

Reviving the American Society for Cybernetics, 1980-1982

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The early 1980s were a time for rebuilding the American Society for Cybernetics (ASC) after a few difficult years in the 1970s. Basic administrative functions were needed, and a series of annual, national conferences was resumed. Intellectual direction was provided by Heinz von Foerster and his idea of second-order cybernetics. Whereas other societies focused on technical aspects of cybernetics, ASC emphasized theory and philosophy in the biological and social sciences. New information technology was used, and there was close cooperation with scientists in Europe. An ongoing debate has been whether ASC should be a conventional academic society with a variety of special interest groups or a small, revolutionary group that self-consciously seeks to create an alternative to the prevailing view. This article describes my decisions and actions on behalf of ASC during my three years as president and in the years thereafter.

Key words: Second-order cybernetics, general systems theory, artificial intelligence, systems engineering

My Work Before 1980

I was President of the American Society for Cybernetics (ASC) in the years 1980 to 1982. I was elected to this position due to a project I had been working on in the late 1970s: From 1977 to 1979 I was the organizer and moderator of an on-line discussion of general systems theory funded by the National Science Foundation. The discussion was one of nine experimental trials for small research communities (Umpleby, 1979; Umpleby & Thomas, 1983). All experimental trials used the Electronic Information Exchange System (EIES) at New Jersey Institute of Technology. The participants in the discussion that I chaired were people who had been connected with the Biological Computer Laboratory (BCL) at the University of Illinois in Urbana-Champaign and people whom I had met at meetings of the Society for General Systems Research (SGSR). The title of the group, General Systems Theory, was chosen because SGSR had been meeting each year, whereas the ASC had not met for several years.

My Work with ASC in the Early 1980s

The previous ASC president, Barry Clemson, had brought together the members of the ASC, based in Washington, DC, and the American Cybernetics Association, based in Philadelphia, under new by-laws written by the two groups (primarily Klaus

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Krippendorff). My job was to get the society moving again. To do this, I did several things:

1. A Planning Meeting Was Held in 1980

There was a need to bring together the members of the ASC and the members of the American Cybernetics Association (ACA) to develop shared goals and projects. Given the previous discord within ASC and the lack of trust between ASC and ACA, my intent was not only to develop projects to work on but also to illustrate a method of working together that avoided conflicts and encouraged participation. I asked Pam Thomas, a professional facilitator from the Institute of Cultural Affairs, to lead the group through a participatory strategic planning exercise (Spencer, 1989). The planning exercise was highly successful in defining new directions, illustrating a cooperative mode of behavior, and creating enthusiasm for the future of the Society (Umpleby, 1981). Heinz von Foerster and Mark Ozer, the ASC President before Clemson, were quite impressed with the participatory planning method. In 1982 a second participatory planning exercise was held which was helpful, but the results were not as dramatic as the planning activity in 1980 (Umpleby, 1982). Whereas in 1980 there was a need to restart activities and demonstrate a cooperative mode of operation, in 1982 the task was to continue the projects that had been initiated in 1980. A similar planning conference was held at the end of the 2005 ASC conference held in Washington, DC (Oyler, Hsu & Umpleby, 2006).

2. We Documented the State-of-the-art

We felt it was necessary to define cybernetics anew and to document what had been accomplished in recent years. Ernst von Glasersfeld (1992) wrote an ASC Declaration to define the field. Roger Conant (1981) edited a collection of Ross Ashby's papers under the title *Mechanisms of Intelligence*. Heinz von Foerster (1984) assembled a collection of his articles under the title, *Observing Systems*. Francisco Varela wrote an introduction. The Ashby and von Foerster volumes were published by Intersystems Publishers in Seaside, California. This choice of publisher proved to be unfortunate. Copies of the books sometimes contained missing pages and books, when ordered, often did not arrive in time for classes. After a few years Intersystems went out of business and copies were no longer available. In 2003 a new collection of von Foerster's essays was published under the title *Understanding Understanding* (Von Foerster, 2003). Mick Ashby, Ross Ashby's grandson, later made Ross Ashby's papers available on-line.

3. We Increased the Visibility of Cybernetics

To promote the name of cybernetics and the ASC Klaus Krippendorff created four posters with the Society's name and address at the bottom. Each poster had a symbol and a quotation.

- a. A red poster using Francisco Varela's symbol for self-reference contained a

quote from von Foerster: “The logic of the world is the logic of descriptions of the world. Perception is the computation of descriptions of the world. Cognition is the computation of computation....”

- b. A blue and gold poster with a reflexive design of a face by Krippendorff had a quotation from Varela, “Self-reference is the infinite in finite guise.” A t-shirt was also made with this symbol and quotation.
- c. A green and yellow poster showing an ouroboros, a snake eating its tail, had the Krippendorff quotation, “Communication is the interactive computation of a reality.”
- d. A black and gold and red poster of two ouroboroi had the Krippendorff quotation, “Observers ultimately observe themselves.”

