

## A PIONEER IN CHEMICAL LITERATURE: LIBRARIAN MARION E. SPARKS

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### Introduction

Marion Emeline Sparks (1872-1929) was the University of Illinois at Urbana-Champaign's (UIUC) first chemistry librarian in the early 20<sup>th</sup> century. During her tenure as librarian, she taught classes in chemical literature, published papers and books on chemical information, conducted bibliographic research, translated foreign language publications in chemistry, and became a trusted colleague of chemistry library patrons. In 1919, she self-published *Chemical Literature and Its Use*, the first chemical information textbook of its kind, with a widely distributed second edition published in 1921 (1). Sparks established the importance of the Chemistry Library at UIUC and trained Illinois chemists to appreciate and contribute to the literature of the chemical sciences.

This article is dedicated to furthering knowledge of Miss Sparks' life and teachings. Between attending the

University of Illinois as a student and her employment there, she spent nearly forty years on campus. A plaque hangs in her memory in the UIUC Chemistry Library, and her influence on the chemistry library continues through the Marion Sparks Award for Professional Development awarded by the Special Libraries Association Division of Chemistry (2).



**Figure 1.** Marion Sparks in the Chemistry Library (*History of Chemistry Library collection, University of Illinois Chemistry Library. No information on creator or reproduction rights found with the image, 2022.*)

### Early Life and Academics

Marion Emeline Sparks (Figure 1) was born on December 5, 1872, on a farm in Miller Township (LaSalle County), Illinois. Her parents, George and Esther Peacock (Clifton) Sparks, both taught in elementary country schools. She had a sister, Annie Elnora, six years her junior.

Sparks attended both Seneca and Marseilles (Illinois) High Schools before graduating from Ottawa Township High School in 1892 where she received the LaSalle County University of Illinois-Honorary Scholarship. At the time, each Illinois county promulgated that

county residents, 15 years of age or older, were eligible to take a two-day examination and the student with the highest score, male or female, would receive a full scholarship to the University of Illinois. Sparks achieved the highest score in LaSalle County's honorary scholarship for full tuition to the University of Illinois in Urbana.

Sparks began her Bachelor of Arts (BA) in Classics in the fall of 1892, earning that degree in June 1895. She was one of nine female students in a campus-wide class of 73 graduates. As part of the requirements for the completion of her degree, Sparks wrote a thesis, entitled, *History and Functions of the Areopagitic Senate*.

In 1896-1897, Sparks began work on her master's degree in Classics, before putting this coursework aside to study library science. She took classes in the School of Library Science from 1897-1899, earning her Bachelor of Library Science in June 1899. *Founding a Public Library in Illinois* was the title of her second thesis.

In 1899, Sparks resumed her courses for her master's degree, earning her Master of Arts (MA) degree in Classics in June 1900. The title of her master's thesis was *The Forms of Address in the Athenian Orators*.

During her time as a student on campus, Sparks participated in several activities and held assorted leadership positions. Marion was a member of the Young Women's Christian Association (YWCA) and served in several leadership roles between 1893 and 1895. Sparks was also part of Alethenai, a literary society for women, and served a term as president in 1895. Between 1890 and 1893, she participated in Christian Endeavor, Library Club, and the Watcheka League. Each year between 1894 and 1900 she contributed to the *Illio Yearbook*.

Throughout her education, Sparks' early coursework played a role in the services she eventually provided to her chemistry library patrons. While earning her BA degree, she studied French, German, Greek, Italian, Latin and Spanish. Sparks later applied this training by translating foreign language chemistry articles.

### Early Career

Ms. Sparks' first library-related work experience began in 1894, when she worked as a student assistant at the Loan Desk in the University of Illinois Main Library. She held this position until 1897.

From 1898-1904, Sparks began a series of several positions organizing library collections across the Midwest United States. While finishing her Master's degree

she began to help catalog the collection of the Urbana Free Library. Miss Sparks spent 1900 at the Davenport (Iowa) Academy of Science. From January-June, she contributed to the institution's foreign correspondence; from June to December, she organized their library. After a brief hiatus, from October 1902-February 1903, she organized the Elkhart (Indiana) Public Library. For the two subsequent months, she selected children's books for the library. Sparks then spent June to November organizing the collection of the Kansas City (Kansas) Public Library. Her last job of this sort, at Dowagiac (Michigan) Public Library, ran from January to March 1904.

