

## Sherlock Swann, Jr.: Electro-organic Chemist and Master Bibliographer 1900-1983

by *Richard Alkire*

Electro-organic chemistry had its champion in Sherlock Swann, Jr. His scholarship, especially his massive bibliographic efforts, served single-handedly to keep alive the promise and spirit of electro-organic chemistry in the U.S. from the 1930s to the 50s.

He was a charter member of the Electro-organic Division of The Electrochemical Society, formed in 1940, and was the first person to hold the offices of Secretary, Vice-Chair, and Chair of that Division. Beginning with his first ECS meeting in 1928 and continuing throughout his life, he played an active role in the Society, including a term as President in 1958-59. He was the Electro-organic Divisional Editor of the *Journal of The Electrochemical Society*, 1939-59; the Lifetime Honorary Chair of the Chicago Section; and was made an Honorary Member of the Society in 1974.

Swann was born in 1900 in Baltimore, Maryland, where his family had deep roots and a tradition of service to society. His great-grandfather, Thomas Swann, served as governor of Maryland, as mayor of Baltimore, as President of the Baltimore & Ohio Railroad, and was a leading force in the creation of Druid Hill Park, Baltimore's first large municipal park. His father served as Baltimore police commissioner and subsequently as Postmaster, and led the reconstruction of downtown Baltimore and its streets after the Great Fire of 1904.

As a youth, Swann's interests included electricity (in the form of a wireless transmitting set) and chemistry (learned in a preparatory school). He had already decided to be a chemist by the time he enrolled at Princeton University. He was introduced there by Dr. Menzies to the technique of searching the literature. He also took courses in metallurgy as well as voice and string quartets, all of which were topics that continued to be significant interests throughout his life. In addition, a family friend had advised him to take as much language as he could, an interest that eventually enabled him to read the literature in over a dozen languages. These experiences

influenced the course of his scientific career, both in bibliographic efforts, and in research on the effect of the electrode material on electro-organic reactions.

He was graduated from Princeton in the Class of '22. As a graduate student in chemistry at Johns Hopkins, he carried out the reduction of acetone in sulfuric acid at a lead cathode in a laboratory course under Prof. Arthur Grollman, using the directions in *Practical Methods of Electrochemistry* by F. M. Perkin.<sup>1</sup> He examined the literature and found papers on electro-organic chemistry,

which inspired him to specialize in the topic. He was graduated as an organic chemist of the old school in 1926. He travelled to the Elektrochemisches Institut in Dresden, where he carried out experiments on the reduction of nitro compounds as described in Erich Müller's *Electrochemisches Praktikum*.<sup>2</sup> In his diary, Swann described his going-away party:

"Before I left, I had the great good fortune to attend a German laboratory party. Bottles of beer, very probably the great Dortmunder



A young Swann in his riding habit. His love of horses continued throughout his life, "especially the ones with little silk numbers."



Swann's going-away party at the Electrochemisches Institute in Dresden. Swann sits at the center front, in a white lab coat, with host Erich Müller directly behind him.

Union, suddenly appeared in the dumb waiter and soon the students were squirting 'Klosterwasser,' the German Benedictine, into each other's mouths from wash bottles, a lovely occasion indeed.<sup>2</sup>

The photograph above documents the charming event. This experience also gave Swann the opportunity to explore the treasures of European art and architecture, to which he returned many times over during his life. During this period he sought to meet Prof. Dr. Fr. Fichter, whose work he admired deeply, but was unable to make arrangements. It was another thirty years before that meeting took place, in Basel.

In 1927 he became a member of the Engineering Experiment Station attached to Chemical Engineering at the University of Illinois, where he received support from D. B. Keyes, Roger Adams, and Carl "Speed" Marvel. The next year, he attended his first ECS Meeting, in Bridgeport, Connecticut. By 1934 he had launched a serious effort to gather the literature and, in 1935, published the first of many bibliographic collections.<sup>3</sup> In 1937 he published a paper on industrial possibilities<sup>4</sup> that in many respects predicted the significant impact that would subsequently be realized by development electrode and separator materials, as well as by improved cell design and engineering methods.

But it was his bibliographic skills that elevated this shy, quiet "scholar's scholar" to international prominence. His relentless pursuit of the literature was truly astonishing

and unprecedented. In the early years, all 80 sections of *Chemical Abstracts* were scanned. Later on, he found that relevant material appeared in only 22 sections, all of which were then scanned from the first issue on. Swann's searches covered more than a century of literature published prior to the appearance of *Chemical Abstracts*, in 1907. These sources included partial bibliographic abstracting reports of British, French, and German origins. For each, the dates were determined at which coverage had begun for each of the journals abstracted by these services, and the original literature of each journal was then scanned backward from that date to their first issue. The earliest publication was found in 1801.<sup>5</sup>

He found that the title and abstract of an article would not always mention the use of electrochemical techniques, especially preparative procedures. Therefore every article was scanned in ten of the major journals published in Britain, Czechoslovakia, France, Germany, Japan, and the U.S. from their first issue. Early patents, which predated coverage in *Chemical Abstracts*, were obtained by visits to patent offices throughout the world. Every attempt was made to arrive at a complete list of electro-organic synthesis patents in the English language.