4. Annual Conferences Were Held Once Again

The next year, 1981, an ASC conference was held at The George Washington University, October 29 to November 1, under the title, “The New Cybernetics.” The meeting was chaired by Larry Richards. The 1982 ASC conference was titled “Cybernetics and Education.” It was held October 18-20 in Columbus, OH. The chair was John Hayman and the local arrangements were handled by Jon Cunnynggham. The 1983 ASC conference, titled “Societal Transformations in the Systems Age: A Platform for Change,” was held October 6-10 in Los Altos, California. The chair was Bill Reckmeyer.

5. The Records of the Society Were Organized

Previously the “home office” of the ASC moved to where the president was. I was given the files from previous ASC presidents. I organized the past correspondence by dates. Often there were copies of a letter from both the sender and the receiver. I developed a membership list and a list of potential members. Heinz von Foerster loaned me his rolodex. There was evidence of several bank accounts, since each new president or treasurer would open an account. I tracked down these accounts, consolidated the funds and closed those not being used. I created a handbook on ASC operations to aid future officers.

6. Two Journals Were Closed

ASC had two journals which were both struggling financially and with their publication schedules. Bob Narendra, editor of the *Journal of Cybernetics and Information Science*, wanted to step down. Vadim Drozen, editor of *Cybernetics Forum*, died suddenly. Consequently, both journals were closed.

7. Old Publications Were Sold

There were many boxes of back issues of journals and proceedings. These were moved from Barry Clemson’s house to mine. Back issues were sold at conferences and given as benefits to new members. Efforts to reduce the inventory of back issues and to use previous publications to generate funds for ASC continued for many years.

8. The Society Began to Promote Second-order Cybernetics

Heinz von Foerster, who had retired in 1975, was asked to give theoretical direction to the Society. He invited his friends—particularly Humberto Maturana, Francisco Varela, Gordon Pask, Stafford Beer, and Ernst von Glasersfeld—to give keynote addresses at ASC conferences, and he suggested other speakers.

Regarding the direction of ASC there was for a while a discussion between me and Heinz von Foerster. My vision was that ASC would encompass all aspects of cybernetics in biology, social systems, philosophy, and technology. In the late 1970s and early 1980s my university offered a Master of Science in Administration degree. One possible major was systems and cybernetics. The program had been created by Richard Ericson, who at the time was Managing Director of the Society for General Systems Research. The courses for the major field were: Introduction to General Systems Theory and Cybernetics, Management Cybernetics, System Dynamics Modeling, and Artificial Intelligence. There was also a doctoral seminar called Systems and Cybernetics. I taught all of these courses and I thought that all of these subjects were part of cybernetics. I hoped that ASC would have sessions at its conferences on these topics.

But Heinz wanted to use ASC to promote the development of second-order cybernetics. Heinz felt very strongly about this new direction. Since he knew the field far better than I, I decided to support his vision. Thanks to research by Elizabeth Corona and Brad Thomas (2010) I now realize that there were debates about the direction of the Society in the early days of ASC in the 1960s. Some people wanted Julian Bigelow, an engineer who worked with Wiener, to be the first ASC President. Bigelow thought that cybernetics was not a separate field of study and could not stand on its own. Warren McCulloch and Heinz von Foerster wanted ASC to focus on philosophy and cognition.

The debate between engineers and philosophers continued for many years but was gradually resolved by the two groups participating in different academic societies. Some of the early presidents of ASC, for example Carl Hammer and Larry Fogel, were engineers who had broad interests. After the reactivation of ASC in the late 1970s, ASC focused on developing the theory and philosophy of cybernetics and the biological and social aspects of cybernetics rather than engineering applications. The engineering applications of cybernetics have been handled by the Association for Computing Machinery (ACM), the Systems, Man and Cybernetics Society of the Institute of Electrical and Electronics Engineers (IEEE), the American Association for Artificial Intelligence (AAAI), and other societies.

9. Tutorials Were Held at ASC and Other Conferences

In the 1970s and 1980s there were a few systems and cybernetics programs on university campuses, but not many. To improve the quality of discussion during conferences I thought that tutorials prior to conferences would be helpful. Consequently I offered tutorials not only prior to ASC conferences but also prior to other conferences, particularly the European Meetings on Cybernetics and Systems

Research which are held every two years in Vienna, Austria. These tutorials were usually called “The History and Development of Cybernetics.” I explained both first-order cybernetics and second-order cybernetics. A 2006 version of this tutorial is on YouTube (Umpleby, 2006).