In 1904, Sparks returned to Urbana, and was employed as a resident bibliographer in the Nutrition Investigation Laboratory until 1910. She also volunteered her evenings from June to August 1905 again helping the Urbana Free Library implement their new charging system.

### Overcoming Barriers

As is the practice today, references for new librarians were often required from their former faculty and instructors. Katherine Lucinda Sharp, Head of the University Library and first Director of the new Illinois Library School, provided Marion with several letters of reference. Sharp was a former student of Melvil Dewey, the creator of the Dewey Decimal Library Classification schema and co-founder of the American Library Association. Katherine Sharp was responsible for the development of the library collection at Illinois and pushed for more stringent standards for library services and admission requirements to the library school. Although not considered professional qualities at the time (3, 4), Katherine Sharp criticized Marion's attractiveness, personality, and manner of dress to various prospective employers in the early 1900s. An example is a 1902 letter to H. H. Ring of Houston, Texas:

Dear Mrs. Ring:

In answer to your questions concerning applicants for the position of cataloger in your library, I can only honestly say that I can not [*sic*] favorably recommend Miss Mary [*sic*] E. Sparks. She does not possess tact in any marked degree, and personally she is very unattractive. She is probably a woman of great ability as a scholar, but beyond this I can give not [*sic*] favorable recommendation for her.

Miss Arnold of whom you speak is a very attractive young woman, and her work while in the library school was of good average quality. I think that you would make no mistake in engaging Miss Arnold to

assist you. She would surely be very attractive to the public and you could trust her work.

Yours very sincerely,

Katharine L. Sharp [signed]

Director of Lib. School

Another statement sent to Mr. Windsor for the Fisk Agency in August 1910 reads:

Miss Marion Sparks completed the Library School course in the U. of I. several years ago, and since that time has held many temporary positions as library organizer and as bibliographical expert. She has shown unfailing industry, always devoting herself conscientiously to any tasks. She is very serious minded and mature. No one has been able to find any fault with the quality of her work, since it has always been painstaking and thorough as a result of her patient, unwavering application. And she has fully average ability intellectually. We could strongly recommend her for bibliographical research work, as she has had much varied experience of the right sort. It would, however, be unfair that anyone should employ her without being informed of a very evident eccentricity of character, manner and appearance, such as could make a personal conference desirable. When she could work largely by herself and when results would be the main considerations, she can render valuable service. University professors engaged in research work and in constructive writing, have found her a capable and satisfactory assistant. And she is far better equipped for such work than for those phases of library work in which she would have to deal with the general public. Still [*sic*] she is not all ignorant of library methods, having taken the full course in library economy (5).

These and other letters most likely prevented Marion Sparks from gainful employment elsewhere at a time when women were just starting to garner respect and higher positions in the field of librarianship. These references demonstrate a personal bias of Katherine Sharp since several of the letters compare Marion Sharp's attractiveness or being pretty to other recent graduates, who are generally regarded with less scholarly achievements but "prettier" or with "charm". Through the lens of the 21<sup>st</sup> century, we are more attuned to noting such discrimination as it appeared in past centuries. However, it is disheartening that Katherine Sharp decided to devalue Marion's scholarly achievements and favor looks and diminutive personality as society dictated for women at the start of the 20<sup>th</sup> century. Fortunately for Illinois, Marion Sparks decided to stay in the area and become an integral part of the Department of Chemistry.

## Chemistry Library

In 1892 the Chemistry Library became the first departmental library on the University of Illinois campus. Due to limited hours and the library policy to not allow books to be taken to other buildings, various chemistry faculty, including the department heads of the time (Professors Arthur Palmer and Samuel Parr), began significant dialogs regarding permissions to borrow chemistry sources on their personal accounts from the Main Library and stored them in a secured room in the Chemistry Laboratory building. Access was limited to faculty and graduate students with assigned keys. Having access to the chemical information necessary to conduct experiments and prepare laboratory assignments was crucial, particularly when the Main Library was closed. Materials were returned at the end of each academic year. Eventually periodicals were also transferred to the new "library" space (6).

