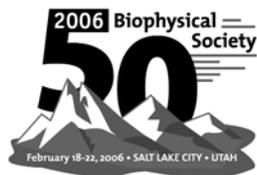


## Biophysicists in Profile



### Herman Schwan

In 1956, a meeting notice, signed by Samuel Talbot and Herman Schwan, announced the "First National Biophysics Conference", which was to take place in Columbus, Ohio, in March 1957. Schwan had been appointed Publicity Chairman for that meeting, and through the use of chain-letter principles, high-profile press conferences that included Nobel Laureates, and sheer perseverance, that first national meeting of biophysicists drew over 500 attendees and gave birth to the Biophysical Society.

Born in Aachen, Germany in 1915, Herman Schwan expressed an interest in and aptitude for mathematics and physics at an early age. The son of a gifted mathematician, who was forced into early retirement for his anti-Nazi views, Schwan struggled financially and politically to receive an education and find employment in Germany. After graduating summa cum laude from the acclaimed Göttingen Gymnasium in 1934, he was denied admission to any German university because he was deemed "politically immature" by the school's Nazi represen-

tative. Forced to "volunteer" in the Working Service, a rehabilitation program where he could "redeem" himself, Schwan was allowed to enter Göttingen University after six months of hard physical labor.

In 1937, he was befriended by famed Russian biophysicist

Boris Rajewsky at what would later become the Max Planck Institute of Biophysics in Frankfurt, and began work as a research assistant. Rajewsky allowed him to work while studying at the University of Frankfurt. In Rajewsky's lab, Schwan worked on studies analyzing the biological effects of ionizing radiation. In 1941, Schwan was awarded a PhD in Biophysics. After the fall of Hitler, Schwan was named assistant professor at the University of Frankfurt and associate director of the Max Planck Institute of Biophysics in 1946.

He moved to the US in 1947, accepting a position at the Aeromedical Equipment Laboratory of the US Naval Base in Philadelphia. In 1950, he was named Head of the Electromedical Division of the Moore School at the University of Pennsylvania and in 1961 Chairman of the Graduate School of Arts and Sciences Group on Biomedical Electronic Engineering. In 1972 he became Chairman of the Bioengineering Department. He retired from Penn as Alfred Fidler Moore Professor Emeritus in 1983, but continued to lecture for the next 15 years.

Schwan leaves a legacy in both biophysics and bioengineering, and his involvement in the creation of the Biophysical Society underscores how intertwined the two fields were among many of the Society's founders.

Schwan's research primarily focused on the biological effects of electric fields and the determination and understanding of electrical properties. He is credited with the introduction of standards for safe microwave exposure that continue to be used to this day.

**"...he was denied admission to any German university because he was deemed "politically immature" by the school's Nazi representative."**

When Schwan entered the field of biophysics in the 1930s, biophysics was an unusual choice and a relatively unknown field. There were no biophysical journals in which to publish biophysical research. His experience with the German Biophysical Society, as well as his interaction with Sam Talbot, Otto Schmitt, Kenneth Cole, and Ernest Pollard—referred to as the Committee of Four—convinced Schwan of the need for a national society that could speak for the



Schwan with model of human body used for RF dosimetric studies. The model is filled with tissue-equivalent liquids and exposed to RF energy in a microwave anechoic chamber that Schwan had constructed in his laboratory. Photograph from ca. 1963.

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nascent field and help secure federal support for that research.

By the 1950s, several groups were forming, and their commonality was the general disagreement about how to define biophysics. For Schmitt, Cole, and Schwan, biophysics was a field that

**“...much discussion took place about who would eventually become the stronger: biologists, physicists, or engineers.”**

brought together biomedical engineering with medical physics.

Schwan was appointed to the Constitution Committee, where much discussion took place about who would eventually become the stronger: biologists, physicists, or engineers. He argued for a governance structure that included a small Executive Board and a larger Council whose members represented specific fields. The Constitution and Bylaws, adopted in 1958, did contain the proposed structure but did not specify what fields should be represented. In later years, Schwan noted that the omission is why the Biophysical Society gravitated toward biochemistry and physiology rather than physics and engineering—away from the macroscopic biophysics he had envisioned.

Schwan died at the age of 89 on March, 17, 2005, at his home in Radnor, Pennsylvania. He is survived by his wife, Anne Marie Del Borello Schwan, four daughters, one son, and six grandchildren.

To view the transcript of a 1992 interview of Herman Schwan, produced by the Electrical and Electronics Engineers (IEEE) History Center, visit [http://www.ieee.org/organizations/history\\_center/oral\\_histories/transcripts/schwan.html](http://www.ieee.org/organizations/history_center/oral_histories/transcripts/schwan.html)



**Max Lauffer**

Max Lauffer at age 90 still resides on Lauffer Farm, just east of Middletown in central Pennsylvania, where he was born in 1914. But much movement took place in the intervening years.