10. Discussions Between American and Soviet Scientists Were Begun

I thought the idea of second-order cybernetics, which had originated in the Biological Computer Laboratory at the University of Illinois in Urbana-Champaign (Mueller & Mueller, 2007), was a significant advance over earlier work in cybernetics. I wanted to introduce second-order cybernetics to a larger group of American scientists. Perhaps due to several years of low activity in ASC in the 1970s, many of the original members of ASC had returned to work in their home disciplines. I was looking for ways to bring the American scientific community together to reconsider the fundamentals of cybernetics. At the January 1981 meeting of the Society for General Systems Research in Toronto, Aron Katsenelinboigen from the University of Pennsylvania introduced me to Vadim Sadovsky from the Institute for Systems Studies in Moscow. I knew that cybernetics had at one time been a large activity in the USSR. I thought that having a correspondence project with Soviet scientists about the foundations of cybernetics and systems theory would be one way to bring together American scientists to discuss foundations and recent progress. Sadovsky and I discussed the idea of a correspondence project over dinner, and he agreed.

Due to the Cold War, meetings between American and Soviet scientists occurred within a special institutional framework. Meetings were not arranged merely by scientists and academic societies. The two governments were also involved. In the physical sciences meetings were arranged by the National Academy of Sciences in the U.S. and the Soviet Academy of Sciences in the USSR. In the social sciences and humanities meetings were arranged by the International Research and Exchanges Board (IREX) of the American Council of Learned Societies (ACLS) and by the Soviet Academy of Sciences in the USSR. In an effort to obtain funds for the correspondence project I traveled to New York City to meet with Wesley Fischer at IREX to discuss the idea of an American – Soviet project in systems and cybernetics. Over lunch he explained how meetings between U.S. and Soviet scientists were handled, and he agreed to support two meetings, one in the U.S. and one in Russia.

This commitment to funding happened surprisingly rapidly. Apparently a certain amount of money was allocated for exchanges each year. However, in the early 1980s President Ronald Reagan was calling the USSR the “evil empire,” in part because of the treatment of scientific dissidents such as Andrei Sakharov, Natan Sharansky, and Yuri Orlov. American scientific groups had cancelled meetings with Soviet scientists as a way of protesting treatment of the dissident scientists. Because other programs had been canceled, there were uncommitted funds. So, obtaining financial support for a project in systems and cybernetics was easy. However, there was much discussion of whether, given the political climate, a new series of meetings should be arranged. We

decided to go ahead with the new project and cancel it if we thought that doing so would be helpful to Soviet scientists.

Ultimately two meetings were held with the support of IREX and the Soviet Academy of Sciences. The first meeting was in Warrenton, VA, near Washington, DC, in 1985 (Umpleby & Sadovsky, 1991). The topics discussed were epistemology, methodology and management. The U.S. side was particularly interested in epistemology (second-order cybernetics). The Soviet side was particularly interested in management. The second meeting was in Tallinn, Estonia, and Moscow, in 1988. Due to the opening up of the Soviet Union under Mikhail Gorbachev and his policies of *glasnost* (openness) and *perestroika* (restructuring) there was interest on both sides in large scale social experiments. Hence, the topics discussed in Tallinn and Moscow were epistemology, methodology, management, and large-scale social experiments.

There was also a panel discussion at the European Meeting on Cybernetics and Systems Research in Vienna, Austria, in April 1984 (Umpleby, 1986). The members of the panel were Ernst von Glasersfeld, Francisco Varela, Vadim Sadovsky, Vladimir Lefebvre and me. The meetings with Soviet scientists did provide a forum to discuss second-order cybernetics and other topics both with American scientists and with Soviet scientists (Umpleby, 1987a). I also learned that the way science is practiced is very different in the U.S., Europe, and the USSR. In the USSR politics affected science far more than in the U.S. or Europe (Umpleby, 1991a, 1991b).

Later Activities

In the mid 1980s three prestigious Gordon Research Conferences were held on cybernetics due to the contacts that Leo Steg had in the Gordon Research Conference (GRC) committee. I worked with Leo Steg and Heinz von Foerster to arrange the first GRC on cybernetics in 1984 in New Hampton, NH. The second GRC on cybernetics was held in 1986 with co-organizers Heinz von Foerster and Ernst von Glasersfeld. The third GRC on cybernetics was held in 1988 in Oxnard, CA, organized by Ernst von Glasersfeld and Paul Pangaro.

After my term of office was over at the end of 1982, I offered to continue operating a “home office” for the ASC in my office at George Washington University. There were two reasons for doing this. First, ASC was registered in the District of Columbia. Second, since I had spent a lot of time creating office procedures for the ASC, I thought that if I continued that work, the new officers could devote their attention to advancing the substance of the field through conferences and journals.