The concept of discipline-based departmental libraries being assembled in related academic buildings was becoming a new model for library services. This became a trend with academic libraries at the turn of the 20<sup>th</sup> century when there was more focus on effective educational and ready access to previous physically distant collections rather than traditional conservation and strict regulation of library materials (7). Many other subject libraries on the Illinois campus followed this model in discipline buildings with a physics branch library opening in 1909 and an engineering branch in 1916.

With her experience as a bibliographer for the Nutrition Investigation Laboratory on campus, Marion Sparks began a complete catalog of authors and shelf list of chemistry library materials in 1910. This would ultimately be the first chemistry library catalog, including author, subject, and classification of all chemistry books on campus. In 1911, she was hired as a library assistant in the chemistry library; in 1913, she would earn the title of Chemistry Librarian, a position she held until her death.

Marion was responsible for major expansion of the Chemistry Library's collection. At the start of 1916, there were approximately 100 journal subscriptions, 4000 bound serial volumes and 2900 books totaling 6900 volumes in the Chemistry Library (8). By 1927, the chemistry collection had proliferated to a total of 13,100 volumes comprised of 250 journal subscriptions with 7500 bound periodical volumes and 5600 books (9).

Sparks was a holistic librarian, involved in every aspect of library service. With her strong background in

languages and her broad interest in the sciences (including being an amateur astronomer and bird watcher), Miss Sparks was welcomed into the Chemistry Department. She assimilated quickly by providing excellent library service, including translating articles from any language, offering interlibrary loan (typewriting articles in the days before photocopiers), creating bibliographic access to materials, and conducting research.

An example of the type of research she undertook is demonstrated in the 1917 article she published in *Science* with Chemistry Department Chairman William A. Noyes, "A Census of the Periodical Literature of Chemistry Published in the United States" (10). This article is a statistical comparison of chemical research output by various institutions based on the total number of articles and total number of pages for five chemistry journals for the years 1909-10 and 1914-15. Their analysis reveals a rapid growth of chemical research from educational institutions: three fourths of papers published in 1909-10, and two thirds from 1914-15. Illinois, in fact, led the number of articles published, 45, and pages, 504, for the 1909-10 breakdown.

The following year Clarence West of the Rockefeller Institute for Medical Research used the same model to investigate publication trends in biological chemistry journals between 1907 and 1916. He also reported positive trends of increased educational institutions' contributions to the scientific literature and advocated similar publication analysis in other disciplines (11).

### Chemical Literature and Its Use

Sparks' careerlong interest, however, was teaching chemical literature. In 1912, she began by giving three lectures to the Chemistry Club on library research; in 1913 she presented six lectures. During the 1914-1915 school year, Sparks began teaching "Chemistry 19," a required course for junior chemistry majors. The university first offered the class as an information seminar in 1892, becoming part of the curriculum in 1893. The original course was similar to a journal club with assigned topical readings from the current chemical literature. Marion revised the course and taught students how to retrieve chemical information.

First outlined in an article published in *Science* in 1918, Sparks compelled students to use books, reference works, and serials to the point they "know that such materials exists [*sic*] and be able to utilize it" (12). Knowing the importance of foreign chemical research, her students

learned to translate research articles from German and French into English and make two speeches based on readings for the course. Sparks had students learn the most relevant indexing and abstracting resources for their specific research area. This included not only *Chemical Abstracts*, started in 1907 and by 1918 indexing nearly 700 journal titles, but foreign resources as well, such as *Jahresbericht*, the French *Bulletin*, *Chemisches Centralblatt* and other key resources.