Swann truly loved his calling as a "literature man" and pursued this lonely work with meticulous, painstaking attention to detail. His fascination and unprecedented devotion to the field of electro-organic chemistry at a time when it was in repose



Sherlock Swann, Jr., joined the University of Illinois in 1927, retired in 1969, and continued to come to his office almost daily through the early 1980s.

played a critical role in keeping it alive in the U.S. from the 1930s to the 50s. His chapter in the *Technique of Organic Chemistry*, published in 1956, stood for many years as the sole review in the English language.<sup>6</sup> His deep conviction was that we can learn from the past. Indeed, over half of the electro-organic processes that, much later, were developed to the pilot plant or commercial scale, were known in the lab at the turn of the century.

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In 1965 he concluded his search of the past literature, and from then on kept up with new literature as it appeared. In 1969 he retired and, at a dinner party he hosted for his colleagues, opened a bottle of sherry that had been in his family for over a century. He continued to come to his office almost every day for the remainder of his life.

Swann had a deep appreciation for classical as well as ethnic music and, over many years, acquired an enormous collection of recordings. Many of these came from the Gramophone Shop, which was around the corner from the old ECS headquarters in New York City. One time the two of us attended an ECS Chicago Section meeting and found ourselves driving back to Urbana together, a 3-hour trip. After a brief conversation on politics and the stock market, topics that generally put him in a dour mood, he began to reminisce about his early interests in music. By the time we crossed the Illinois River at Kankakee, he was singing in high, light tenor voice. And for the next two hours he sang songs one after another that his father's butler had taught him seventy years earlier.

In his Presidential Address to the Society in 1959, he recalled:

"The first meeting that I attended was held in Bridgeport, Connecticut, in 1928. I went with Dr. W. C. Moore, who had previously persuaded me to become a member. I knew immediately that I was interested in the Society. That interest was not due to the papers that I listened to. There was nothing strictly on electro-organic on the program. I believe that it was due to the enthusiasm of the group, and the fact that I was made to feel that I belonged."

What better advice could we have today for how best to promote the health of the Society?

In 1976, during the Annual Society Luncheon in Washington, DC, Stan Wawzonek put forward the suggestion that something really ought to be done to help Sherlock publish his bibliography. We agreed to write a few letters to our industrial friends, to raise \$5,000, and hire a secretary to type it up. But Sherlock had a very big surprise .... his collection was truly massive, well beyond anything that we had imagined. In due time, funds were contributed by 18 corporations, and the financial risk of publishing was underwritten by The Electrochemical Society. The bulk of the indexing activities were carried out over a 2-1/2 years span at the University of Illinois by some 90 students and professionals in about 25,000 hours of effort.<sup>7</sup>

Swann's long-standing admiration for Prof. Fichter led to his decision to avoid duplication of the collection published earlier by Fichter<sup>8</sup> since it was readily available. That decision represented an act of deep respect intended to preserve the importance of Fichter's work. Swann however, included duplications of Fichter references that appeared in other languages and not cited by him, as well as many early references not reported by Fichter.

Over 12,000 citations were listed in the 755-page publication. The general guideline was that only compounds synthesized with a yield in excess of 10% qualified for incorporation—about 8,000 compounds were found. References were grouped into eight chapters according to the type of reaction involved (anodic, cathodic, organometallic electrolysis and synthesis, etc.), each of which was further divided into sections that indicated the type of chemistry involved (*i.e.*, for anodic reactions: electrolysis of salts of organic acids, oxidative coupling, oxidative cleavage, etc.). Also included were books, reviews, laboratory manuals, and dissertations. Over half of the volume consisted of six indices that provide multiple routes by which relevant information may be retrieved. The work was published by The Electrochemical Society in 1980 and was available for purchase until the Society moved to its Pennington headquarters location.

Professor Sherlock Swann, Jr., was a truly gracious, old-school, Victorian, southern gentleman, and a scholar of the highest order. He passed away on March 14, 1983, and rests in the family plot on the highest hill overlooking the Greenmount Cemetery in Baltimore. ■



Prof. Sherlock Swann, Jr., electro-organic chemist and master bibliographer, seated in his office. The bookcases behind him contain volumes of the Transactions of The American Electrochemical Society from Volume 1 (1902) onward, with various titles, to the present time.

## About the Author



**RICHARD ALKIRE** studied chemical engineering at Lafayette College, the University of California at Berkeley, and the Max Planck Institut für Physikalische Chemie in Göttingen prior to joining in 1969 the faculty of the University of Illinois, where he is currently the Charles and Dorothy Prizer Chair Emeritus. He has directed the thesis research of 86 graduate students on topics of electrochemical engineering. His contributions have been recognized in numerous ways that include election to the U.S. National Academy of Engineering in 1988. He served as President of The Electrochemical Society in 1985-86.

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