Society. The honorary chairman of the symposium was G. Thoms of Riga. The opening symposium address was given by H. Carrington Bolton of New York, a notable historian and bibliographer of chemistry.

The first literature-oriented symposium at an ACS National Meeting was on "Chemical Libraries and Their Problems" in Buffalo in April 1919. In later years, the topics covered and presented before the various ACS Divisions ranged from undergraduate courses in chemical literature to scientific journalism, patents, and nomenclature of specific fields.

Table I (page 6) lists a few typical papers from the late 1930's and early 1940's. One interesting comment in a 1939 paper on "Opportunities for Women as Research Bibliographers" reflects the opinion of the times:

"Temperamentally women are well equipped to undertake such work and should be superior to men carrying it out."

2. The Group

The last paper in **Table I** (page 6) deserves special attention, because it created such interest in problems connected with chemical literature and library research that it led to the organization of related symposia and the formation of the Chemical Literature Group. The paper on "Problems of the Scientific Literature Survey" was presented at the 105th ACS National Meeting in Detroit on April 12, 1943, by Gustav Egloff, Mary Alexander, and Prudence Van Arsdell. Gustav Egloff,

Table I
Pre-1943 Chemical Literature Papers at the ACS National Meetings

93rd, Spring 1937 - Chapel Hill, NC

Acquainting the Undergraduate with the Chemical Library (John R. Sampey)
Use of References and Collateral Readings in Inorganic Chemistry (L. A. Goldblatt)
Lantern-Slide Techniques (Hubert N. Alyea)
Classification of Chelate Rings (Harvey Diehl)

94th, Fall 1937 - Rochester, NY

Symposium (3 papers) on Are Patents on Medicinal Discoveries and on Food in the Public Interest?
(Edward R. Weidlein)

95th, Spring 1938 - Dallas, TX

A Plea for the Establishment of Courses in Scientific Journalism (Edgar Z. Friedenberg)

96th, Fall 1938 - Milwaukee, WI

Symposium (3 papers) on American Patent Practice and Procedure
Symposium (6 papers) on Nomenclature of Sugars and Their Derivatives

97th, Spring 1939 - Baltimore, MD

The Nomenclature of Synthetic Rubbers (Harry L. Fisher)

98th, Fall 1939 - Boston, MA

Opportunities for Women as Research Bibliographers (F. W. Adams)
The Chemical Bulletin Board (E. K. Bacon)
The Vocabulary of Chemistry (G. W. Muhleman)
A Streamlined Card Index for the Journal of Chemical Education (Sister Virginia Heines)
A Boston Journal of Chemistry in the Early 1870's (Wilhelm Segerblom)

99th, Spring 1940 - Cincinnati, OH

The Use of Alpha, Beta, and Gamma in the Nomenclature of Carbohydrates (Ed. F. Degering and E. M. Burdick)

101st, Spring 1941 - St. Louis, MO

Symposium (6 papers) on Inorganic Chemical Nomenclature (John C. Bailar, Jr.)

102nd, Fall 1941 - Atlantic City, NJ

Nomenclature of Cyclic Hydrocarbons (Prudence M. Van Arsdell and Gustav Egloff)

103rd, Spring 1942 - Memphis, TN

Thirty Years of Petroleum Research (B. T. Brooks)

104th, Fall 1942 - Buffalo, NY

Frozen Assets. The Problems of Putting Chemical Knowledge to Work (Byron A. Soule)
Report of Committee on Pectin Nomenclature (Z. I. Kertesz)

105th, Spring 1943 - Detroit, MI

Problems of the Scientific Literature Survey (Gustav Egloff, Mary Alexander, and Prudence Van Arsdell)

a noted petroleum scientist, research director at Universal Oil Products Co., was involved in many activities of the Society, patented over 300 inventions, and authored numerous papers. Mary Alexander was also to become very active, especially in the area of organic nomenclature.

A few excerpts from its abstract illustrate well the then existing problems:

"The problems of chemical literature survey have not received the deserved attention and chemists without proper background waste valuable time in the laboratory duplicating work already published."

"The difficulties encountered in complete surveys are appalling."

"The need of such procedure [governing library work] may be attributed to lack of fundamental training in the use of chemical literature as well as inability to foresee the outcome of carelessness."

Following that paper, Norman C. Hill discussed with Gustav Egloff the possibility of organizing a group to sponsor programs devoted to the study of library and literature problems. As a result, he organized a series of symposia, "Technical Library Techniques", held under the sponsorship of the ACS Division of Chemical Education.