In 1919, using class notes compiled from her previous six years of teaching Chemistry 19 (later required course *Chem 92*), Sparks self-published her textbook for the course, *Chemical Literature and Its Use*. She authored and published what is regarded as the first book to address chemical literature and library instruction, identifying the field of chemical information as an independent discipline (13-15). She conveyed to her students that library work was critical: locating previous research, she stressed, was as important as laboratory work. Both editions have the aphorism: "Knowing books is not enough—they must be used."

The 1919 edition, comprised of 12 lectures, introduced how libraries were arranged with the classification schemas including an explanation of how subjects were grouped and call numbers were structured. This, in turn, would enable students to easily locate relevant subject materials within the physical library space. At the time, the Dewey classification schema was used in public, academic, and corporate libraries so these information seeking skills were transferrable to other environments in which students would eventually work.

Descriptions of various chemistry societies in the United States, England, Germany, and other countries with their respective key publications were next discussed. The remainder of the book was a series of lectures on various sub-disciplines, with major reference books and journals, often by language. Careful explanations how reference resources could be utilized for nomenclature, formula, or compound searching were especially instructive.

A second edition, also self-published and self-distributed, was produced in 1921. This edition had grown to 16 lectures with new areas: searching organic chemical patents, large and small data tables, a bibliography, and new books and serials. Discipline lectures also included lists of both comprehensive and briefer descriptive works. Lecture 16 is titled, "Suggestions upon looking up all the literature for a topic in organic, applied, physical chemistry or biochemistry." It outlines, by discipline and



chronology, essential books and journals for an exhaustive chemical literature review.

Chemists in England and Australia purchased copies, as did many large chemical companies in America. A very positive review of the second edition was published in the 1921 *Journal of the Society of Chemical Industry*, including the following excerpt (16):

A careful perusal of the pamphlet leaves the impression that the chemistry students of Illinois University are, indeed, fortunate in having the opportunity of attending this course of lectures.... Students of chemistry everywhere will find the pamphlet very useful for the purpose of reference.... The absence of systematic instruction in the consultation of the chemical literature is a fault of academic training which should be remedied. The process by which the chemist becomes familiar with the literature is comparatively lengthy, and circumstances may conspire to keep below his horizon publications which would prove of great value to him; a little systematic training ... together with some instruction in indexing, would eventually save him much time and minimise the possibility of such undesirable incidents.

### Sparks and Her Students

Sparks was greatly cherished by her students. Throughout her time at the chemistry library, she formed close relationships with her patrons. She corresponded

with chemistry students who served in World War I and reported on their progress (and often their deaths) in the quarterly published *Illinois Chemist* (17), a departmental magazine. She also took pictures of graduating chemistry students and put them in a book of photographs. She played a pivotal role in recording the department's history as well as personal histories of its many members. Her wisdom and helpfulness for students is acknowledged by the tongue-in-cheek pseudonym "Ben Zeen" in the 1915 *Illinois Chemist*, reprinted below (18).

Arnold O. Beckman, future inventor of the pH meter and founder of Beckman Instruments, was the student editor of the *Illinois Chemist* in 1922. In it he wrote a brief editorial praising Marion Sparks and the new additions both in collections and facilities asserting it to be "one of the finest chemistry libraries in the world. With its eleven thousand volumes, endless periodicals and foreign journals, it is one to be proud of, to be treated well" (19).

Sparks remained Chemistry Librarian until her death on Sunday, February 10, 1929, following a major operation. She is buried in West Unity, Ohio, with her parents. Following Sparks' death, the university formed the Sparks Memorial committee, which created a plaque in her honor. It reads, "She was their guide when they sought information but they remember her best because she remembered them and was their cheerful mentor,

#### A WORD TO JUNIOR CHEMISTS

By Ben Zeen

Unwise indeed are you junior chemist, if you do not cultivate early and assiduously the acquaintance of Miss Sparks, our genial librarian. She is the sole guide and mentor of the junior along the rocky path of Chem 92. Tell her all your troubles; her only joy in life is in helping you. If you can't find Weissnichtwohlski's article on monomethyltriphenylterabutylhexabromothiocarbanic acid, don't look in the indexes; ask Miss Sparks. If you can't spell hypocotyledonous, don't look in the dictionary; ask Miss Sparks. When you come to one of Kopp's long-winded spasms—one of those where he started a sentence and forgot to end it till his ink-horn ran dry—don't try to unravel it yourself; take it to Miss Sparks. She has nothing to do but answer questions for you; she is never happy except when she is telling some junior where she keeps Beilstein, or how to use the card catalog. She never gets tired nor hungry nor sleepy; helping juniors is rest and refreshment and repose for her. Bear these things in mind, and never lose an opportunity to ask a question.