Also, I encouraged my students to do projects which would be helpful to ASC. I teach management and I require my students to do group projects to improve the functioning of some organization. Over the years several student groups did projects with ASC (Cook, Dorsey, Stephens, & White, 1981; Hardin & McCeney, 1981; Lei, 1991; Marsh, Baskerville, Nieves, & Provile, 2006; Corona & Shamloo, 2005).

1. In 1983 two students, Catherine Becker and Marcella Slobosky, created a 25 minute 35mm slide show and audio tape based on my lectures. It was shown at several

conferences. In recent years students have put it on the internet. It has been translated into twelve languages (Becker & Slobosky, 1983).

2. In 1984 I combined several glossaries created by myself and others, including the International Institute for Applied Systems Analysis (IIASA). This glossary was put on line and expanded by Francis Heylighen at the Free University of Brussels (Heylighen, 1986).

3. My students created the first ASC website in the 1990s. It has been greatly expanded in subsequent years by Pille Bunnell, Kathleen Forsythe, Randy Whittaker, Ranulph Glanville, and Tom and Candy Fischer.

4. At the urging of my former student, Jixuan Hu, I started the Cybcom (Cybernetics Communication) listserv in about 1997. It continues to be the leading forum for international discussions relating to cybernetics. It is open to all participants: (<http://hermes.gwu.edu/cgi-bin/wa?SUBED1=cybcom&A=1>).

Reflections

Two visions of ASC have competed over the years. One vision is a large society with special interest groups or symposia similar to the International Society for the Systems Sciences (www.iss.org) or the European Meetings on Cybernetics and Systems Research. People usually specialize in a subfield but they share a common theory. A second vision is a splinter group, a sort of revolutionary cadre of like-minded people who self-consciously seek to create a new point of view which is different from the dominant point of view in some part of science. Heinz employed the second view, and he illustrated it by pointing to the Vienna Secession, a movement of artists, writers, musicians and architects in Vienna, Austria, from 1897 to 1939. The magazine of the Secession Movement was *Ver Sacrum* (Sacred Spring). During the academic year when Heinz's students were creating the volume *Cybernetics of Cybernetics*, they published a monthly magazine of essays, poetry, drawings and photos by the students. It was called *The Cybernetician*. Some of the contents of *The Cybernetician* were included in the final volume, *Cybernetics of Cybernetics* (von Foerster, 1974). During this course Heinz explained his intentions by referring to the Secession Movement and *Ver Sacrum*.

Heinz apparently believed that a fundamentally new point of view could not arise or survive within a large, orthodox organization (Umpleby, 1987b). Bold, novel ideas require an environment of mutual support unencumbered by conventional artistic standards. Heinz's experiences at the University of Illinois were consistent with this point of view. Some faculty members in the College of Engineering thought that anyone with a broad range of interests must be a charlatan. Heinz's speaking style was also unusual. He was a captivating and entertaining speaker, no doubt partly the result of his first career as a magician, when he was a student. Heinz's lectures began with prevailing assumptions or expectations but then, following a combination of scientific observations and logic, led to a surprising result. This style of speaking was unconventional and, for some people, somewhat suspect.

The members of the ASC have also encountered skepticism during their efforts to cooperate with the Society for General Systems Research, now the International Society for the Systems Sciences (ISSS). In the 1970s and 1980s when we would conduct a panel on second-order cybernetics or alternative epistemologies within an SGSR meeting, we were greeted by heckling and rude comments. We learned that it was not possible to have the conversations we wanted within systems science meetings. The tension between the two groups has now diminished due to more widespread understanding of and interest in second-order cybernetics within ISSS. Nevertheless in the U.S. there are two groups, ASC for cybernetics and ISSS for systems science. In Europe these two fields are often combined, for example in the European Meetings on Cybernetics and Systems Research. The reason lies in different epistemologies—realism in systems science and constructivism in cybernetics. In Europe most academics are familiar with both epistemologies. In the U.S. most academics assume realism is the only or the correct epistemology.

Throughout its history the members of ASC have discussed the two strategies of a large organization with special interest groups and a small revolutionary band working to develop a new point of view. The second point of view has repeatedly prevailed. The ideas being discussed have changed every few years, for example, second-order cybernetics, autopoiesis, family therapy, social cybernetics, design cybernetics, and second-order science. These topics all grow out of the Macy meetings on circular causality, purposeful behavior, cognition and epistemology. ASC is an unusual organization, both in the ideas it has developed and in its mode of operation. Cybernetics has contributed ideas to many academic fields, and ASC has been effective in developing and promoting additional new ideas. But cybernetics today is not known by most academics in the U.S. One way to contribute in the future might be to build a larger society with several special interest groups so that a wider range of people can participate in meetings. Although the U.S. is very active in developing information technology, the broader field of cybernetics, which has emphasized theory and philosophy, is becoming a European discipline (Umpleby & Wu, 2013).

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