The first such symposium was presented at the 106th ACS National Meeting in Pittsburgh on September 7, 1943. It included 18 papers, among them Part II of the "Problems of the Scientific Literature Survey" by Egloff, Alexander, and Van Arsdel, "The Importance of Technical Writing in Chemical Education" by Florence E. Wall, "Publications -Pitfalls and Problems" by Melvin G. Mellon, "Abstracting and Indexing" by E. J. Crane, and "Literature Service for Fuel Chemists" by Julian F. Smith. The luncheon, held at the Pittsburgher Hotel, cost \$1.40 only. The symposium was well attended and generated an enthusiasm that resulted in the formation of the Chemical Literature Group of the ACS Division of Chemical Education.

Papers on related topics continued to be presented before other Divisions. This is exemplified by a paper on "Information Services and War Effort" by Ben H. Weil before the Division of Industrial and Engineering Chemistry at the same National Meeting.

Appendix 4 (page 91) lists the symposia organized by the Group in the period 1943-1948. The breadth of topics was impressive. They covered many areas such as information sources, chemical patents, nomenclature,

abstracting, indexing, classifications, and punched cards. The last topic signaled the beginning of the application of mechanized tools to handling chemical information. The attendance was excellent. A "sardinelike" situation was reported for James W. Perry's paper on "Chemical Russian - Self-Taught" at the 107th ACS National Meeting in Cleveland on April 4, 1944. This was part of Part II of the symposium on "Technical Library Techniques".

It is worth noting that these were war and post-war years. Difficulties to travel, to meet, and to communicate were experienced. On August 10, 1944, the ACS President, Thomas Midgley, Jr., the inventor of tetra-ethyl antiknock additive, noted that the major aim of every American was to win the war in the shortest possible time and that the 108th ACS National Meeting in New York in September 1944 should be limited to discussing war production needs or research. He appealed to the members:

"This is not a time when anyone should travel solely for pleasure or sociality. If this meeting would be purely a social event for you, stay at home."

A couple of comments on the September 1944 meeting are worth citing as proof that some conditions and experiences never change:

"Inclement weather combined with a somewhat unfortunate location undoubtedly limited attendance at the symposium."

"Because the divisional luncheon meeting was unavoidably scheduled at a hotel many blocks beyond the divisional meeting room, only half the usual number attended."

In 1945, owing to immediate post-war conditions no ACS National Meetings were held, only meetings-in-miniature and meetings-in-print. A paper on "Punch Cards for a Chemical Bibliography" by Gerald J. Cox, C. F. Bailey, and Robert S. Casey, scheduled for the April 1945 meeting, had to be published in the *Chemical and Engineering News* on September 25, 1945.

The Chemical Literature Group became active again in earnest with the presentation of Part III of the symposium on "Technical Library Techniques" at the 109th ACS National Meeting in Atlantic City in April 1946. The attendance at its two sessions ranged from 250 to 300. The interest in punched-card techniques was so great that after hearing the papers by Casey, Bailey and Cox, and by C. D. Gull at the regularly scheduled symposium, a group of some 75 to 100 persons spent the following evening at an unscheduled meeting arranged to facilitate further discussion.

This was followed by Part IV at the 110th ACS National Meeting in Chicago in September 1946. That symposium and another on "Chemical Patents" attracted 350 to 400 attendees. Both symposia "carried over" into unscheduled dinner and evening meetings for more discussion.

At that meeting, a more formal organization of the Group took place. An Executive Committee was formed:

Norman C. Hill	chairman
Gerald J. Cox	vice-chairman
Robert C. Casey	secretary
Byron A. Soule	treasurer
James W. Perry	program chairman

Ex officio members:

the Editors of *Chemical Abstracts*, *Journal of the American Chemical Society*, and *Industrial and Engineering Chemistry*
the chairman and secretary of the Division of Chemical Education

At the 111th ACS National Meeting in Atlantic City in April 1947, the topic of punched-card indexing continued to draw attention. James W. Perry presented, for the first time, an informal report of the ACS Punched-Card Committee, of which he was the chairman.

At the 113th ACS National Meeting in Chicago in April 1948, J. G. Tolpin presented a paper on "The Highlights of Present Day Russian Chemical Research", which attracted much attention. At that meeting an informal discussion on chemical literature problems was formally scheduled for 8 to 11 pm.

In the 1946-1948 post-war period, 15 symposia consisting of 106 papers were presented before the Group. In the six-year period of the Group's existence (1943-1948), a total of 149 papers were presented. Of these, 62 were published in the *Journal of Chemical Education*, 14 in the *Chemical and Engineering News*, eight in the ACS Advances in Chemistry Series, four in the first edition of "Punched Cards", and three in two other journals for a total of 94 publications or 63% of those presented.