counselor and friend.” Originally made in 1930, the plaque was exhibited at that year’s ACS Meeting in Atlanta and remains prominently displayed in the University of Illinois Chemistry Library today.



**Figure 2.** Plaque in the Chemistry Library dedicated to Marion Sparks.

### Legacy

Marion Sparks’ legacy continues to this day. In 2001, the Chemistry Division of the Special Libraries Association (SLA) began the Marion E. Sparks Award for Professional Development. The award is intended to encourage new or student members to attend the annual meeting and participate in their activities. The monetary award helps offset the awardee’s costs for attending the meeting, including registration, travel, and other expenses. Winners also receive a certificate of achievement (2).

As part of the 2002 ACS National Historic Chemical Landmark recognition, Illinois’ Noyes Laboratory (originally Chemistry Laboratory) celebrated its Centennial year. Marion’s contributions to chemical literature and teaching the importance of research skills were highlighted amongst achievements of notable Illinois chemists and chemical engineers (20).

In 2004, to commemorate the addition of the ten-millionth volume to the Illinois library collection, a special tome was created chronicling the personal stories of people who made and continue to make the UIUC Library what it is today. Titled *Unlocking our Past, Building Our Future: A Commemorative Publication Celebrating the University of Illinois Library at Urbana-Champaign as Resource, as Place, and as Experience*. This volume in-

cludes Marion’s creation of *Chemical Literature and Its Use* and her contribution to chemistry literature research.

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### About the Authors

Mary C. Schlembach currently serves as the Chemistry and Physical Sciences Librarian at Illinois.

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### 2022 HIST Award

The winner of the HIST Award for Excellence in the History of Chemistry for 2022 is Marco Beretta of the University of Bologna for his leadership in the history of the materiality of chemistry. Professor Beretta received his BA with honors in the History of Science from the University of Milan in 1986. He proceeded to the Department of the History of Science and Ideas at Uppsala University. An early sign of things to come was the Partington Prize received in 1990 for his essay in *Ambix*: "The Historiography of Chemistry in the Eighteenth Century: A Preliminary Survey and Bibliography." He received his Ph.D. degree from Uppsala in 1994 for his thesis: "The Enlightenment of Matter: The Definition of Chemistry from Agricola to Lavoisier." This work was awarded the Johan Nordström and Sten Lindroth Prize and the Prize for young historians of the International Academy of History of Science. He returned to Italy as a research fellow at the Museo Galileo in Florence in 1994. He joined the University of Bologna in 2000.



While at the Museo Galileo, Beretta compiled a critical catalog of the library of Lavoisier: *Bibliotheca Lavoisieriana*. His fascination with Lavoisier resulted in an important monograph, *Imaging a Career in Science: The Iconography of Antoine Laurent Lavoisier* (2001). He is a leading Lavoisier scholar and since 1994 has been a member of the Comité Lavoisier (the Comité was the recipient of the Franklin-Lavoisier prize in 2018).

Beretta is a leading scholar of the history of glass in art and technology. He received the Paul Bunge Prize for his monograph *The Alchemy of Glass* (2009). He combines the full range of appreciation for the artifacts of science: curation, history, display, contextualization and artistic importance.

He has become a highly sought-after editor and collaborator for important publications in the history of science. He was the Editor of the journal *Nuncius: Journal of the Material and Visual History of Science*. Most recently, he is editor of volume I of the six-volume Bloomsbury *Cultural History of Chemistry*. He is considered one of the leading scholars on ancient chemistry and has helped to create a vibrant research field of young and productive scholars.