After obtaining his BA and MS degrees in Biochemistry from Penn State in 1933 and 1934, respectively, Lauffer received his PhD in Biochemistry and Physical Chemistry at the University of Minnesota in 1937. From there he returned east to complete his post-doctoral work at the Rockefeller Institute for Medical Research. He remained at Rockefeller until 1944, when he joined the University of Pittsburgh staff as an Associate Professor.

During his 40 years at the University of Pittsburgh, Lauffer held a number of appointments including Professor of Biophysics and Dean of Research in Natural Sciences, a position he held for some ten years.

While at Rockefeller, Lauffer worked with Nobel Prize winner Wendell Stanley on the tobacco mosaic virus. Lauffer's research focus was viruses, but "my work evolved from tobacco mosaic virus being merely a tool," he explains, "to entropy-driven processes in biology." This

became his primary emphasis during the last decade of his research and the work for which he is most noted. During World War I, Lauffer worked on the development of the vaccine for the influenza virus.

At Pittsburgh, Lauffer established a virus research program and continued his work on bacteriophage, the tobacco mosaic virus, and various other plant viruses. He is convinced, however, that his work on entropy-driven processes in biology is the most the important work of his life because "they are involved in many of the processes that involve motion—muscular movement or movement within cells."

In the 40s and 50s, biophysics was not a well defined field, and many felt

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that a biophysical organization was needed. Lauffer vividly remembers finding himself on a very cold day in March of 1957 in Columbus, Ohio, chairing the business meeting of

the First National Biophysics Conference. "Several professors from around the country who called themselves biophysicists—I was one of them—got together with the hopes of forming a group," he recalls. "People were enthusiastic and difficult to control—that was a difficult meeting, but there was a unanimous decision at the end of the day to form a society."

It was at this meeting that a Temporary Council was established as well as a committee chaired by Lauffer to develop the constitution and by-laws, which were adopted at the 2nd Annual Meeting in Cambridge, Massachusetts in

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1958. "A lot of people worked extremely hard to prepare a complete picture of what the Biophysical Society should be," Lauffer explains, "this was done by a group of various committees."

Lauffer was later elected President of the Biophysical Society. He also served on the Biophysical Journal's Editorial Board from 1961-1964. In 1981, the Executive Board named Lauffer the Society's archivist. Convinced that the Society would last and continue to grow, the position was created in an effort to assemble and preserve the history of the first twenty-five years of the Society.

Many members responded to the often personal requests from Lauffer to send memorabilia such as pictures, important correspondence about the work and organization of the Society, and newspaper clippings concerning meetings.

Lauffer retired from the University of Pittsburgh in 1984, although he remained affiliated with the University as a consultant to the provost on administrative matters, until 1986. From 1986 to 1990 he taught a course in Chemistry at Lebanon Valley College in Annville, Pennsylvania. The course was designed not for students who were interested in becoming chemists, but for those who just wanted to find out a little bit about

the subject.

Today Lauffer resides in Pennsylvania with his wife Erika, and maintains his active membership in the Society. He also continues to be on the advisory board of Global Solutions, an organization devoted to educating the public on the importance of global interdependency.

He and his wife have three sons, one daughter, six grandchildren, and two great-grandchildren. When asked if any of them share his love of science, Lauffer chuckles and says, that "unfortunately my children rebelled hard against science—although my daughter is a mathematics teacher at a public school in Arlington, Virginia."

## The Biophysical Society Placement Center

The Biophysical Society provides a career placement service at the Annual Meeting. The fee is waived for current members seeking positions and for employers who are also exhibitors at the 2006 Annual Meeting in Salt Lake City, Utah. Current members posting positions, academic and commercial employers may submit job openings for a nominal fee.

To post a job opening or CV, visit <http://www.biophysics.org/placement/>. All Placement Service ads and CVs remain online for six months before being removed. For further information contact the Society office at 301-634-7114 or email: [dmcgavin@biophysics.org](mailto:dmcgavin@biophysics.org).



## Imaging/Microscopy Position

A Research Associate or Research Scientist position is available for someone with experience in fluorescence microscopy and imaging to participate in or lead a collaborative research program aimed at developing novel methods for fluorescent imaging of molecular dynamics and associations in cells migrating cells in vitro and in vivo. A Ph.D. in a related discipline and familiarity with fluorescence microscopy and imaging is required. Rank and title will be commensurate with experience and scholarly achievements.

This position will be opened until filled. Application material including a current curriculum vitae, names and addresses of three references should be sent to:

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